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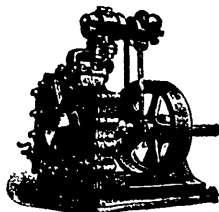
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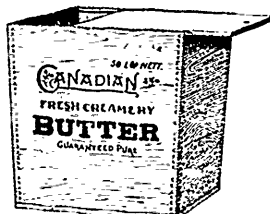
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...LEADING TOPICS FOR THE WEEK...

Agricultural News and Comments. Excessive Freight Rates. Buying and
Selling Cheese. The Binder Twine Supply Short. The Creamery Butter Mar-
ket. Manitoba Crop Report. Tobacco Culture. Feeding Fodder Plants. Good
Roads in Brief. The Care of Milk. Milk Testing at the Fairs. Curing Timothy
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Ayrshire and Guernsey Cattle.
Improved Yorkshire Swine.



Shropshire Sheep. Our Ayrshire herd is headed
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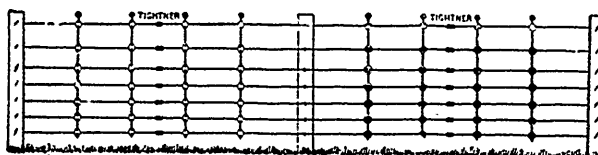
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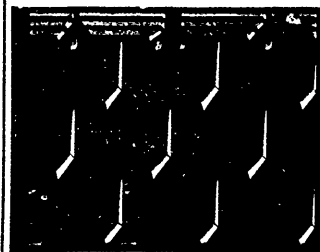
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Avoid all imitations—genuine Eastlakes give
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Is sold under
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Trade Mark Reg'd.

DEAR SIR,
In regard to our experience with your Lump
Jaw Cure, we used it on seven lumps last season.
It worked all right. Some of the lumps had broken
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Noted prize-winner. Choice quality and heavy milking families. Extra fine young animals of both sexes for sale. Also Leicester Sheep and Berkshire Swine.



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We have for sale: five choice young bulls fit for service, two by the noted stock bull "Matchless," also some good females of all ages. We have a few choice Clydesdales on hand. Correspondence solicited and Visitors Welcome.

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Ayrshire Cattle.

Berkshire and Tamworth Pigs.

FOR SALE—Two young bulls fit for service, and five bull calves (calved in February).

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One mile from Ottawa.

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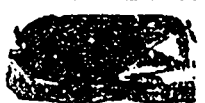


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Large English Berkshires

A choice selection of young Pigs, ten weeks old. Pairs and trios supplied not taken. Also young Sows in pig. Write H. J. DAVIS, Box 290, Woodstock, Ont.



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One fine young Ayrshire bull fit for service, sired by Jack Morton.

EGGS for hatching from choice matings in Barred Rocks, Black Spanish, Black Minorcas & Black Red Games at \$1.00 per 13.

JAS. McCORMACK & SONS,
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The celebrated stock bull "DOMINION CHIEF," which is considered one of the best stock bulls in Canada; also two choice young bulls, fit for service, sired by "Dominion Chief," as well as several choice young imported cows and heifers, and two Shorthorn heifers, sired by "Gibson Duke." These bulls will be sold cheap if taken at once. Write me for particulars.

JOHN H. DOUGLAS,
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H. & J. McKEE, Brookside Farm, Norwich, Ont.
Breeders Ayrshire Cattle, Silver Grey Dorkings.

W. M. & J. C. SMITH, Fairfield Plains, Ont.,
Breeders World's Fair prize-winning Ayrshires, Merino Sheep, Poland-China Pigs, Poultry. Stock for sale.

J. VUILL & SONS, Meadows Farm, Carleton Place, Ont.,
Breeders of Ayrshire Cattle, Shropshire Sheep, Berkshire Swine and Barred Plymouth Rocks.

Eggs for Hatching.

R. C. White Leghorn eggs purchased from me last year produced first prize winners at Toronto, Guelph, Owen Sound, Peterboro, and Stratford. At the last named a cockerel purchased from me won special as best bird any breed in the show. I have won more "firsts" at "Ontario" show on this variety than all other exhibitors combined. Eggs \$2.00 per 13. Plymouth Rocks and Dark Brahmas same price.

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A number of choice Spring Calves sired by Douglas of Loudoun (1884), from the p milking dams.



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P. W. TAYLOR, Wellman's Corners, Ont.
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FAIRVIEW SHROPSHIRE.

Imported and Canadian RAMS and EWES

Choice lots to select from for breeding purposes, also first-class fit ed sheep of both sexes for showing.

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A HERD OF THE HANDSOMEST DUTCH BELTED CATTLE IN THE UNITED STATES.



Every animal registered. Most of them have taken first premiums at the State and County Fairs where they have been exhibited. The herd is composed of all ages and is in prime condition for exhibition purposes. If entered for competition at near-by State and County Fairs next autumn, the premiums the exhibitor would receive should repay the cost of the herd. Every animal well marked and registered. The Commissioners of the Essex County Park have taken for park purposes forty acres of the Locust Grove Farm, which necessitates a reduction of stock.

For full particulars, address **MICHAEL ROSNEY,** Manager Locust Grove Farm, Pleasantdale (West Orange), N. J.

This celebrated herd of Cattle was illustrated and described in this journal in issue of April, 1896.

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EGGS FOR SALE.

White Wyandotte, White Plymouth Rock, Cornish Indian Game, Black Minorcas, Houdan, Black Langshan, White Langshan, Barred Plymouth Rock, Silver Laced Wyandottes, \$1.50 for fifteen, or \$2.50 for thirty. Packed in patent boxes. Will replace at half price any not fertile. Also poultry supplies.

Will exchange any of the above for first class Tamworth pigs or light Brahma Pullets, say strain. Dorset and Shropshire sheep, Tamworth pigs, Shetland ponies, Jersey cattle—all ages. Registered. Prices right.

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Dillon's Improved Milk Book Combined
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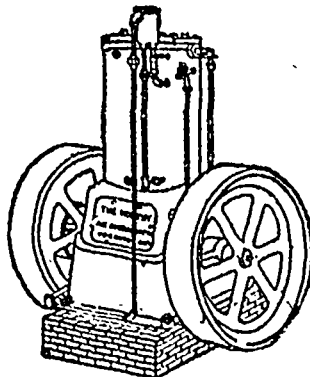
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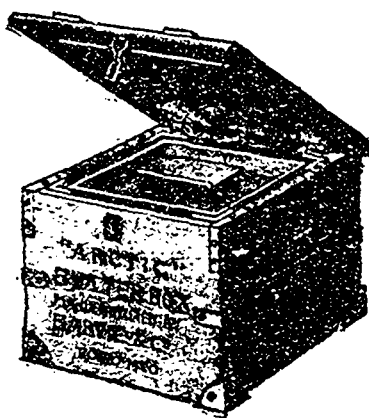
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Made of spruce lumber, with galvanized iron ice tank, malleable iron hinges, handles, hasps, and corner plates, almost indestructible. Made in sizes to hold

40 lbs. in Summer, or 45 lbs. in Winter	—\$3.00.
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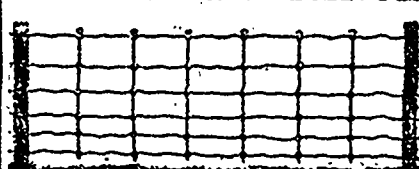
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HAND AND POWER



Turns all roots and vegetables into Fine Stock Food. Indispensable to dairymen and sheep breeders and of greatest value to general farmers and poultrymen. Cuts 250; no choking. Self-Feeding Ration Grate takes out all dirt; saves the knives; fully warranted. See our Part Catalogue. (The H. CAMPBELL FARMING MILL CO., of Chatham, Limited.)

THE RANKIN FENCE



Is a coiled spring wire fence containing all the latest improvements, is easily and rapidly erected without any expensive tools or previous experience. All particulars in our Catalogue. Write for one. Agents Wanted.

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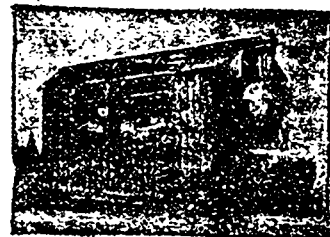
275 St. Martin St., MONTREAL

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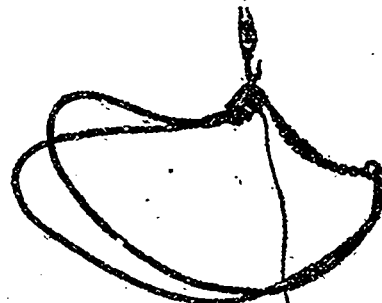
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For unloading hay and all kinds of loose grain.



Unloads on either side of barn floor without changing car. No climbing necessary. Malleable Iron Car. Steel Forks. Knot Passing Pulleys. Will work on stacks as well as in barns. Satisfaction guaranteed.



The Common-Sense Sheaf-Lifter

Works in connection with Pitching Machine, and is the most complete apparatus ever offered to the public for pitching sheaves. Sheaves left in the mow just as they come from the load.

RESPONSIBLE AGENTS WANTED

Circulars, Prices and Terms on application to
M. J. BUCHANAN, Ingersoll.

FARMING

VOL. XV.

JUNE 21st, 1898.

No. 42

FARMING

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO FARMING AND THE FARMER'S INTERESTS

Published every Tuesday by

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Advertising rates furnished on application.

All communications should be addressed to "FARMING, 44-46 Richmond Street West, Toronto, Canada."

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

TOPICS FOR THE WEEK

AN OPPORTUNITY.

FARMING is in a better position to day than it has ever been to solicit the patronage and to command the respect of the farmers of this Dominion. It is the only weekly farm paper published in Canada, and it is also the only one which is purely agricultural in its scope, and entirely devoted to the agricultural interests and industries of the country. It contains no extraneous matter, but is, from beginning to end, a practical farmers' paper. It should, therefore, receive, and it has received, the hearty and loyal support of a very large number of those engaged in agricultural pursuits. It has, in fact, become the most popular paper of its class in Canada. This fact makes it possible for us to offer to our subscription agents inducements which enables them to make excellent profits. Wherever we have no agents we want one. But we do not want any who are not willing to put their whole energy and ability into the work, and who are not prepared to deal honestly and fairly with us and with the farmers. We want active agents in every county in the Dominion, and exclusive territory will be given to those who can furnish us with evidence of their ability and integrity, and who are willing to give their whole time to the work. There is no reason why any good canvasser should not make from \$2 to \$3 a day, and that permanent employment should not be the result of their efforts. We are in need of good men and women for this work, and will pay them liberally. To the ten most successful agents who will give this work a trial from now to the 1st September, and who prove their ability to do it satisfactorily, we will guarantee employment for the winter. Write promptly for terms, and send letters of recommendation and copies of testimonials to The Bryant Press, 44-46 Richmond Street West, Toronto, Ont.

Agricultural News and Comments.

Weeds are getting troublesome in Manitoba and the Northwest. Mr. Charles Braithwaite, Provincial Weed Inspector for Manitoba, states that unless the Government of the Territories takes immediate action to destroy the weeds in the eastern and southern part of Assiniboia the tumbling mustard will poison the whole Souris District. The mustard seed scatter so quickly in the open prairie country that it is very hard to keep the weeds in check.

A movement is on foot to establish a creamery at or near the town of Lindsay, Ont. If established, a number of skimming stations will be

operated in connection with it at the various cheese factories in the locality, the object being chiefly to make butter during the winter. A couple of years ago a large creamery was established at St. Mary's, Ont., and skimming stations put in operation at a number of the surrounding factories, and has so far been successful. By co-operating in this way winter butter making can be carried on more economically than having a complete butter making outfit at each factory.

Co-operative pork packing is receiving considerable attention in the Maritime Provinces just now. In Prince Edward Island one or two co-operative concerns are already in operation, and in Nova Scotia and New Brunswick several important meetings have been held recently to consider the advisability of starting co-operative pork-packing establishments.

Canada imported from the United States last year goods of various kinds to the value of \$35,495,000, as compared with \$31,933,000 for 1896. The total exports from Canada to the United States amounted to \$24,774,000 for 1897, as compared with \$24,566,000 for 1896. The chief export to the United States is lumber. About one-fourth of our total imports from the United States is coal, and, strange to say, the next important item we import is wheat.

The San José Scale Act does not appear to have affected the nursery business very seriously. The price of nursery stock has not advanced. In fact, so great was the surplus stock in Canada that fine trees have been almost given away. Beautiful pear trees three years of age have been wholesaled this spring for 7 to 10 cents each, and peach trees at 5 cents each. A few years ago they would bring three times these figures. Apple trees have been more largely in demand this spring than peach or pear trees. American nurserymen who had made sales in Canada previous to the Act coming into force bought their stock from Canadian nurserymen, and packed their orders on this side the line.

Leiter, whose gambling wheat scheme collapsed, is said to have shipped 25,000,000 bushels of wheat to Europe within the past year. To get this body of wheat to the seaboard would require 25,000 railway cars of 60,000 lbs. each. It is reported that Leiter's profits up to June 1st were \$4,500,000. His losses since then, owing to his inability to maintain prices in the face of reports of a large coming crop, have been about \$4,500,000. He is wrecked financially and no one has the least sympathy for him.

Canadians, according to the last Dominion census, derive annually wealth from their fisheries to the amount of \$20,000,000, from their mines, \$30,000,000, from their forests, \$80,000,000 and from their farms, \$600,000,000. In Ontario alone the capital invested in agriculture is about \$900,000,000, and the value of the annual product of the farms of Ontario is over \$200,000,000. The number of persons engaged directly in agriculture in Ontario in 1891 was 292,770. Canada is indeed an agricultural country.

The Central Western States are now experiencing a marked revival in the live stock trade. The effect of this revival is being felt in the Eastern States, where stockmen of all kinds are looking forward to an enlarged activity in their own line of business. The stock farmer at the present time has very little occasion for complaint at the con-

ditions which surround him, and the prospects which are ahead. What he must do is to keep his stock up to the top notch in point of quality.

When colts have been neglected until they attain to the age of three or four years their sense of smelling may be used to good account by the trainer. By giving it a small quantity of fine grated horse cassia on its food, and rubbing a few drops of the oil of cunim on its nose, and putting a few drops of the oil of rhodium on its tongue, it is at your service, and may be harnessed, bridled and saddled without difficulty.

Among others there are two chief reasons for making hay early. One is that the hay is better for feeding in every way, and the other is that the plant is exhausted when seed is allowed to approach maturity. Besides, the meadows "run out" rapidly when hay is made late, as the plant has not sufficient power to start a thrifty new growth. This is true of both clover and timothy. A few years ago there was no hurry about making hay till well on in July, as it was thought that early-made hay was not as good as that made when the hay was pretty well matured.

The Binder Twine Supply Short.

Farmers are advised to make their purchases early.

No other Canadian trade has been so much affected by the Spanish American war as that of binder twine. A large proportion of the raw material used for making binder twine comes from Manila, and as that island is now in a state of siege it is impossible to get supplies. This has caused a shortage of raw material, both in Canada and the United States. So much so is this the case that it is very doubtful at present whether there is enough stock on hand in Canada for the needs of the present harvest. In addition to the lack of supplies from Manila, the production of sisal, another substance used largely in the manufacture of binder twine, has been greatly reduced during the last year or two. Sisal is produced chiefly in Yucatan, and this year the crop is largely a failure. Besides, a few years ago, when the binder twine industry assumed such large proportions, an effort was made to grow sisal in the Bahama Islands and elsewhere with the result that there was an over-production, and the price of this raw material was reduced to two and a-half cents per pound. This low price caused many to give up growing it, and consequently lessened the supply. It takes about three or four years to produce a crop, and therefore, though there is an increased demand for sisal owing to the supply from Manila being shut off, it will be a few years before the growers of sisal can get into shape again.

For this and other reasons we would strongly advise farmers not to put off getting their supply of binder twine too long. Now is the best time to buy, and a supply for this season's harvest should be purchased right away. Many of those in the trade prophesy that binder twine will probably be fifteen cents or twenty cents per pound before harvest is over. The ruling prices at country points now are from eight cents to nine cents. The prevailing prices in the United States at present for binder twine are: Sisal eleven cents, mixed grade, twelve cents and pure manilla, thirteen cents, and these figures are likely to be increased very soon. It is estimated that upwards of eight hundred tons more of binder twine will be required for Manitoba and the North-west this season than last season, and

if present crop prospects are realized a much larger percentage will be required over the whole Dominion. Last year the western wheat crop was comparatively thin on the ground and only about two and a-half pounds of binder twine to the acre was required. This year's crop is very much thicker on the ground and it will probably take upwards of three and a-half pounds per acre to tie up the harvest. So it is probably safe to estimate that fully twenty-five per cent. more twine will be required this year than last in the Dominion.

The binder twine industry is in a somewhat peculiar shape this year. Nearly all the large operators in binder twine have either very little to sell or are out of the business nearly altogether. There is one notable exception in the case of the Farmers' Binder Twine Co., of Brantford. Through the foresight of its business management, this co-operative concern was the only firm in the Dominion that laid in a large supply of the raw material for this season's trade, and, consequently, they are in the business of supplying binder twine to a greater extent than ever. But the Consumers' Cordage Co., one of the largest manufacturers of binder twine in Canada, will only have about one-half, or about 2,000 tons, as against 4,000 tons last year, to dispose of. No twine is being made at the Central Prison this year, where last year 1,000 tons were made. During the winter some of the large American dealers in binder twine sold largely to the local dealers of Ontario chiefly, and this is the reason why so many of the local merchants throughout the country have large supplies of twine on hand. It is supposed that this twine was sold to the local dealers at about seven cents per pound, which enables them to sell it to the farmer at from eight to nine cents, and make a fair profit. Notwithstanding this supply at country points, there is every indication of higher prices later on, and farmers will consider their own interests by making their purchases as early as possible.

In connection with the present situation of the binder twine trade, there is one firm whose action deserves more than passing commendation. We have stated that the Farmers' Binder Twine Co. had secured their supply of raw material before the war broke out. From a purely business point of view, it would be quite natural to suppose that this firm would seek to make all the capital it could out of the present situation. But, instead of doing so, we find that the management, having the interest of the farmer at heart, are offering their large stock of high-class twine at very low prices. One good turn deserves another, and the farmers should recognize this when getting their supplies.

Excessive Freight Rates.

In last week's issue we quoted some figures showing the great disadvantage in which Canada is placed with regard to railroad and ocean freight rates on cattle as compared with the United States and the South American States. In this issue we publish an address by Lt. Col. O'Brien, president of the East Simcoe Farmers' Institute, in which he deals with this question. As Col. O'Brien points out the people of this country owe the railroads nothing. Every railway in the Dominion has sometime or other either received a large land grant or a money bonus, which has come out of the pockets of the people who are chiefly the tillers of the soil. In many instances the land grants made are in the most fertile sections of the country, and the railway companies who were so fortunate as to secure them are to day accumulating wealth much faster than the best mercantile concern in the land.

Considering the many and great advantages which the railway companies have received from the people the great producing classes have a right to demand that reasonable rates be given them when sending their goods over these roads. At any rate they are entitled to rates similar to those allowed by the railroads of other countries. The districts in which most of our export cattle are produced are situated much nearer the seaboard

than the sections of the United States where the bulk of the export cattle are raised; then why should the Canadian shipper have to pay \$26 per head for transportation while his competitor across the border has only to pay \$20 per head. There certainly must be something radically wrong with the freight rates of this country.

Whether the difficulty is with the railroad or ocean rates we are not in a position to state. It may be that both the railways and the steamship lines between Canada and Great Britain are responsible for this unfair condition of things. How to remedy the difficulty is the next question. As Col. O'Brien suggests, a commission to regulate the rates where there is no competition might help to solve the problem. But where the railroads have been in operation for years it might be difficult to get them to submit to the ruling of a commission in such matters. Where a new road is to be built the charter might be granted under any condition that might be named. Another method of helping the rates is to create competition. In this regard the United States shipper has an immense advantage over his Canadian competitor. There are competing lines of railway running in nearly every direction through the United States, and the way some of these competing lines cut both passenger and freight rates sometimes would almost take the breath away from a Canadian shipper. We have had a taste of cut rates in Canada for the past three or four months, and the sensation is so peculiarly pleasant that we would like to have these cheap rates applied to freight as well as to passengers.

The producers of this country, in demanding cheaper freight rates, are not asking anything that is unreasonable. Nor do they want a rate that would mean ruin to the railway companies whose prosperity is so closely associated with the prosperity of the country. All the producers want is to be placed on the same footing, in regard to freight rates, as the producers of the United States or any other country similarly situated, and it would be in the interests of the railways themselves to grant this. If the \$6 per head which the Canadian cattle shipper has to pay more than the United States shipper for getting his cattle to Great Britain were paid to the producer of our cattle, it is needless to say that the production of cattle would greatly increase. If this were brought about, the railways and steamships would have more cattle to ship, and be able to do a much larger carrying trade than they are doing at present. On the other hand, if the present excessive rates for carrying live stock are to continue, our export cattle trade is not likely to increase unless the price goes up very materially. In regard to ocean freight rates, about the only way to get better rates is to induce more competition. To induce more competition the best shipping facilities should be provided at the seaboard. If, as Col. O'Brien points out, ninety per cent. of the grain shipped from this country goes by way of New York instead of via our own ocean ports, there is something radically wrong with the carrying trade of this country from beginning to end, and the sooner those in authority look into the matter the better.

Buying and Selling Cheese.

As those closely identified with the dairy industry are well aware the cheese made at the different factories throughout the country is sold by what is known as the "call" system at the local dairy boards of trade. One of the regulations governing the operations of the boards is that no member of the board is allowed either to buy or sell cheese on the day on which the market is held unless at the board in the regular prescribed manner. So long as the members abide by this rule the "call" system of disposing of the product has given pretty general satisfaction. It is only when this rule, as well as some of the other regulations, has not been adhered to, that dissatisfaction with this method of selling and buying cheese has arisen.

There are about twenty of these local dairy boards of trade in the province. As far as we are aware those in the eastern portion of the province work satisfactorily. In Western Ontario, however, with one or two exceptions, the local cheese markets during the past couple of years have been sort of parodies on what a well-conducted dairy board of trade ought to be. Instead of meeting for the purpose of buying and selling in a business-like way, the regular meetings of the boards were little more than mere "fencing bouts," where the buyer and the seller would fence a bit in an endeavor to find out what price one was prepared to give and the other prepared to pay, and when the contest was over they would know as much about the situation as when they began. As one would expect this method of conducting an important business could not give satisfaction, and after a year or two of this "go as you please" method, the factorymen and buyers in some sections are beginning to view the matter in its proper light.

The London cheese market is now considering a proposition to make it compulsory for all salesmen to dispose of their cheese only by the "call" system at the regular meeting of their own board, or at any other board. If the cheese is once sold and rejected by the buyer, the salesman may resell the cheese at any time or place. The buyers also bind themselves to buy at the board from all factories which have ordinarily sold at the London market in the past. If either a buyer or seller violates these rules he will be punished by a fine of \$25. It is also recommended that all cheese be inspected and shipped within one week of sale. While this proposition is under consideration an effort is being made to induce the neighboring markets at Ingersoll, Woodstock, Listowel, and Brantford to co-operate and adopt this uniform method of selling.

Though this new proposal may seem a little arbitrary to some it will, if properly carried out, help to remedy many of the existing evils in connection with the buying and selling of cheese at the Western markets. If a dairy board of trade is established for the purpose of disposing of dairy products, that is the place to sell and nowhere else. We have watched the operations of the local cheese markets for several years back, and are safe in stating that, taking one season with another, a salesman will do better always to sell his cheese on the market when they are ready for shipping. When all transactions are made open and above board the bargain is a more binding one, and the trade is acquainted with what is being done, which is a distinct advantage. Then if the quality of the product is all right, and all cheese are bought and sold on the board, the salesman is always sure of getting the highest price which the market will warrant. Whereas if the salesman makes a bargain with the buyer off the board he is not sure whether he is getting the highest figure going or not. When it is the law that all cheese must be sold on the board the competition between buyers will be sure to bring out the highest value for the goods.

From a buyer's point of view it will be a decided advantage to have all cheese sold on the board only. When the market is over the buyer will know which factories have sold and which have not. It will be less trouble for him to get his orders filled, and make it much more pleasant to do business. Though it will be advantageous for one market to adopt such a regulation, it would be very much better if all the local boards in a district united, and agreed to buy and sell on the market only.

The Creamery Butter Market.

There has been considerable activity in the butter market during the past week and dealers seem anxious to get supplies. There also appears to be a lack of sympathy with the easier feeling in the English butter market. This is accounted for by the fact that at this season of the year there is always an increased demand for

June creamery butter to go into cold storage on the other side. At 16½ to 17 cents per lb. June creamery is considered good value and consequently the speculative element has entered into the trade and a good quality of butter is in demand for storing.

The total shipments of creamery butter this season up to June 16th amount to 11,000 packages as compared with 2,700 for the corresponding period last year, showing an increase of about 400 per cent. This is very gratifying indeed, and if the present rate of shipments continues till the close of navigation our export trade in creamery butter will make a pretty good showing. The high quality of Canadian butter is being recognized in England, and, exporters knowing this, realize that it is good value at present prices for storage purposes. Whether it will be of advantage to dealers to store butter or not for future market we are not prepared to state; but we do know that creamery men as a rule will fare better to sell their output regularly at current prices.

Wheat in the Western States Deteriorating in Quality.

In the Western States there is a great scarcity of the best class of seed wheat. During the past few years the quality of the wheat grown in these States has greatly deteriorated. Ten years ago No. 1 hard was the contract grade in terminal markets, and for a number of years over half the wheat received at Duluth was the famous No. 1 hard. Since then this grade became scarcer and the grain dirtier, so that the contract grade has been reduced from No. 1 hard to No. 1 Northern. It is now reported that last year's crop was very much short of even No. 1 Northern, and that not 15 per cent. of the wheat received at Minneapolis for months has come up to this grade.

The cause of this deterioration in quality is supposed to be due to a continual use of the same seed for a number of years, and consequently there is a movement on the part of these States to secure new seed. An effort will be made to secure seed from Manitoba, the valleys of the Saskatchewan and Peace Rivers, in order to bring up the quality of the wheat in those States. Though in a very large measure this deterioration in the quality of the wheat may be due to inferior seed, yet we are of the opinion that to a greater extent perhaps it is due to the impoverishment of the soil in those States. If there is not a sufficient amount of phosphoric acid, etc., in the soil the finest quality of grain cannot be produced. It might be possible to produce No. 1 hard even in Ontario if the proper ingredients necessary for its growth were supplied in the soil.

The Industrial Exhibition.

The Toronto Industrial Fair, to be held this year from August 29th to September 10th next, promises to equal, if not surpass, all previous efforts. Especially is this likely to be so as far as the farmers' interests are concerned. With a bountiful harvest in view, and with the live stock trade more prosperous than it has been for years, there should be a large exhibit of live stock and a larger attendance of the agricultural classes. In this respect, however, Toronto has nothing to complain of in the past, and each year the attendance and interest of the agricultural classes has gone on steadily increasing.

In regard to the amount of money given in prizes for live stock and agricultural products, the Industrial Fair is far in advance of any other annual fair on this continent. This year the total prize money to be given for agricultural products and live stock will total \$20,216. At the New York State Fair last year only \$12,623 was given for these purposes; at the Illinois State Fair, \$17,139.50; at the Missouri State Fair, \$13,653; and at the Ohio State Fair, \$8,952.

There is likely to be a number of exhibits of British goods this year. There are already a number of applications for space from British firms. Exhibitors of live stock, etc., would do well to

notice that this year the railway companies have decided not to return exhibits free from the Exhibition unless the exhibitor first presents a certificate, signed by the secretary of the Exhibition, that such exhibits are entitled to free return passage. Other years, goods have been returned without this certificate, but in order to avoid confusion the railways have positively decided not to return exhibits free without them.

Profits in Cattle Feeding.

Contrary to the expectations of many, the winter feeders of cattle in the Western States have come through very well and realized good profits. For several years back, owing to the precarious character of this trade, banks have been very loth to invest in paper floated by the promoters of this industry, but last winter several of the large Chicago banks advanced large sums to cattle feeders, and the results have been very satisfactory. The bankers state that the percentages of losses thus far have been as low as in any class of good paper. Though the prices of stockers last fall was high a firm cattle market favored the industry and enabled the feeders to sell their fattened stock promptly and at good prices with profit to themselves. The present prospects of the cattle market in the West are good on account of the reduction of the supply of marketable cattle through foreign demand, and cattlemen are of the opinion that prices will continue firm for some time.

Whether Canadian feeders of cattle have been as fortunate as the Western feeders it is hard to say. We are inclined to think that many of them will scarcely more than come out even if a fair price is allowed for feed and labor. Last fall good stockers and feeders were exceptionally high, and cattlemen who bought up good steers for winter feeding had to pay good round prices for them. Though the market this spring for fat cattle has been steady enough there has not been an advance in price in keeping with the enhanced value of feeders last fall, and therefore the cattleman's chances of making a good profit have been somewhat curtailed. Many economical feeders have no doubt come through all right.

Manitoba's Crop Report.

The Manitoba Government has recently issued its first crop report for this season. Each year for several years back there has been a large increase in the area under crop. This year the increase is over a quarter of a million acres. The wheat area this year is 1,488,238 acres, an increase of nearly 200,000 acres more than last year. If the season is favorable it is not hard to predict what the result will be. It means another year of great prosperity for the West, which means an impetus to business in all parts of the Dominion. The area under oats shows a proportionate increase to that of wheat. Barley also shows a slight increase over last year. The report also shows that the number of milch cows in the province has increased by 9,568. The increase in the area under crops is not confined to any one district but seems to be general over the province. The total acreage under crop is 2,210,942 acres as compared with 1,958,025 acres last year. The area under crop for this year is made up as follows: Wheat 1,488,238 acres; oats, 514,824; barley, 158,058; flax, 14,561; rye, 3,198; peas, 1,594; corn, 1,195; brome, 973; and buckwheat, 68. The area under crop last year was as follows: Wheat, 1,290,882 acres; oats, 468,141; barley, 153,266; flax, 20,653; potatoes, 13,576; roots, 6,130. It is not to be supposed because there is no acreage of potatoes and roots included in this year's report that the Manitoba farmer has given up growing those commodities. Information regarding these items was probably not asked for.

Hon. Thomas Greenway.

As Premier of Manitoba and as champion of its rights, the Hon. Thomas Greenway is well known to every reader of FARMING. But it may be news to many to know that Mr. Greenway is one of the largest breeders of purebred live stock

in Canada. When he took charge of the Department of Agriculture for Manitoba, ten years ago, he resolved to do his utmost to induce the farmers of that province to breed and keep a better class of stock. With this end in view, he visited the Eastern provinces, and made some purchases of purebred stock for his own farm at Crystal City. Every year since then he has been adding to his herd, and it is needless to say that both by precept and example, and by introducing new stock, Mr. Greenway has done more than any one else to encourage the breeding of high grade live stock in Manitoba.

Mr. Greenway was born in Cornwall, England, and came to Canada with his father, who was a carpenter, when quite small. His father settled in Durham county, in the neighborhood of Bowmanville, where he lived for several years, afterwards moving to Huron county, near Exeter, where Mr. Greenway resided for a number of years. For several years he was engaged in business, but in 1878 he decided to move to Manitoba. This he did, and located on the farm on which he now resides excepting when public duties call him elsewhere.

Mr. Greenway's farm now consists of 1,600 acres. This year he has between five and six hundred acres in grain; 300 acres of which is wheat. Though this acreage of grain would seem large to an Ontario farmer, it is not considered extremely large for Manitoba. Mr. Greenway states that he began farming when he went to Manitoba to show that he had the utmost faith in its possibilities.

Though successful in his general farming operations, it is as a breeder of purebred stock that Mr. Greenway is best known to Eastern stockmen. His herd of Shorthorns now consists of 40 head, made up of some of the best animals to be had in the Eastern provinces. Mr. Greenway has never imported any stock but has made heavy purchases each year from the leading breeders of Ontario and Quebec. Nearly all animals purchased in the East have been prize winners in their particular classes at the Toronto and other leading shows, and in this way a herd has been secured made up of representatives of the best herds in the East, many of them imported stock. This year Mr. Greenway has added five new animals to his Shorthorn herd, particulars of which are given elsewhere. In addition to Shorthorns Mr. Greenway has on his farm six purebred Ayrshires, a large number of purebred Yorkshire and Berkshire swine and Shropshire sheep. He keeps 100 head of grade cattle as well. The success of Mr. Greenway's herd is in a large measure due to the fact that in charge of his stock is one of the best herdsmen in Canada in the person of Mr. James Yule, who resided in Eastern Ontario for a number of years.

In all probability a portion of Mr. Greenway's herd will represent the Canadian Shorthorn Breeders at the Trans-Mississippi Exposition at Omaha this fall. Mr. Greenway will visit Omaha shortly to make arrangements. He intends exhibiting about twenty head of Shorthorns at the Winnipeg and Brandon Fairs, to be held in July. Mr. Greenway thinks it would be in the interest of Ontario breeders to make an exhibit at Omaha. During the past year or two he has made large sales of purebred stock to the Western States, where there is a big demand for good stock for the ranges.

Mr. Greenway was elected to the Manitoba Legislature in 1879, and still represents the same constituency for which he was then elected. He is the only member of the Legislature out of those elected at that time who is still a member, and strange to say he is also the only member of the Government formed in 1888, when he became Premier, who is now a member of the Government. The work accomplished by Mr. Greenway since becoming Minister of Agriculture does not need referring to in this short sketch: suffice it to say that every branch of agriculture in Manitoba, especially dairying and live stock, has progressed under his wise and careful supervision. Mr. Greenway is still hale and hearty, and bids fair to exercise his strong influence in Western Canada for many years to come.

TOBACCO CULTURE.

By WILLIAM SAUNDERS, LL.D., F.R.S.C., F.L.S.,
Etc., Director Experimental Farms.

(Continued from last issue.)

BULKING.

After the tobacco is stripped it is packed down each day where it will be secure from drying winds or wet. The "hands" are placed with butts out and the leaves overlapping at the tips for about one-third of their length, laying one row of butts one way, then another on the opposite, keeping them straight and even to prevent the air from drying the material. The "hands" are pressed together by kneeling on them while packing, and when the piles have reached a convenient height, say three to four feet, they are weighted with heavy planks on top so as to press the material down as compact as possible. The pile is then covered with some fabric or material such as blankets or sacking to prevent the drying of the exposed parts, and in this condition it is allowed to remain about a month during which time the curing or "sweating" process goes on, by which when properly attended to the leaves acquire a uniform color. The bulking is followed by an increase of temperature in the pile, which should be watched, and when a thermometer placed in the centre of the heap indicates a temperature of 100 to 110 Fahr., or when the heat is uncomfortable to the hand when introduced, the "bulk" should be opened and rearranged so that the outer and upper tiers may be brought to the centre. In this way the heat is lessened and the curing process proceeds evenly and uniformly throughout the pile. When the tobacco is thoroughly cured the "bulk" is opened and the material arranged more loosely and gradually cooled, when the tobacco will be ready for the market. When disposed of, it is usually packed in bales of about 100 lbs. each, firmly pressed together and enclosed in sacking.

VARIETIES.

Among the earliest and best yielding varieties tested at the Experimental Farm are: White Burley, Connecticut Seed Leaf, Pennsylvania Seed Leaf, Pryor Yellow, Climax, Yellow Mammoth, Oronoko Yellow, Safrano, Brazilian and Canadian. In 1896 the White Burley grown at the Experimental Farm was matured and partly harvested when a sharp frost occurred in September, which greatly injured the later sorts. The White Burley is much grown in the Province of Quebec, and is also the variety most extensively cultivated in Western Ontario. The Connecticut Seed Leaf stands probably next in public favor, and is well spoken of generally. Messrs. Walker Sons have found the White Burley and Connecticut Seed Leaf the most profitable varieties to grow, and think that a fair average of the yield of these varieties, taking one season with another, would be about 1,800 lbs. of cured tobacco per acre. Dr. G. LaRoque, late M.P. for Chambly County, Quebec, in his excellent little book on "Culture et Préparation du Tabac" gives the crop of the different varieties grown in Quebec as ranging from 900 to 1,500 lbs. per acre, while Mr. M. G. Bruner, of Olinda, Ontario, estimates the crop about Leamington at from 1,000 to 1,100 lbs. per acre. Where the same varieties are grown the yield in every

case will depend much on the quality of the land and the quantity of manure which has been used. In the small experimental plots at the Central Experimental Farm the weight of crop has been estimated in different seasons from about 1,500 to 2,500 lbs. or more per acre.

TOBACCO AN EXHAUSTING CROP.

From the reports which have been published of chemical analyses of the leaves and stalks of the tobacco plant it is evident that this crop draws heavily on the potash in the soil. It is also a considerable consumer of nitrogen and of lime. On such land as is frequently used for this crop, the ploughing under of clover to enrich the soil, large applications of barn-yard manure, liberal dressings of wood ashes or of salts of potash, and an occasional application of lime, will all be found beneficial. As the stalks take from the soil about the same proportion of the fertilizing constituents as the leaves, the exhausting effect of this crop on the land may be lessened by allowing the stalks to remain on the ground to decay and then ploughing them under.

In the preparation of this bulletin the writer has been aided by valued information from Walker Sons, of Walkerville, Ont., from John McNutt, Ruthven, Ont., and other practical tobacco growers both in Quebec and Ontario. Free use has also been made of the information gained by the comparative test of varieties carried on for several years by the horticulturist at the Central Experimental Farm.

FEEDING FODDER PLANTS.

By I. C. WALLACE (WALLACE & FRASER),
Toronto, Ont., and St. John, N.B.

Feeding cattle for milk and butter, and feeding young stock bred for the dairy, is an important branch of dairying at which very few in the business excel. In fact it may be said that the great majority fail in this connection. It is quite common to see cows that have made excellent records with one dairyman utterly fail when transferred to the charge of another feeder. The buyer of such animals never thinks of questioning his own feeding, he accuses the seller of deception. Even when a farmer sells an animal which afterwards turns out a record maker in the hands of a capable feeder, he simply says he always knew the heifer would develop something uncommon. Dr. Stewart in his excellent work on feeding has done much to improve herds by teaching farmers much of the value for various purposes of the grains and fodders, based on analysis. But there is something deeper than the mere analysis of ordinary crops, and the combining of them in such quantities as to make a ration for milk, butter, or beef. The value of the fodders and grains on farms differs very materially, and this great difference is caused by another kind of feeding, the feeding of the soil. As by well-balanced rations and good fodders we improve the quality of the produce of the stock, so by proper rational attention to the requirements of the plants to be fed in the soil, we improve the quality of the produce of the land as food for the animal in performing its functions. During recent years it has been quite clearly demonstrated that the feeding

quality of the grasses and all fodders and grains can be more than doubled in flesh and fat-producing constituents, as well as in bone and muscle-forming elements. This is tremendously important and should engage the earnest thought of every feeder of cattle, as it opens the way to more economical feeding by reducing the feed bill, and possibly confining the ration to home-grown stuff, on which he has the full profit of a producer. And this is of equal importance to the hog raiser and breeder of horses.

The horseman aims at producing perfect bone and developing the muscle of his animals. This can be done more economically and perfectly by the production of fodder containing a high percentage of bone and muscle-forming elements. In this connection the pastures should be more carefully attended to, so that the quality of the grazing may be improved, as a great saving is effected by having pasture grasses of full feeding value instead of the poor run out herbage on which animals usually graze. If we depend upon the silo for our winter fodder, we should aim to have ensilage of the highest possible feeding value. It is this feeding value of fodders and pastures which often turns the scale for or against the farmer, while he is puzzled by the comparatively poor yields of his stock.

The effect of feeding better fodder is also marked in the quality of the butter, milk or cheese obtained, for even with the use of the best methods of manipulation of the milk the very finest quality of milk or cheese is not produced from poor feeding stuff. There is a field in Connecticut which is noted for the quality and quantity of milk and butter produced from cows fed from it. It has also been noticed that cows changed to other fields very soon show a deterioration in the quality of their milk.

It is then an important part of the dairyman's work that he should give great care to the feeding of the plants he grows for fodder.

CURING TIMOTHY HAY.

This valuable fodder crop is much more easily cured than clover. Less time is required in the curing process, and also less labor. But in the ease in which it can be cured lies one of the greatest dangers, viz., that of over-curing it. This mistake is committed to a grievous extent in all parts of the country, but nowhere is it so often made as in the prairie sections of the West and Northwest. When allowed to lie in the sun before being housed or stacked until it is so dried that it breaks off easily on being twisted, its feeding value is but little better than that of straw. Timothy should be cut before the bloom has left it. Authorities are not quite agreed as to the best time for cutting it. Some argue in favor of the season of early bloom, others favor cutting when in the full bloom, and a third class claim that it should be cut when in the "second bloom." When the blossoms come out on the timothy head they do not show themselves so quickly at the top of the head as on the other portions of the same. Soon they fall to the ground, but since they appear last on the upper end of the spike they also

remain there for a short time after the blossoms have fallen from the other portions of the same. The period is usually referred to as the period of the "second bloom." Storer would seem to favor cutting at a still later stage, when the greatest weight and nutriment are to be obtained. But weight and nutrition in a fodder will not avail when it has lost its palatability, and timothy is certainly less palatable after it has passed the period of second bloom. The only objection of weight brought against cutting timothy when in full bloom is found in what is termed "dust" arising from the dried blossoms, which shower out when the hay is being fed. But timothy should not be allowed to stand longer than the period of second bloom. When the timothy and clover grow together the time to cut must be decided by the dominance of one crop or the other. The first season clover will dominate the crop, and the time for cutting should be fixed to save the clover when at its best. The second year the timothy will be more abundant, and the period of cutting should be fixed to cure the timothy when at its best. And when a very large area is to be harvested the cutting of the crop should commence when it is under-ripe, otherwise much of it will be overripe before it has all been cut. The loss from cutting under-ripe hay is always less than that from cutting it overripe, the weather being equally favorable to the curing in both instances. When cut under-ripe the fodder is very palatable, hence there will be no waste when feeding it, and the residue of energy still left in the plant produces a good growth of aftermath. And the caution should be given here that in the time of dry weather, more especially on the spongy soils of the prairie, it may be well to cut timothy before it has reached the blossoming stage, for it may cure in a sense while standing without even coming into blossom. Notably may this prove true when there has been rapid growth early in the season, followed by a succession of dry, hot waves from the Western plains. When indications of such stagnation occur, the crop should at once be cut, even though it should not have passed the period of coming into the head.

Timothy cures so much more easily than clover that it is frequently not necessary to put it into cocks at all. When it has lain long enough in the sun to admit of its being readily raked it should be drawn into windrows, and in these it may remain in settled weather until cured. But when the weather is broken it should always be put in cocks. The exact mode of management will be dependent upon conditions, such as the succulence of the grass and the nature of the weather. One or the other of the following methods of curing timothy will probably be found applicable: First, when the grass has much of succulence cut in the afternoon, use the tedder next morning when the dew is gone and rake the same day. If necessary, put into cocks the same night, but if not, the hay may be drawn from the windrow the day following. Second, cut in the afternoon, use the tedder the following morning and rake and store away in the same day. This method will usually be found applicable when

the hay is in full or late bloom and the weather is dry and breezy. Third, mow in the morning and rake and house the same day. This method will answer when there is not much succulence in the grass at the time of cutting it; that is to say, when it is somewhat overripe. And when there is a necessity for it timothy may be cut on a large scale and put up into large cocks, in which it may be allowed to stand for several days in good weather. But the safest way is to cut a moderate quantity from time to time and then get it housed and stored away when ready. There can be no question but that the ideal hay, whether timothy or clover, can be best made in the cock. Particularly is this true of clover. And yet it may not be always wise to make it in that way. It takes as long to put hay up in cock where the work is properly done as to pitch it up into a wagon, and when it is put up thus it cannot be loaded with the hay loader. Whether the extra labor involved will be justified must be determined by such conditions as relate to wages, weather and the extent of the crop. But it will usually be found advantageous to cure clover in the cock when cut early, while it will much less frequently pay to go to the labor of curing timothy by so labored a process.—*Professor Thomas Shaw.*

THE PROGRESS OF AGRICULTURE.

TRANSPORTATION, COLD STORAGE, AND THE VALUE OF EXPERIMENTAL WORK.

By LIEUT.-COL. O'BRIEN, President of the East Simcoe Farmers' Institute

Since I last had the honor of addressing you there has been a very decided improvement in the conditions of agriculture. Good crops and better prices have rewarded and encouraged the cultivator of the soil. The stock breeder and the dairyman have each in their respective branches of business had more than average success, and the outlook for the future is as promising as the conditions of the present are satisfactory. The signs of material progress are everywhere visible, and their reality is shown by the increase in the exports, especially of agricultural produce, in the greater purchasing power of the farmer as shown by the increase of imports, and in the fact about which there can be no doubt, that farming land is not only more saleable now than it has been for many years past, but that it is saleable at very much better prices.

Another matter of vital interest to the farmer is the increased attention which is being paid to the promotion of better and cheaper modes of transportation. In this respect the farmer has had much to complain of. He has first been heavily taxed, both in money and in the giving away to railway corporations of fertile soil which should have been free for his occupation; and then he has been compelled to pay to these companies, for the carrying of his produce, not only the cost of transport, and a reasonable profit on the capital invested, but large percentages upon a railway capital purely fictitious. He has thus been compelled to work for the enrichment of a few fortunate individuals, who have realized enormous fortunes, not by the labor of their hands or the

legitimate exercise of intellectual power, but by a species of craft, which, stripped of its disguises, could only be regarded as the meanest kind of dishonesty. The time has certainly come, if indeed it had not come many years ago, that the farmer as well as the consumer, and all engaged in legitimate trades, should demand that in the absence of competition the hand of a powerful and effective railway commission should, so far as rates are concerned, control the operations of the great corporations which have a monopoly of inland transportation. The question of transport by water rests upon a different footing. There, happily, there can be no monopoly, for the water is free to all, yet much may be done to reduce freights by water routes, whether on the great lakes or the ocean. The deepening of the canals and the improvement of harbor accommodation, so as to admit of the use of larger vessels, are steps in this direction so far as our inland waters are concerned. But no deepening of canals will avail us unless, when our produce reaches an ocean point, there are vessels to carry it at reasonable rates across the sea, and therein is to be found the reason why, in spite of the advantages of our St. Lawrence route, ninety per cent. of our grain has been going to New York instead of to Montreal or Halifax.

The most effectual means of reducing ocean freight is the promotion of trade with the country that takes our produce, so that the vessels which come for it shall have an inward as well as an outward cargo. A secondary means is the subsidizing of lines of ocean steamers. To just such an extent as will have the effect of bringing vessels of greater carrying capacity to our ports this may be desirable, but what advantage can it be to the farmer, or the public generally, to pay large subsidies for ocean travel, so that first-class passengers can be transported in the shortest possible time from the West to the East, or *vice-versa*, it is hard to understand. A contract recently made for a very moderate sum, with a line of steamers direct to Manchester, which will carry our produce to the very doors of the largest consuming centre of the United Kingdom, may be attended with very useful results. Closely connected with the question of transportation is that of cold storage, by which perishable goods, such as fresh meat, fish and fowls, butter, eggs, fruit, etc., can be carried with safety and despatch with certainty of arriving in as good a condition as at the time of departure. This system begun by the late Minister of Agriculture, Dr. Montague, and carried out by Mr. Fisher, the present Minister, gives to the farmer in all parts of the country the means of sending to distant markets, wherever they can be found, many of what may be called the by-products of agriculture, which, without this system, he could only dispose of in the limited market which his immediate neighborhood afforded him. Full information as to the best methods of raising all these various products, and of packing and sending them to the various markets, is given in the reports and bulletins which are so freely distributed among the members of the Institute.

I may properly here call attention to

the great advantage which the farmers of the present day possess in having freely bestowed upon them the results of the experiments which are being carried on by scientific as well as practical men at the experimental farms at Ottawa and at Guelph, and the teaching which is sent out from those institutions. By these means it is that the great dairy interest has attained its present value to the country; that the most profitable kinds of the various grains are ascertained and distributed; that the best kinds of fruits, suitable to different localities, are found out; that the best means of destroying and preventing the insects that work havoc among our crops and fruit trees are made known, and that in a variety of other ways the interests of the farmer are prompted. As an instance I think it is no exaggeration to say that the entomological researches of Mr. Fletcher alone have more than repaid the whole cost of the experimental farm. As to the means of raising and disposing of the various products of the farm, so far as the operations of the farmer are concerned, a few words may be said. The best way of manuring and rotation of crops will be discussed at the coming meetings of the Institute, and in such matters much must be left to the individual judgment of the farmer, who should, to some extent, be guided by local conditions and experience. I think, however, that the general rule may be laid down that in the choice of crops a man had better be guided by what his land will best produce, and by the method of cultivation he best understands, than by the market reports he sees every day. For instance, a man may be tempted by seeing that wheat has risen in price to over a dollar a bushel to put land under that crop which is really better suited for some other; after having done so he sees that, to use a current phrase, the bottom has fallen out of the market, that the war or the combination, which caused the rise, has come to an end, or that countries on the other side of the globe, whose harvest season differs from ours, are already pouring such supplies into the market that all hope of a high price must be given up. Let the farmer cultivate his soil to the best advantage, and leave speculation in prices to the "bulls and bears."

Another rule that may safely be followed is that the more finished the product the greater the profit. In other words, that in general it will pay best to sell oats, barley and peas, or other coarse grain and hay, in the shape of beef, pork and mutton, or butter and cheese, and thus keep on the land all that is taken from it by these crops, together with the elements derived by them from the atmosphere.

A third rule, and one that may be absolutely relied upon, is that in all our dealings "honesty is the best policy." Having determined upon the article we wish to sell, the first thing is to have that article the best we can make it. The second, to find out exactly the form and condition which our customer requires the article to be in, and to follow his idea as closely as possible; and the third is to make sure that in the article we send there is no deception, but that which is in the inside of the parcel is as good as that on the outside.

For want of adherence to this rule in the particulars mentioned, many good markets have been lost to our farmers, and the fair fame of the country for honest dealings has been stained. It must, however, in fairness be stated that in such matters the farmer has not alone been to blame, for the dealer also has had a large share of the responsibility, as well as of the consequent loss.

GOOD ROADS IN BRIEF.

By Provincial Road Inspector C. J. J.

Roads that "break up" are bad roads.

Make road improvements in such a way that they will be permanent.

Whether by statute labor or other means undertake roadwork systematically.

Appoint a supervisor who will have charge of all the roadwork.

Make road beats five miles in length, choose the best men as pathmasters, and keep them in office.

Classify the roads according to the nature and extent of the traffic over them.

Specify the width of grade, amount of crown, plan of drainage, kind, width and depth of material to be used, and see that these specifications are carried out.

Purchase gravel by the pit not by the load.

Use clean road material.

Strip the clay and earth from over the gravel pit before the time of performing statute labor.

If screening or crushing is necessary, let this be done before the time of statute labor.

Do not scatter money in making trifling repairs on temporary structures.

Roads, culverts and bridges will always be required, and their construction in the most durable manner, suitable to requirements, is most economical.

If statute labor is to be made successful the work must be systematically planned and some definite end kept in view.

Have the work properly laid out before the day appointed to commence work. Only call out a sufficient number of men and teams to properly carry out the work in hand and notify them of the implements each will be required to bring.

Let no pathmaster return a ratepayers' statute labor, as performed, unless it has been done to his satisfaction.

In justice to others make the statute labor returns clearly; show what work has not been done.

See that the council collects the amount from the delinquent parties and have it expended the next year.

The pathmaster should inspect the roads under his charge after every heavy rain-storm. A few minutes' work in freeing drains from obstructions, filling holes, diverting a current of water, may save several days' work if neglected.

It is impossible to do satisfactory work on clay roads which are very wet, or which have become baked and hardened by heat and drought. The operator of the grading machine should have instructions to commence work on clay roads as soon as the ground has become sufficiently settled in spring—

and not to leave this work until the time of statute labor, usually in June, when the ground is hard and dry.

With the money which can be spent build permanent culverts, permanent bridges, buy machinery, buy gravel pits, prepare gravel for hauling, construct drains, operate the machinery.

Use the statute labor as far as possible in drawing gravel or broken stone.

Do not leave the gravel or broken stone just as it drops from the wagon. Spread the metal.

Crown the road with a rise of one inch to the foot from side to centre so as to shed water from the roadway to the drains.

Give the open drain a good fall to a free outlet. Lay tile underdrains where needed.

Drain thoroughly. Keep the road surface dry. Keep the earth underneath the surface dry.

Use road machinery.

Use graders, stone crushers and road rollers.

Improved machinery is as necessary for good and economical work as are self binders and steam threshers.

Employ one man to take charge of the machinery. He will become experienced and do better and cheaper work.

The same teams should be always employed to operate the graders. They become accustomed to the work and give better service.

Do not cover an old gravel road with sod and earth from the sides of the road. Turn this earth and sod outward, and raise the centre with new gravel.

Adopt every means to secure a hard, smooth, waterproof surface.

Do not let stones roll loosely on the road.

Do not let ruts remain. They make travelling difficult, and spoil the road by holding water.

Make repairs as soon as the defect appears.

Use wide tires.

Improve the drainage of the hills. Make the crown of the roadway higher than on level ground.

Change the location of the road if a steep hill can be avoided.

Do not use wood for culverts. Use concrete, vitrified pipe or stone.

Do not build wooden bridges. Use iron, stone or concrete.

Build good roads.

CARE OF MILK FOR CHEESE FACTORIES.

By J. H. FINDLAY, Instructor in Home Dairy, Guelph.

Patrons should exercise great care in the handling of milk supplied to cheese and butter factories. The cows should be kept in clean, light, warm, and well-ventilated stables during the winter. Food likely to taint the milk should not be fed at any time. They should have access to pure water and salt at all times. The cow's udder should be brushed with a damp cloth or with a soft brush before commencing to milk. The milking should be done with clean, dry hands, and as quickly as possible, care being taken to get the "strippings," which are the richest part of the milk.

The main points to observe in caring for milk are:

1. Immediately after milking strain through a fine wire and cloth strainer.
2. Remove the milk as soon as possible to a place where the air is pure.
3. Aerate by using a dipper, by pouring, or by an aerator.

4. Keep the night's and morning's milk separate as long as possible. Use pails hung on hooks fastened to a pole under roof to hold each cow's milk separate over night.

5. Do not cool milk for cheese-making, unless when holding Saturday night's and Sunday morning's milk until Monday. In hot, muggy weather, or at any time when it is likely to be over ripe, milk should be cooled.

6. Cool milk for the creamery to 60° or below after aerating.

7. Protect the milk from rain and sunshine by having covered stands with latticed sides to allow a free circulation of air around the milk can or pails.

8. Wash all cans, pails, etc., immediately after use, in warm water, then with scalding water, and, where possible, steam them. Wash cans at the factory or creamery wherever practicable.

9. Do not return whey, sour skim-milk, or buttermilk in the milk can.

THE CARE OF MILK.

LET US KNOW HOW YOU DO IT.

We would like a number of our readers, who supply milk to a cheese factory or creamery, to send us answers to the following questions:

- (1) In what way do you guard against uncleanness when milking?
- (2) Do you strain the milk?
- (3) What plan do you adopt to have the milk properly aerated?
- (4) In what way do you keep the milk over night?

Make the answers as short as possible, and let us have your experience on these points.

In reply to your questions about milking and taking care of milk would say:

1st. Give the cows a proper place to lie down on. Have the same well bedded and in most cases little more is needed but to brush off the flank and udder thoroughly with the hand, and in this no time is lost, as the cow has let down her milk by the time this is done.

2nd. Yes, have a small frame that will lie on top of the milk can; slip over it a two-ply strainer of cheese cotton. This is simple, perfect and easily kept clean, and is also cheap.

3rd. Take the milk away from the stables after milking and pour into pails. Then use a quart dipper in pouring the milk; expose the milk as much to the air as possible.

4th. Either on the milk wagon or on the ground and not too much in a can.

In addition to aerating, if the night is very close and warm, set the pails of milk in a trough filled to the proper depth with cold water, stir the milk in the pails a few times with a dipper.

R. McCrow,
Princeton, Ont.

June 10, 1898.

P.S.—We have been handling milk from twelve to twenty-five cows for thirty years and we think if the above simple rules are observed milk of a first-class quality can be sent out fit for any purpose.

R. McC.

WHAT SOME PEOPLE SAY.

SAGINAW, Mich., June 11th, 1898.

Editor FARMING:

Enclosed you will find \$1 for value received and to come. I take a deep interest in the subjects treated in FARMING, and am much pleased with it, having found valuable information therein on subjects on which I desire to become posted. The contents are fresh—something not always seen in the columns of agricultural papers.

Yours,
W. H. MUIRHEAD.

CORRESPONDENCE.

AWARDING PRIZES IN A MILK TEST.

Dr. Babcock's Proposition Criticized: The Simplest Method the Best.

Editor of FARMING:

I read with much interest the article in FARMING, June 7th issue, under the above heading. It seems to me going a long way about to reach the end, and rather confusing to the average dairyman. Now, if we want to fix a scale of values for milk and its products and to do so intelligently, what we must consider is the true or market value, not a fictitious value. Milk here is used most extensively to make cheese; 2nd, butter; 3rd, as whole milk for town and city trade. What we should consider then is its value as shown to the greatest number, and that will be patrons of cheese and butter factories. Milk made into butter gives us butter, skim-milk and buttermilk; if we consider the value of these three we have the whole value of milk for butter-making. And for all intents and purposes for cheese also, by giving full value for the skim-milk, &c.

First, then, we will consider the value of skim-milk. Experiments have shown that hogs bought, weighing one hundred pounds and fed nothing but skim-milk for fifty-six days gave a return of twenty-two cents per cwt. for skim-milk fed. (*Mass. Dairyman*, June 10th, page 351). This with prices at \$4.50 per cwt. for hogs. If fed to young pigs, calves, &c., even a higher value is shown. We may conclude then that, with hogs selling at \$5 per cwt., skim-milk is worth twenty-five cents per cwt., and in feeding hogs we have then a practically unlimited market for our skim-milk. If, then, we want as extensive a market for our butter we must depend upon export, and experience has shown that twenty cents per pound is seldom exceeded. This with three and a-half cents per pound off for making, leaves the patron sixteen and a-half cents which is not over nineteen cents per pound for butter fat. Taking the relative value of hogs and butter we will find that we more frequently get \$5 per cwt. for hogs than twenty cents for butter for export. Just now farmers are selling hogs at \$4.75 per cwt., and butter is bringing seventeen cents, or making off, thirteen and a-half cents to patrons.

Now, if we consider the relative value obtained for our skim-milk and butter, we would place skim-milk worth twenty-five cents per cwt. and butter-fat nineteen cents. But, giving butter one better, we will place skim-milk at twenty-five cents per cwt. and butter-fat at twenty cents. This is the value of milk to the producer and patron of a butter factory. If the milk were made into cheese, then there is the butter-fat, solids not fat, and whey to be considered, and for this purpose Prof. Dean's plan of adding two per cent. to the butter-fat reading is giving universal satisfaction to our factories and might with advantage be used in public tests to determine the value of the milk. And, again, Dr. Babcock's scheme is upon the same principle, as he says it may be necessary to fix a lower ratio between the fat and solids not fat, and, of course, this ratio will depend largely upon the price obtained for butter-fat and the other products. If butter would sell for twenty-two cents or twenty-three cents per pound, and hogs at \$4 per cwt. or less, then the butter-fat would be about ten times more valuable than the solids not fat. But these are not the values in this country, and consequently the ratio would be too high. Taking the fat at eight times the value of other solids would be nearer the value to our patrons.

Here, then, are three different ways of taking the value of milk, and, if we compare them in actual work, we will find they bring us about the same result. The first, then, is the simplest, giving but little work to the tester, and thereby reducing the chances of error. And what is of first importance is that it is plain to every dairyman who knows what skim-milk and butter are. But when we commence to figure on fat, solids, etc., not one dairyman in ten understands how the value is arrived at, consequently the test loses much of its value as a lesson to dairymen. Often have I been asked by dairymen to explain "how they figure that thing anyway."

Now let us compare the three ways, taking a cow giving forty pounds of milk, testing 5 per cent. fat and 9.5 per cent. solids not fat, with another giving seventy pounds of milk, testing 2.5 per cent. of fat and 9 per cent. of solids not fat. With skim-milk and butter-milk at twenty-five cents per cwt. and butter-

fat at twenty cents per pound, we will find that, for \$1 the first cow makes, the second cow makes \$1.32. Taking Prof. Dean's plan and adding .2 per cent. to the butter-fat reading we will find as cheese cows that, for \$1 made by first cow, the second makes \$1.37. Then, taking Prof. Babcock's plan and allowing fat to be worth eight times the other solid, the ratio between the two cows is as \$1 to \$1.30. Practically an agreement, and the first plan being the simplest and easiest understood is, I think, the best.

Then there is the points allowed for time in milk. This should be struck out altogether, as it is really a hard matter to decide and keep from cheating. As our tests are conducted year after year, everybody has had plenty of opportunity to arrange to have their cows fresh, and, as a matter of fact, all the best cows in the tests have been fresh or within two months or so of it, and a cow, that won't make as much butter two months after calving, don't deserve any encouragement. Then there is the score for conformation that is no more use in a milk test than a "tail on a pig." If our judges are infallible, why have a test at all? But it is because we have much to learn as to the relative value of different points in a cow that milk tests are valuable, and the best cow is the one that produces the most milk in any case. It would be an outrage if a cow, after winning by the scales and test, were defeated through being scored low.

Now, knocking off all useless and cumbersome conditions, see how simple the test becomes. If we just take the true value of milk and consider the butter and skim-milk and buttermilk, a test that does not consider all that is of value in milk, is no test at all. The bye-products must be considered, because they are valuable, and even whey, we know, has much higher feeding value than the analysis might show; just as roots (90 per cent. water) have a higher value. This is seen more clearly in hay. We know that water and hay have not the same value in practice as grass. But cows do best on grass in warm weather, on turnips when kept warm, and likewise skim-milk and whey loses much of its value if fed cold and in a cold place. But this is the fault of the man, and the cow should not suffer because he is too lazy or stupid to make the best use of her product.

Yours truly,
Geo. Rick,
Currie's, Ont.

THE MILK TEST AT THE FAIRS.

Editor of FARMING:

I am very much pleased to see that the milk test at our fairs is receiving some attention. In a recent issue of FARMING, Prof. Dean draws attention to the test used at the Provincial Dairy Show held at Gananoque in 1894.

Now, Mr. Editor, I consider that it was a most unfair test. It was no test at all. It was simply offering a bonus to the cow that was capable of producing the most water in her milk.

In the first place the cow is allowed so much for every pound of milk; then she is allowed so much for all the butter fat, and so much for all the other solids that are in her milk. Take the butter-fat, casein, ash, and sugar out of milk, and there is nothing left but pure water and I cannot see the object in paying a cow for producing water and I am very much pleased to see by the last issue of FARMING that there are prospects of having a test on a more reasonable basis.

Yours truly,
JOSEPH VUILL.

Carlton Place, Ont., June 14th, 1897.

LIST OF PRINCIPAL CANADIAN FAIRS FOR 1898

Industrial Fair, Toronto ... August: 29th to Sept. 10th
Winnipeg Exhibition, Winnipeg, Man. July 11th to 16th
Western Manitoba, Brandon, Man. July 19th to 22nd
Stanstead Live Stock Assn, Stanstead, P.Q. Aug. 21st and 25th
Eastern Exhibition, Sherbrooke, P.Q. Sept. 5th to 10th
Western Fair, London, Ont. Sept. 8th to 17th
Quebec Exposition Co., Quebec, P.Q. Sept. 12th to 21st
New Brunswick Exhibition Co., St. John, N.B. Sept. 13th to 23rd
Central Canada Fair, Ottawa Sept. 18th to 24th
Southern Fair, Brantford Sept. 17th to 22nd
Provincial Exhibition, Halifax, N.S. Sept. 22nd to 29th

The Ontario 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', \$2.

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.

The name and address of each member, and the stock he has for sale, are published once a month. Over 20,000 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 9th 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. The data will be published in the most condensed form.

F. W. HODGSON, Secretary.
Parliament Buildings Toronto, Ont.

THE DOMINION SWINE BREEDERS' ASSOCIATION.

Berkshires.

Bannycastle, F. & Sons	Campbellford	30 head, 1 to 2 months.
Howman, W. R.	Mount Forest	15 boars and sows, 6 weeks and 6 months.
Bull, B. H. & Son	Brampton	Boars and sows, 6 weeks to 6 months.
Ferguson, J. J.	Smith's Falls	2 sows, 1 and 2 years; 20 sows and boars, 1 to 4 months.
Holdsworth, R. L. & Sons	Port Hope	Young sow; 300.
Mutch, J. F.	Pilot Mound, Man.	Stock, both sexes, all ages.
Smith, H. D.	Compton, Que.	Young pigs.
Vance, R.	Ida	25 spring pigs, 8 to 12 weeks, both sexes.

Yorkshires.

Howman, W. R.	Mt. Forest	17 boars and sows, 6 weeks and 3 months.
McLellan, M. D.	Harrington	Aged boar; boars and sows, 5 to 6 months.
Ross, A. W.	Douglas	7 boars, 8 weeks.

Tamworths.

Brown, W.	Paisley	Stock, 1 and 2 months.
Inurie, R. J. & A.	Wolverton	Boars and sows, 3 and 7 months; stock, 2 weeks.
North, Geo.	Morden	3 boars and 5 sows, 6 months.
Row, Fred.	Belmont	Stock, 2 and 3 months.
Simonton, J. H.	Chatham	Pigs, 6 weeks to 5 months.
Smith, H. D.	Compton, Que.	Boars, 2 and 3 months; sows, all ages.

Chester Whites.

Brown, W.	Paisley	Boar, 2 years.
Holdsworth, R. L. & Sons	Port Hope	2 young sows; aged boar.
Row, Fred.	Belmont	Stock, both sexes, 2 months.

Duroc-Jerseys.

Fraser, I. O. & Son	Fellows	4 boars; 30 young pigs.
Smith, W. M.	Fairfield Pla.	2 boars; 4 sows.
Taylor, J. H.	Richmond Sta. on, Que.	Stock.

Poland-Chinas.

Smith, W. M.	Fairfield Plains	4 boars; 6 sows.
Taylor, J. H.	Richmond Station, Que.	Stock.

THE DOMINION CATTLE BREEDERS' ASSOCIATION.

Devons.

Harper, Samuel	Cobourg	Stock, both sexes, all ages.
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Ayrshires.

Smith, W. M.	Fairfield Plains	2 bull calves; 2 cows.
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Shorthorns.

Bannycastle, F. & Son	Campbellford	6 bull calves; 9 cows and heifers.
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Jerseys.

Bull, B. H. & Son	Brampton	7 cows and heifers; 4 bulls; 3 bull calves.
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Herefords.

Smith, H. D.	Compton, Que.	Bull calves.
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THE DOMINION SHEEP BREEDERS' ASSOCIATION.

Oxfords.

Hine, R. J.	Dutton	Imported ram, yearling rams; ram and ewe lambs ewes of all ages.
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Cotswolds.

Bannycastle, F. & Son	Campbellford	Ram; 15 ram lambs; 9 yearling ewes.
Vance, R.	Ida	1 ram, 3 shears; 3 shearling rams.

Farmers' Institute Department.

Reports concerning the work of the Farmers' Institutes in Ontario will be published weekly under this head; also papers prepared for this department by Institute workers. Secretaries and officers having announcements to make are invited to send full particulars to the Superintendent.

The annual reports of the local Farmers' Institutes are being received much earlier and in much better shape than in any previous year. The annual meetings, with one or two exceptions, have been very successful, and the officers are very enthusiastic. It is evident from the way in which the reports are coming in that a much more active interest is being taken by the local officers in the welfare of the institutes than heretofore. Although the reports are not required to be forwarded to the superintendent until the 20th of June, complete reports have already (June 14th) been received from the following institutes: Addington, Bruce West, Carleton, Glengarry, Grey Centre, Grey South, Hastings West, Ontario North, Parry Sound West, Prescott, Renfrew South, Welland, Wellington Centre. Incomplete reports have been received from: Amherst Island, Brant South, Bruce North, Cornwall, Haldimand, Lennox, Middlesex North, Muskoka South, Muskoka North, Northumberland East, Ontario South, Oxford North, Peterboro East, Peterboro West, Simcoe Centre, Simcoe South, Stormont and Victoria East.

The institute which has reported the largest attendance at an evening session is Glengarry. At a meeting held at Maxville there were 600 present. Centre Simcoe follows, with a meeting at Penetang with an attendance of 550. In the afternoon the most largely attended meeting was Durham, in South Grey, 300 being present. The largest attendance at a one-day meeting, counting the number present at both the afternoon and evening sessions, was at the Maxville meeting in Glengarry, at which there were present 850 persons. The next largest meeting was at Hillsburg in Centre Wellington. At this meeting 750 were present.

The largest membership of any one institute to date is over 600. This place of honor belongs to North Ontario. An excursion to Guelph, under the auspices of this institute, was held on June 13th, and the occasion was taken advantage of by the secretary, Mr. Jos. E. Gould, and his directors. South Waterloo also deserves credit for their high standing, 508 members having been enrolled.

The North Perth Farmers' Institute will hold its annual excursion to the Model Farm, Guelph, on Monday, June 27th. The secretary, Mr. Jas. G. Pugh, has arranged with the Grand Trunk Railway to issue tickets from all stations in the district at greatly reduced rates, and has made

all arrangements to insure the complete success of the excursion. There is no doubt it will be one of the largest to visit the Model Farm this year.

NORTH MUSKOKA FARMERS' INSTITUTE.

The annual meeting of the above institute was held in the Court House, Huntsville, on the 7th day of June, 1898, when the following officers were elected and places selected to hold meetings for the ensuing year: President, A. Sproat; vice-president, W. M. Tipper; sec.-treas., Wm. Goldthorp. Directors—Messrs. F. A. Emberson, G. Meredith, Eli Leech, for township of Franklin; Geo. Hart, Tunis Hart, for township of Sinclair; Ed. Brown, J. F. Broadbent, Josh. Kitchen, for township of Brunel; Wm. Clark, G. F. Richards, Uriah Hardy, Hugh Taylor, for township of Chaffey; Wm. Fleming, for township of Stisted; M. Wilson, Geo. Turner, for township of Cardwell; C. McPhail, O. Hayzlewood, for village of Novar; J. Cook, F. W. Clearwater, for the village of Huntsville. Messrs. Wm. Brook, Thos. Armstrong, were appointed auditors. Regular meetings will be held at Novar and Huntsville, and supplementary meetings at Hillside, Brunel, Chaffey, and Stisted. Wm. Goldthorp, secretary, Ravenscliffe, Muskoka.

THE IDEAL ROAD HORSE.

In an address before the Maine Board of Agriculture, Dr. G. M. Twitchell, who is always good authority on this subject, thus describes the ideal road horse:

"The 15-2 to 16-hand horse of solid color, with broad forehead, ears of good size and well-proportioned, good length from base of ear to eye, eyes full and expressive, with lids free from meatiness, face straight, nostrils well-rounded, full, large and thin lips, not thick, and well-closed, neck of good length, shapely, clean-cut at jaw and fitting well at shoulders, which can hardly be too sloping, the point of the withers being well back of the saddle, chest of good width, forearm long and heavily muscled, knees firm, broad, straight and strong, cannons short, flat, broad and flinty, pasterns good length, muscular and nervy, free from meatiness, the ankle from toe to ankle joint being about thirty-five degrees, feet round, of size proportionate to the animal, free from contracted heels, of good material and with elastic frog barrel-shaped, like an inverted egg, deep at girth as well as waist, allowing full use of lungs without infringing upon other organs, back short, the point of coupling on a line with that of hip, thus allowing for the extension of the muscles of attachment well forward over the kidneys, giving greater strength to the weakest spot in the animal anatomy as well as in man, quarters of good length, not too sloping, thus affording room for the free stifle action so necessary in the ideal driver, stifles and gaskins long, of good width, abounding in muscular attachments, hocks free from meatiness, sound, strong, neither straight nor hav

ing a decided angle, and not cut under too sharply at base.

"Such a horse, going smooth and true, neither paddling nor toeing in forward, nor, as we say, straddling behind, will always command a top price in the market, provided he has been educated, and abounds in nervous energy. Form, size, color, symmetry, and substance are essentials, but these do not insure the road horse. To these must be added individuality, the result of breeding. It manifests itself in what we term nervous energy, the up-and-get-there power. It is the power of heredity, so desirable, so necessary. To secure this, there must be a high ideal and a fixed determination in breeding."

SWINE BREEDING AND FEEDING.

(From a paper read by W. M. McFADDEN, at an American Farmers' Institute.)

My observations along the line of raising hogs have convinced me that there are several popular ideas on the subject that are erroneous. I do not expect to convert you to my way of thinking, but I hope I can draw out a discussion that will be of value to all of us. We are raising hogs for the money there is in the business. Of course, I expect all to agree with that. It is, however, on the question of the best way to get the most money out of it that I may cause some contention.

All have noticed a few hog growers in every neighborhood who are away ahead of their neighbors in the success they secure in producing pork. These men but prove that the average man could adopt much better methods than those he practises. I believe a large number of the most successful hog men (and I speak now of the strictly pork producers) are those who do not accept many of the popular ideas on the business, who think for themselves, and who work on lines that a majority would denounce if asked to give an opinion. Now one remark we hear most frequently about our hogs is, perhaps, that they are too fine boned and lack size. From my standpoint nothing about a hog is easier to produce than size, that is, a big meaty hog. Hogs that possess these characteristics are by no means the most profitable pork producers. What we need is quality. It is generally thought we cannot get quality without reducing the size, but it can be secured and all the size necessary retained. The art of combining these two marks the successful hog man. A good, flinty bone is what we want, and not the coarse, soft leg. The bone need not be large, if it is the right kind and shape.

In view of the increased profits to be secured, I think it worth any farmer's while to make a study of the matter with a view to determining how he can best produce a hog of the right type. We frequently hear farmers declare they care nothing for the so-called fine points that breeders of purebred herds seem to place so much stress upon. Now, I believe a man who is raising hogs for pork is interested in a neat head and ear, a nice coat of hair, and other points that are generally considered only "fancy." While these things will add nothing to a bunch of hogs on the scales, so far as weight is

concerned, they are valuable to any one raising hogs for two reasons. First, a bunch of this nice, neat, stylish kind, with lots of quality, will generally bring a little more on the market, and in the second place, and by far the most important one, they indicate good breeding, or, if you please, what I have termed quality, a thing that is something of a hobby with me.

I am aware that the tendency is to reduce the size when a great deal of attention is paid to quality, but this is not necessary. The secret of the whole business is to know what to select for breeders that will maintain sufficient size and yet secure the kind of animals that will give the very best results for feed consumed. This can be done, not by selection for size and so-called bone, but by intelligent selection, with quality as the first consideration. There is not a scarcity of this kind of breeding animals. Simply, we do not select them when we get them.

Another popular idea that I want to combat is that to get a good brood sow we must select a long, loose, coarse roomy one. Now, a good brood sow is one that will produce a fair-sized litter of the right kind of pigs. Some of the best brood sows I ever had were of the rather neat and stylish kind. I have bred a few state fair winners, and they were nearly all from sows that showed plenty of quality, and I never had results that were satisfactory to me from a big, coarse, roomy sow. Of course, there are some good brood sows of that type, but not by any means of the sows that are valuable as breeders of that kind.

As to feeding, I can sum up what little I know about it in a very few words. It does not matter nearly so much what you feed as how you feed it. The best part of any improved breed is the corn crib cross. One difficulty is that the average farmer does not feed regularly, and with a view to constant gain on his hogs. Variety of feed and a balanced ration are all right and of great advantage, but require an intelligent use of them just at the right time. Success in pork production demands, as does every other business in these days of close competition, constant and intelligent thought and attention, and can be secured by independent thought and methods as often as in any other way.

STEER AND HEIFER BEEF.

Widely different opinions are held as to the comparative value of steer and heifer beef. American packers rate steers at from 25 to 50 cents per hundred more than heifers of the same age, breed and general qualities. On the other hand, the opinion in England is the reverse, heifer beef being rated higher than steer beef.

For some years feeding experiments have been made at the Iowa Station to study the comparative value of steers and heifers for fattening. In the first trial one lot of steers, one lot of spayed heifers, and one lot of open heifers were used. They were all grade Short-horns, as nearly alike in breeding and development as possible. There were five animals in each lot. The lots were fed and treated in the same manner. Seven of the heifers calved during the trial, which interfered with the comparison. The steers made a larger

gain and sold for one cent per pound, live weight, more than the heifers. During the whole test, which lasted about eleven months, the steers made an average gain of 806 pounds; one open heifer, clear of calf, gained 775 pounds; four open heifers that had calves made an average gain of 628 pounds; two spayed heifers, clear of calf, made an average gain of 736 pounds; and three spayed heifers that had calves averaged 645 pounds gain.

The steers were sold at 5.75 cents and the heifers at 4.75 cents per pound, live weight. Allowing 3.5 cents per pound for the steers and 2 cents for the heifers at the beginning of the trial, there was a profit of \$64.39 on the steers, \$30.51 on the unsplayed heifers, and \$13.76 on the spayed heifers. The average proportion of beef in the carcass was 63.2 per cent. for the steers, 62.4 for the unsplayed heifers, and 62.8 for the spayed heifers.

When slaughtered, the carcasses were cut and judged by an expert. The heifers gave a larger percentage of prime cuts (ribs and loins) than the steers, so that, on the basis of the meat and by-products obtained and the price paid for the steers, the heifers were worth from 0.57 to 0.62 cent a pound more than was paid for them.

Crediting each lot with the actual value of the different cuts and the by-products, and not including the expense of killing and handling, it is calculated that, at the prices which the butcher paid, he made \$20.45 on the steers, \$58.12 on the unsplayed heifers, and \$64.84 on the spayed heifers. In other words, the returns made by the heifers would have justified a purchase price of \$5.37 per hundred for the spayed heifers and \$5.32 for the open heifers, instead of \$4.75 for each, and still have left the same profit as with the steers.

The results of a second trial to compare steers and heifers for beef production have been recently published. The test was made with 15 pure-bred or high-grade Herefords. The animals were divided into three equal lots, one of steers, one of spayed heifers, and one of open heifers, and all were fed alike during fourteen months.

The results of the experiment are briefly summarized in the following table:

RESULT OF FEEDING STEERS AND HEIFERS FOR BEEF.

	Average weight at end of test	Average daily gain per head	Dry matter eaten per pound of gain	Average cost of food per pound of gain
	Pounds	Pounds	Pounds	Cents
Steers	1,358	1.71	8.70	4.08
Open heifers ..	1,300	1.55	7.67	3.65
Spayed heifers ..	1,317	1.70	8.66	4.05

As shown by the experiment, the heifers made a slightly greater average gain from correspondingly less food and at a less cost than the steers. Carefully conducted slaughter and block tests did not reveal any material difference in the character, composition, or quality of meat from steers and heifers, although the percentage of high priced cuts, ribs and loins was greater in both lots of heifers than in the case of the steers.

It has been claimed that the principal cuts in heifer carcasses contain more fat than those of steers, and are, therefore, less profitable to the consumer. The average cost of the beef to the firm purchasing the cattle

raised in these experiments was 6.51 cents for the steers, 6.21 cents for the spayed heifers, and 6.14 cents for the open heifers. The average selling price received by them was 6.59 cents, 6.26 cents, and 6.24 cents, respectively.

It was observed in this and other investigations that under similar conditions heifers are inclined to take on flesh a little more readily than steers. Larger gains by the heifers may not be shown, but there is a tendency to finish at a little earlier stage in the process of fattening. The difference between steers and heifers in this regard, when fed under the same conditions, has also been noted by practical stockmen feeding on an extensive scale.

The fact is emphasized that heifer beef has been much underestimated, since in both trials the heifers have returned a higher net profit on the block than the steers, notwithstanding the fact that the steer beef was rated higher than the heifer beef. So far as could be learned from these experiments, spaying had no particular influence on the gains made.—*Bulletin, U.S. Department of Agriculture.*

DIPPING SHEEP FOR TICKS.

The injury inflicted by the sheep tick upon the flocks of this state can only be roughly estimated. Ticks do not cause death directly, nor injure the wool, but cause untold torment by their biting and wandering about over the body. This saps the vigor of the old sheep, retards the growth of the lambs, and makes both susceptible to disease. The tick is a wingless fly about a quarter of an inch long, having a large, strong, reddish-gray body, and six legs. The most opportune time for killing ticks is just after shearing, as the ease of handling and the cost of dip is reduced to the minimum. Nearly all the ticks will leave the sheep for the lambs, so that the work will be very effective if only the lambs are dipped. It is better, however, to dip both old and young. The sheep should be examined carefully about three weeks after dipping, and if any eggs escape destruction the sheep should be redipped.

The apparatus necessary may consist of only a box or barrel, into which the animal may be submerged, and a table upon which they may be allowed to drain. Such temporary arrangements necessitate considerable labor and loss of dip. A special tank may be purchased or built if a large number are to be handled, as one will soon be repaid for its use. The tank should be about eight feet long at the top and two feet wide. It should be four and a-half feet high, and one end made vertical. The sides should slant so that the bottom will be from five to eight inches wide. The bottom should be about three and a-half feet long, and one end made to slant so that the sheep may walk out. The tank should be set into the ground and a chute made so that the sheep may be driven into the tank. On the whole, it is more economical and satisfactory to use some of the good sheep dips offered upon the market. These dips usually contain arsenic, extract of tobacco, or products obtained from creosote or tar as the destroying agent. As the latter dips are effective and less dangerous

in the hands of most people they are to be preferred. The following is highly recommended and may be prepared by anyone: Tobacco leaves, 50 pounds; sulphur, 10 pounds; water, 100 gallons. The tobacco is steeped for an hour and a-half, the leaves are strained off and the sulphur added, and again boiled for an hour. Keep well stirred and use while warm.—A. W. Bitting, D.V.S., Indiana Experiment Station

NOTES FROM PRINCE EDWARD ISLAND.

(By our regular correspondent.)

This island has been blessed with one of the most delightful springs we ever had. Beautiful sun-shiny days interspersed with warm rains have encouraged the farmer's labors, and now he sees his crops thriving in the most delightful manner. All the grain crops give every appearance of a bountiful harvest and the hay crop, if the showers continue which we have been having of late, will be the best ever known on the island. Never were such fields of clover seen as there are at present. The potato crop, which has been so greatly hindered by the bug heretofore, will, no doubt, be only a fair crop, as the bug has already made his appearance. The cheese industry, which has reached such an advanced degree of excellence on this island, promises the largest output on record, as, in addition to the thirty factories already in operation, there have been several new ones started this spring. The farmers have taken a great hold of this industry, and never did the cow receive such attention as at present. The pork industry is also receiving a great deal of attention, and the farmers are going entirely into bacon hogs. There will soon be another factory running which will likely cause a good deal of competition on the part of the buyers. Heavy and light horses are realizing a good price this summer, and a good many farmers are going back to the raising of horses. The prices of farm products have not been as high for years as this spring, and the farmers are looking ahead for good prices for their produce in the fall.

The fruit crop is going to be unusually large, as no frost has appeared to kill the blossoms, but now, as the flowers have fallen, there is not likely to be much damage. The only scarcity will be of plums, but this will be more than made up by the large yield of other fruits.

POULTRY RAISING BY THE FARMER.

By HOWARD FARRANT, Mitchell.

(Read before the Ontario Poultry Association).

It has often been a matter of wonder to me why farmers as a class do not take more interest in the raising of high class poultry, especially hens. If there is one class of people (in this country, at least) in a better position than another for keeping poultry it is the farming class. When I say keeping poultry, I do not mean keeping a couple of hundred old mongrels without any breed distinction, and with no two hens in the flock alike, and which are allowed to live how they like and where they like as long as the owner obtains from them sufficient eggs for marketing purposes, but taking in

hand one breed of hens, and keeping a flock that might compete with the best. It seems to me just as easy to keep one kind as half a dozen, and the results at the same time are much more satisfactory.

In the first place, a suitable hen-house will be required. This need not be very large or of extraordinary cost; a plain structure boarded snugly, of course, with a water-tight roof, will suffice. A farmer can build a suitable house close to his stables, or at least sheltered by his other buildings, so as to afford sufficient warmth in winter from his other animals and prevent frost from injuring his male birds. Of course a farmer can keep his hens in his barn or stables, and perhaps the majority of them do, but this is certainly not a very satisfactory or clean method, for it not only makes the hens wild, but the farmer also loses quite a number of the eggs laid, by the hens finding nests in out-of-the-way corners. So, too, in winter the farmer's barnyard and straw stacks give him an immense advantage over the ordinary breeder. Even on very rough days the hens can roam about the straw stack perfectly sheltered from the blasts of the wind, and get far more good from getting an outing every day for a short time than by being shut up in the hen-house from one winter's end to the other.

Another very important point with regard to the keeping of hens is their feeding. Hens, especially in winter, should be made to work as much as possible, for this helps them immensely to keep warm on the cold days when otherwise they would be standing around doing nothing. Leaves, which every farmer can secure from his orchard, form excellent material for the floor of a hen-house. If in the fall he will collect as many of these as possible and put them on the floor, and allow the hens to work in them for a few days, he will be surprised at the way the leaves have changed to a fine dust. If plenty of leaves have been put in a heavy covering of dust will have been procured. Grain thrown on this cannot be picked up in five or ten minutes, but a large part of it works down into the dust, and the hens for a considerable time are kept busy scratching for their feed. Hens, as well as human beings, should have regular meals, not enough thrown down once in one day to last till the next, and perhaps more than is required for the fowls; but a definite amount at definite times will keep the hens in uniform condition, and will teach them to look for their meals at set times.

Along with the feeding of hens also comes the question of watering. A great many farmers do not bother at all about water in winter, or in summer either for that matter. Oftentimes we may see hens picking up snow around the yard on account of water not being supplied them. This sort of thing can be avoided with very little trouble, and the comfort of the birds vastly improved. Sometimes, if the hen-house be cold and the water liable to freeze, the following water-holder may be suitable: Take an old varnish can of about one gallon capacity. About an inch from the bottom, and on one of the broad faces, cut a hole an inch or so in diameter, and

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get a tinsmith to fasten a sort of lip beneath the hole, and at the same time have him seal the mouth of the can with solder so as to make the apparatus air-tight. The tin, after water is put in, may be placed upright, and yet the water always stands at the level of the edge of the lip, because being air-tight the pressure of the atmosphere upon the water in the lip balances the weight of the water in the can. Thus the lip being narrow, while it enables the birds to drink satisfactorily, yet prevents the wattles touching the water.

A very satisfactory method for roosting purposes is to have in one corner a sort of raised coop, having a floor and ceiling of its own, and being more warmly boarded and provided with doors (glass doors if possible) in front. Within this coop, roosts of scantling may be placed. This affords a snug roosting place, which takes up no room from the hens, as being raised from the floor it enables the fowl to work beneath it. The front, being doors, may be closed in winter and opened in summer. The particular advantage of a roosting place of this sort is that if the floor be sprinkled with sawdust or something of that sort it enables the dirt from the hens to be removed every week or so, and thus keep the house cleaner than if the hens roost in various places.

A problem which sometimes perplexes poultry keepers is how to free the hen-house from lice? This is in almost all cases the fault of the proprietor himself. The lice should never have been allowed to get there in the first place, and with ordinary precautions they would not be there. Early in the spring, about the time the housewife is house-cleaning, and when lime is being used for whitening purposes, the farmer should take half an hour (it will not require more) and coat the inside of the hen-house with a nice sweet covering of lime, and while preventing lice he will at the same time be beautifying his hen-house. Then he should also take a little coal oil, and with a brush coat the roosts. These precautions will certainly prevent the breeding of lice among the birds.

The lighting of a hen house is of great importance. Oftentimes we see buildings with so little light that the hens cannot see to pick up their food unless the door be open. Fowls can not be expected to thrive under such conditions as these. The more light that can be admitted to the hen house the better, and the closer the window is to the floor the more benefit the hens will get from the heat of the sun in winter.

A suggestion useful to the farmer is a stationary row of nests. Scarcely a farmer has accommodation of this sort. His hens are allowed to lay all over the building, and by this means he loses a great many eggs, the proceeds of which would soon run up to a considerable sum. A convenient arrangement of stationary nests may be made with the top in the form of a lid, which may be raised or lowered at pleasure. These nests, if always kept supplied with sweet clean hay, and with a china nest egg in the bottom, form an attraction which no hen can resist.

All these suggestions are not beyond

the reach of every farmer. There is no extraordinary cost, and what little there is would be soon balanced by the additional returns of the hens. It seems a hard matter to convince a farmer that hens are worth the trouble of proper care, yet why do they keep them at all? A farmer's wife would as soon think of running her house without a kitchen as to think of having no hens. What is it that constitutes the material for purchasing the following week's supplies? The butter and eggs, and if the farmer were to take the trouble to reckon the return of the "useless hens" he would perhaps be slightly surprised, and if he were to trouble himself a little more about his hens he might have an opportunity of being a little more surprised by the additional return of eggs from his fowls.

The farmer keeps his hens around him year after year, each year hatching more chicks besides those which from time to time come walking out from under the barn or stable after some old hen, which has been secretly depositing her eggs for some weeks. Thus the young ones are added yearly, but the old ones still live until they die themselves of old age or disease. If a disease breaks out among the flock it has splendid opportunities to spread, and very soon terrible havoc is committed, but no thought is wasted on staying the disease until it dies out itself. This reminds me of an example which came under my notice this summer. We stopped at a farm for dinner one day, and on passing through the barnyard I saw a couple of hens moping around as if stricken with some disease. On enquiring what was the matter with them, our host informed us that a disease was raging among his hens which had carried off some fifty of them, and might carry off some fifty more for all he seemed to care. The disease in all probability had arisen from the neglect or the lack of water, of which not a drop was to be seen around the place although the day was very hot.

Thus it seems to me that if the farmer in the winter, or when he has spare time, were to act upon the suggestions I have made and, if doubtful of the success of their application, at least test them, he would not repent of the time so spent, and year by year adding some new improvement to his hen house would introduce a new branch into the farming industry. He has above anyone else, it appears to me, the opportunities for making the poultry industry a success. He has the situation with his roomy barnyard, and the freedom of his great stables and abundance of feed of various kinds, as well as good qualities, and in a short time he would raise this branch to such a state that it would pay him as well as be an adornment to his farm, and amid the names of the chief poultry breeders of our country the farmer would take his place as possessing also the pick of Canadian poultry.

THE SKUNK.

It is not commonly known that these malodorous and greatly despised little animals are, according to eminent authorities, of the greatest possible benefit on the farm, where detrimental insects and sleek-coated rodents are

almost continually at work preying on the crops. Dr. C. Hart Merriam, of Washington, D.C., a gentleman who is universally regarded as one of the most eminent and reliable economic zoologists in America, says: "The benefit that accrues to the farmer from the occupancy of his premises by a family of these useful animals can hardly be overestimated. They are large eaters and subsist almost exclusively upon his greatest enemies, mice and insects." The Hon. N. F. Moore, of Orwell, Pa., a loyal friend, and one of the best and most successful advocates of the agricultural interests in the Pennsylvania Legislature, explains in a very succinct manner the good habits of skunks. He says: "My observation as a practical farmer is that these animals are certainly friends, not enemies, of agriculture, and that the indiscriminate slaughter of them would be prejudicial to the farming interest." The majority of people seem to think that this animal is for many reasons apart from its penetrating sickening odor an unmitigated nuisance and an injury to the farmer, and that, as one writer says, "He reaches the acme of his bliss when he can gain an entrance to a hen coup and devour chickens and eggs; and it matters little how old the latter may be."

EIGHTY-CENT WHEAT.

When the wheat is in the granary,
And the prices reach the sky,
And the roosters are a-crowing,
And the chickens flyin' high;
When the city fellers squabble
For the farmer's views and votes,
And the barn is full of timothy,
And the bins are full of oats;
Oh! it's then that a feller
Is a-feeling at his best,
With the risin' sun to greet him
From a night of glorious rest;
And the babies caper 'round him,
And the colts are kickin' high,
When the wheat is in the granary,
And the prices reach the sky.
There's something kind o' hearty-like
About the sky and field,
With the stubble there a-laughin'
At the thirty-bushel yield,
With the happy birds a-singin',
And the cattle in a doze,
And the hired man a-comin' round
To show his new store clothes.
A feller feels contented,
And at peace with all the world,
When the golden flag of plenty
Like a blessing is unfurled.
Oh! I tell you, Nancy's happy,
And the gals are flyin' high,
With the granary a-bustin'
And the prices in the sky.

—A.C.C., in *The Canadian Gazette*.

BOOKS AND BULLETINS RECEIVED.

The Ontario Agricultural College and Experimental Farm have issued a neatly illustrated pamphlet giving a detailed description of the various departments of the college course in agriculture, and the different branches of work carried on on the farm. The illustrations are apt, and include views of the various departments. The information contained in this pamphlet is valuable, and everyone contemplating attending the college should write to the president of the college for a copy, and also a copy of the circular giving course of study, cost, terms of admission, etc. The college will re-open on October 1st next.

Proceedings of the Nova Scotia Farmers' Association for 1898. Containing a full report of the annual meeting held at Truro in February last.

Report of the Bureau of Mines, Vol. VII. First Part, 1898.

Third Annual Report of the Pennsylvania Department of Agriculture. Part I., 1897.

Annual Report of the Bee-keepers' Association of the Province of Ontario, 1897. Toronto, 1898.

Twenty-Ninth Annual Report of the Fruit Growers' Association of Ontario, 1897. Toronto, 1898.

Annual Report of the Butter and Cheese Associations of the Province of Ontario, 1897. Toronto, 1898.

Historical Sketch of the United States Department of Agriculture: Its Objects and Present Organization. By Charles H. Greathouse. Washington, 1898.

Report upon the Grasses and Foliage Plants of Central Texas. By H. L. Bentley, Special Agent in Charge of Grass Experiments at Abilene, Texas. Washington, 1898.

Dehorning Cattle, Bulletin No. 50. By the New Hampshire College and Agricultural Experiment Station. It is edited by F. Wm. Kane and H. H. Samson, and gives full description of the practice of dehorning.

Some Essentials in Beef Production. By Charles F. Curtiss, Director of the Iowa Agricultural Experimental Station, and published by the United States Department of Agriculture under the caption, Farmer's Bulletin, No. 71.

Report of the Connecticut Board of Agriculture for 1897 contains full proceedings of the board for the year. Among other topics discussed are: forage plants; education in the farm-house; the dairy industry and its economies; trees and shrubs; the farmer's opportunities and kindred subjects.

Year Book of the United States Department of Agriculture for 1897. It contains the report of the Secretary of Agriculture for the same year, together with a specially prepared article from each chief of bureau, division and office under the control of the Department, and prepared with a view of presenting clearly to the average farmer the nature and object of the work carried on by each. In addition it contains a number of miscellaneous papers especially selected because of their value in promoting the interests of higher agriculture. Among the subjects treated are: the popular education of the farmer; every farm an experimental station; the substitution of domestic for foreign-grown fruit; object-lesson roads; hybrids in plant breeding; control of seedling stuffs and agricultural products and prices. It contains over eighty illustrations, the larger number of which are full page plates and text figures of plants, fungi, etc., many of which are beautifully colored. On the whole this work of nearly eight hundred pages is a very valuable one indeed and a credit to agriculture on this continent.

SPRAYING FRUIT TREES.

For five weeks agents of the Ontario Department of Agriculture have been giving instruction in the spraying of fruit trees at thirty orchards in different parts of the province. Reports sent to Mr. Orr, superintendent in charge of this work, have just been received at the Department, to the effect that fungus is now appearing upon apple and pear trees, and threatens to do extensive injury to these crops unless checked at once by spraying. Insect enemies also are more numerous than usual this year. Apples, with the exception of the Spy, have set well, and where properly cared for there is promise of a good crop. In spraying apple trees to check or prevent the spot, use the Bordeaux mixture, made as follows:

BORDEAUX MIXTURE.

Copper sulphate 4 pounds.
Lime (fresh) 4 "
Water 30 gallons.

Suspend the copper sulphate in five gallons of water. This may be done by putting in a bag of coarse material, and hanging it so as to be covered by the water. Slake the lime in about the same quantity of water. Then mix the two and add the remainder of the forty gallons of water.

Warm water will dissolve the copper sulphate more readily than cold water. If the lime is at all dirty, strain the lime solution.

CENTRAL CANADA EXHIBITION.

Elsewhere will be seen the advertisement of the Central Canada Fair. This is the eleventh year of the show, which, since its inauguration, has progressed and improved, until now it is equal to even the Toronto Industrial, the greatest exhibition held in North America. That the directors of the Central Fair know their business is evident by the annual revisions and additions to the fair prize list. Every year sees changes in the interests of the exhibition. The live stock men and farmers generally have ever been treated especially well. Two years ago the directors erected new buildings—the finest in Canada—for the stockmen; last year the prizes were greatly increased in many lines in which the farmers are the competitors, and this year there have been still further increases. Every suggestion of a competitor has been thoughtfully considered, with the result that the association never loses an exhibitor. A new class in horses this year is for heavy-draught owned in the counties of Eastern Ontario. Heretofore farmers had to compete against city men and professional stock-raisers in the heavy-draught class. A new class in the prize list for swine is for hogs suitable for export. The values of the second and third prizes have been increased in the poultry department, while the building has also been remodelled and a large addition added, so that there will only be one storey of coops instead of two, as in the past.

Thirty-two gold medals are offered as special sweepstakes prizes for horses and cattle. As usual, there is a special prize for a milk test during the fair. And all this besides the extension and improvement of the grounds, the construction of a new main building, and the enlargement of the machinery building. Farmers who have exhibited at Ottawa in the past will be there again this year; those who have not yet been at the capital's great fair will do well to take their stock there this year. All particulars can be obtained by writing E. McMahon, secretary, C.C.E.A., Ottawa.

THE WINNIPEG INDUSTRIAL EXHIBITION.

We are in receipt of the programme of attractions and prize list for this year's great industrial exhibition at Winnipeg, which will be held from July 8th to 16th, inclusive. The directors of this exhibition have spared no pains to insure the complete success of the undertaking. The prize-list is a very large one, the other attractions are highly interesting, and there is no doubt the exhibition will be attended by a large number of visitors from all parts of Canada, as well as from the neighboring States. Breeders of live stock, manufacturers and others who desire to establish trade relations with Manitoba and the North-West Territories cannot get a better or cheaper means of introducing their stock and goods to the public, or of keeping them before their notice where business relations have been already established.

DETECTIVES WANTED.—Particulars free. Cottrell's P. & D. A. of A., Waco, Texas.

BATTLE'S THOROLD CEMENT.

An industry which has made rapid advancement among the farmers in Canada during the last year or two is "Battle's" famous Thorold Hydraulic Cement. This cement has been extensively used by engineers, contractors, stonemasons, builders, millers and hardware merchants for a period of sixty-six years, but until with the last two years the idea that any farmer would ever require a whole carload of it would have struck anyone as extremely improbable. This, however, is an age of progress, and the Canadian farmer has given unmistakable evidence of his ability to keep pace with the rest of the world in all matters affecting his interests, and particularly in the employment of those agents which afford economy in the management and conduct of his business. The time, labor and expense entailed in maintaining his numerous buildings in repair has led him to seek in their construction for those materials which combine the qualities of strength, durability and cheapness with those of a handsome appearance, and last, but not by any means least, absolute cleanliness. In the investigation of the merits of different building materials at hand he has been quick to see the advantages of the hydraulic cement over lumber, and everything else in fact, particularly in the construction of bank barns, stables, pig pens, etc., and for the walls and flooring of the dairy, the cellar, and all underground spaces used for farm purposes. The Thorold Hydraulic Cement is consequently being substituted for lumber wherever it can be used. It makes a magnificent floor, will last for all time, and one of its very best features is that absolute cleanliness can always be maintained with very little labor and without the soakage which is found so annoying and unhealthy for man and beast in connection with wooden floors. It is impossible to enumerate all its advantages here, but we subjoin a few quotations from testimonials to its excellence from amongst hundreds of a like character received within the past few months. Mr. E. D. Tilson, of Tilsonburg, who is well-known to all the readers of FARMING, after enumerating the various buildings (some of them very large) in which he has used the hydraulic cement, says:

"I have used nearly all of the different brands of cement sold in Canada, both Portland and water-lime cement, having built a good many sidewalks, for which I used both English and German Portland cement and some Canadian Portland; but in water-lime cement I have used mostly the Thorold cement made by your firm and predecessors.

So you will see that I have had a good deal of experience in the use of cement, having probably used more than any other single man, for his own use, in Ontario.

The greater part of my cement was bought from the late John Battle. Although I have had a good many car-loads from other firms I think the Thorold cement is the best for general purposes."

Messrs. Beswetherick Bros., near Hagersville, Ont., a portrait of whose mammoth barn many of our readers have no doubt seen, write as follows:

"Having used your Thorold cement in our stable floors, which were put in last fall under the supervision of your Mr. Ward Hagar, we must say it has given us good satisfaction in every particular. Our floors are as hard as stone.

BUY
Coleman's Salt
THE BEST

For Dairy or Table Use

IT IS UNEQUALLED.

Salt on the Farm

for wire worm, joint worm, army worm and all insects that destroy crops. Salt is the best insecticide. It is also a fertilizer.

TRY IT.

R. & J. Ransford
CLINTON, ONT

Potash

is one of the three important ingredients of a complete fertilizer; the others are phosphoric acid and nitrogen. Too little Potash is sure to result in a partial crop failure.

Free

An illustrated book which tells what Potash is, how it should be used, and how much Potash a well-balanced fertilizer should contain, is sent free to all applicants. Send your address.

GERMAN KALI WORKS, 93 Nassau St., New York.

We clean our stables by driving a team and wagon through the stable on the concrete behind our stock, and load the manure on the wagon. We can truly say it is just perfection for stable floors."

Messrs. Mills & Shaw, contractors and builders, of Bridgen, Ont., under date of May 13th, 1898, write as follows: "We intend using all Thorold cement on all our contracts and other work requiring cement. Our masons say it is A 1."

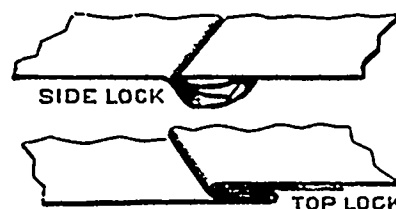
The manufacturers of the Thorold cement issue a very handsome pamphlet containing full and explicit instructions as to its proper use, which will be sent free to any one on application. FARMING can, with the greatest confidence, recommend the estate of John Battle as a first-class, thoroughly reliable business firm. They will be found to deal in an honorable manner with those doing business with them.

Publishers' Desk.

Secrets of Success.—Read the advertisement of Mr. H. H. DeWeese in this issue. "Secrets of Success" is spoken of as "the most practical farmer's book ever put in print." It will certainly pay any farmer to write to Mr. H. H. DeWeese, Dayton, Ohio, for the information he is prepared to furnish free.

The Noxon Steel Binder.—Please notice the advertisement of the Noxon Bros. Manufacturing Co., Limited, of Ingersoll, Ont., which appears in this issue. The Noxon steel binder is too well-known to require commendation from us. But if there should be any who do not know of its merits we should advise him to enquire of those who have used this excellent machine and found it to give perfect satisfaction in every particular.

Metal Shingles.—The necessity for a cheap and durable roof covering to take the place of the ordinary wooden shingle, especially for farm houses and buildings, has called into existence a great number of inventions, the most satisfactory and the most practical of these being the various metal shingles introduced during the past fifteen or twenty years. Even these, however, have for the most part been wanting in some of the essentials of a good substitute for the wooden material. While possessing the quality of durability and strength, they were difficult to lay, and comparatively expensive for the advantages they offered over the wooden shingles, and most of them were found defective in other respects. But some improvements have been recently discovered, and today a metal shingle is being manufactured by the Metal Shingle and Siding Company, Limited, of Preston, Ont., which is in every way suitable as a covering for all classes of buildings, and which has given entire satisfaction wherever it has been introduced. The



shingles are so constructed as to interlock one another on all sides. The above cut, illustrating top and bottom lock, shows how one shingle laps over another and hooks under a fold made in the bottom shingle near the top, while at the sides they interlock one another

in such a way that a double gutter is formed, which readily carries off any water finding its way into the lock. They are nailed to the roof along the top edge, the nails being fully covered by the next shingle, which laps over and hooks into the bottom shingle. There is no possibility for the ends or laps to open up so as to admit the weather. They are, therefore, absolutely waterproof. They are easily laid, have a very attractive appearance, and are practically indestructible. Ample provision is made for expansion and contraction, and every detail is so perfect that positively nothing seems wanting in them as a cheap, durable, and practical substitute for wooden shingles. They are made in several grades of painted steel, galvanized iron and stern plate, at prices which are easily within the reach of everyone. The company have been running their factory this season to its full capacity, and have filled orders from all sections in Canada. They issue a handsome catalogue, which will be sent free, together with samples and prices, upon application.

Moody's Hay Press.—Attention is called to the advertisement of Messrs. Matthew Moody & Son, of Terrebonne, Que., in this issue. The hay press which they advertise possesses many advantages over other machines of a similar kind. In the matter of convenience alone it is worthy of commendation. Those interested should send for the manufacturers' catalogue, which will supply all information required.

Stock Notes.

MR. JAMES MCKENZIE, M.P.P. of Burnside, Man., has purchased from James J. Davidson & Sons, Balsam, Ont., a team of mares exhibited by them at the Industrial last year, and where they were prize-winners.

MR. JAMES LEASK, of Greebank, Ont., in speaking of Moneyfuffel Lad, the unbeaten four-year-old Shorthorn bull, which now heads Captain T. E. Rolson's herd, says: "He is a sure stock-getter, as well as a first-class bull." Mr. Leask has not yet selected a successor to Moneyfuffel Lad, but will probably get something very fine when a successor is required. At present he has two registered bull calves, as well as a high-grade five-months-old, all of which were sired by Moneyfuffel Lad. They are rather too young for show purposes but will make capital bulls, and take a high place in the show ring when the proper time arrives. Mr. Leask will show a herd of four fine females at the Toronto Industrial Exhibition this year. They are, without any doubt, good enough to be put alongside the best in America, and it will take an extraordinarily strong herd to beat them in their class. He will also show the sweepstake yearling heifer of last year, and the best lot of fat cattle he has ever shown. This is saying a good deal when it is considered that Mr. Leask holds eight out of the nine first prizes for best grade cattle awarded in the competition in which his herd was shown. Altogether Mr. Leask's record is one of which he may justly feel proud.

THE HON. THOMAS GREENWAY'S herdsman, Mr. James Yule, has been making a tour of Ontario during the past few weeks making purchases of purebred stock for Mr. Greenway's farm at Crystal City, Manitoba. Among the purchases made were five Shorthorn s, all animals of the highest type. These are the Shorthorn bull, Catbness 22065, by Joselyn 17439, from Alex. Smith, Maple Lodge, a prize-winner, and one of the best animals in his class in the province. He is a four-year-old, and weighs 2,600 lbs. The Shorthorn cow, Vanity 24541, by Village Hero 14342, from H. & W. Smith, of Hay, Ont. This cow was the winner of first prize in the four-year-old and upwards class at Toronto last year, and will be a valuable addition to Mr. Greenway's herd. The price paid was \$450. The bull, Crimson Knight 26077, by Canada 10536, from W. D. Platt, Hamilton. This animal will also make a valuable addition to the herd at Crystal City. In addition a young bull and heifer were purchased from Alex. Smith, Maple Lodge. A splendid pair of Yorkshires were purchased from J. E. Brethour, of Burford, Ont. The boar at eight months weighed 400, and is one of the very best animals that has ever been shipped from Oak Lodge, which is saying a good deal. The sow was a first-prize winner at the leading fair. Mr. Greenway has always made a practice of purchasing prize-winners for his herd where possible, and consequently he has been able to gather together a herd which can hardly be surpassed in the Dominion. His herd will be on exhibition at the Winnipeg and Brandon fairs.

MARKET REVIEW AND FORECAST.

Office of Farming,

44 and 46 Richmond street W., Toronto,
June 20th, 1898.

The refreshing rains of the past week or two have put renewed vitality into trade. It is now pretty well assured that this season's crops will be a record breaker, though nothing is absolutely certain till the harvest is past. In the large trade centres business is exceptionally good and a big fall trade is expected. The proportion of cash sales is far ahead of last year.

Wheat.

Wheat seems to be pretty well started on the down grade, and in some quarters it is thought that bottom has not been reached yet. The situation of the past few months indicates pretty clearly the large grip the speculative element has upon the world's food supply. In too large a measure the wheat market is a kind of an arena for a contest between the "bulls and the bears." A month ago the "bulls" were on top and prices ruled high; just now it seems as if the "bears" had full control and were doing all they can to get the price down to rock bottom by the time the new harvest is ready for market. At present it would seem as if everything favored the latter. Cable reports show a dilapidated European market, and holders anxious to realize. In some quarters it is reported that this year's United States crop will exceed that of last year by 100,000,000 bushels, though reliable reports show that winter wheat in the United States is not in as satisfactory a condition as it was a week ago owing to too much damp weather, which is liable to bring on rust.

July wheat declined 1½ shillings in Liverpool in a single day and wheat arriving at the present time is losing money to shippers in large amounts.

The Toronto market has been a gradually declining one all the week. Red winter was offered on Monday at 90 cents without buyers, and Manitoba wheat at \$1.10 for No. 1 hard at Fort William, and \$1.15 at Toronto. At the end of the week holders were asking only 81c. to 85c., and old cars of red winter were reported sold at 80c., a drop of nearly 30 cents from three weeks ago. The quotation for No. 1 hard Manitoba at the end of the week was 95c. afloat at Fort William, and \$1.05 at Toronto. Whether the market is going to go lower or not it is hard to say just now.

Oats and Barley.

The oat market is developing a much stronger tendency. Last year's big crop is said to be pretty well out of the country. The London market is steady and holders are not anxious to sell, and an advance of 3d. to 6d. per quarter is reported. Large sales have been made at Montreal at 33½c. for No. 3 and 34c. for No. 2 in store, which is equal to 34½c. afloat. Oats here are steadier with an advance of about ½c. during the week, quotations ranging from 27½c. to 28c. west.

Barley at Montreal is dull at 44c. to 45c. for feed, and 48c. to 53c. for malting. Prices at Toronto are merely nominal.

Peas and Corn.

The market for peas in London is steady. Stocks are small and a decline of 6d. per quarter recently has stimulated a better enquiry. Receipts at Montreal are increasing and sales are reported at 62c. afloat. At Toronto the market is steady at 50c. to 51c. west.

At Montreal corn is firm at 40c. to 41c. afloat for No. 2 Chicago. Prices here have ruled at from 33c. to 34c. for Canadian yellow west, and 40½c. to 42c. for American at Toronto.

Bran and Shorts.

Milkfeed is lower with shorts quoted here at \$12 to \$13, and bran at \$9.50 west. At Montreal bran is quoted at \$12 to \$12.50, and shorts at \$13.50 to \$15.

Eggs and Poultry.

The London market is firmer and higher, with a further advance of 6d. per long hundred (120). Receipts have been more liberal during the week at Montreal, though the market has remained steady at 10½ to 10¾c. for selected fresh, seconds 9½ to 9¾c., and culls 8 to 8½c. The Toronto market has been steady during the week, with prices ruling from 10½ to 11c., the latter for perfectly fresh quality. Poultry here is about the same, at 10c. for turkeys, 50 to 60c. for ducks, and 40 to 60c. for chickens.

Potatoes.

Are quiet at Montreal at 55c. on track.

Potatoes here are quiet at 50c. in cars on track, and about 60c. out of stores.

Hay and Straw.

The market here is the same as last week, at \$8 to \$8.50 for baled hay in cars on track, and \$4 to \$4.50 for baled straw. At Montreal the quotations for baled hay are \$10 for No. 1, \$8 to \$8.50 for good No. 2, and \$7 to \$7.50 for ordinary. Bright quality of straw sells for \$4 to \$5 in car lots.

Small Fruits.

Strawberries are a big crop, and bring from 2½ to 3c. wholesale in the country, and 4 to 6c. at Montreal. Canadian cherries have already arrived in Montreal, and brought from 75c to \$1 per basket. The market here for strawberries was a little firmer towards the end of the week at 3½ to 6c. wholesale; cherries being from 50c. to 75c. per basket.

Wool.

The wool situation continues to puzzle dealers here. The prices paid at country points are lower than prices here and the puzzle is how the local dealers can afford to do it. Canadian fleece is selling in Boston for 28c., which, when the duty of 12c. is paid, leaves only 16c. for dealers here to work on. The market here is unchanged, and 16c. is the price being paid for washed wool. At Montreal the market has been more active during the week. Sales have been good, but orders only call for limited quantities. Manufacturers are looking for higher grade wools. It is estimated that 300,000 bales will be offered at the London wool sales, which begin on June 28th. Montreal prices are 14½c. to 16½c. for Canadian fleece, and 14½c. to 16½c. for greasy cheese.

Cheese.

A special London cable dated June 16th to the Montreal *Trade Bulletin* reads as follows: "The cheese market continues in a most unsatisfactory condition, with a weakness in values, and lower prices appear to have no effect in improving the demand. Prices have dropped 2s. per cwt. since my last cable." This shows the situation on the other side to be not very favorable. The market on this side appears to be in an unsettled condition, and the orders received are largely speculative. Exporters state that they cannot place goods over the cable at the prices that are being paid at some country boards. About 7½c. is the outside that cable limits will allow to be paid at Montreal, although 7½c. to 7¾c. have been paid there for fancy Western cheese. Sales have been made during the week at Ontario local markets at from 6½c. to 7¼c. as to quality; while finest Eastern has been sold at Montreal at 6½c. to 7c. May cheese is pretty well out of the factory's hands, and sales are not inclined to accept present prices for June make. When it is ready to ship the market may be a little more active as the quality of June make is usually very good. The total shipments of cheese this season up to June 11th were 118,671 boxes as compared with 186,630 for the same period last year, a decrease of 67,959 boxes.

Butter.

The London market continues dull. Liberal supplies are coming from Ireland. Choice Canadian creamery is quoted at 80c. to 82s. 6d., and good to fine at 65s. to 75s. The market on this side is higher both in Canada and the United States. At Elgin, Ill., the quotations were 16½c. to 16¾c. At Montreal there has been quite a hustle during the week for choice grass butter and sales of finest selected creamery are reported at 16½c. to 17c., and 16c. to 16½c. for quality below choice. This activity is due to large buying for storage in the old country. Sales are reported at Ontario creameries at 16½c. to 16¾c. at the factories. At Toronto there is a good demand and the market is steady at 17c. to 18c. for prints and 16½c. to 17c. for boxes and tubs. Receipts of dairy butter here are not so large and prices are steady at 12½c. to 13½c. for choice dairy tubs and 11c. to 12c. for poorer qualities. At Montreal 13c. to 14c. are the quotations for dairy butter and sales of Western dairy are reported at 13½c.

Cattle.

On the whole the cattle situation is not quite so bright as a week ago. The export demand in the United States was not so good, though for some other grades the Buffalo and Chicago markets were 10c. to 15c. higher. Late cable reports show the London market to be steady at a decline of 3d. per stone, and at this drop there is a much better enquiry. At Friday's market here an active trade was

done though receipts were heavier than early in the week.

Export cattle.—Have ruled firm during the week and price advanced somewhat. Some fine cattle passed through direct to Montreal for export and some to Halifax for Barbadoes. Many cattle passed Toronto because of the lack of market space. On Friday the very best cattle sold for \$4.50 to \$4.65 per cwt., but many sold below \$4.40.

Butchers' Cattle.—Are active, and the price higher. On Tuesday the price advanced full 30c. per cwt., picked lots being from \$4.40 to \$4.50 per cwt.; medium to good, \$3.55 to \$4.10; and common, from \$3.30 to \$3.40. These prices ruled on Friday's market.

Bulls.—The ruling figures for fine bulls for export are from 3½c. to 4c. per lb. No feeding bulls are coming in.

Stockers and Feeders.—There was an easier feeling early in the week, but the market was a little firmer on Friday; light stockers bring from \$3.50 to \$3.90 per cwt. Some half-fat feeders sold on Friday at 4c. per lb. More of this quality is wanted.

Cakes.—The offerings have been light. Choice veals sell from \$7 to \$8 each, with the general run fetching from \$3 to \$6 each.

Milk Cows and Springers.—Not much change in this market. Good cows sell well. Prices rule from \$25 to \$42 each.

Sheep.

The London market is quiet, with large receipts from Argentina, which have sold at low prices. At Chicago, during the week, the market has been active, though the Buffalo market has been the very opposite, owing to large supplies, sheep dropping 15c. to 20c. per cwt. The market here is fairly steady. Butchers' and export sheep sell for from 3c. to 3½c. per lb.; bucks, 2½c. to 3c. Yearlings were selling from 4c. to 5½c. per lb. on Friday, and spring lambs at from \$2.50 to \$4.50 each.

Hogs.

With increased receipts there has been a tendency to lower prices in the western packing districts, being about 10 cents per 100 pounds lower than a week ago. At Chicago and Buffalo lower prices prevailed early in the week. The market here has been firm during the week, though lower prices are expected. \$5.20 per cwt. for choice singers was the ruling price off the cars at Friday's market; ruling and heavy hogs being \$4.75 per cwt., sows 3c. to 3½c., and stags 2c. to 2½c. per lb.

Horses.

Canadian animals of a desirable kind sell well at the auction sales in England; but on the whole the horse market there is dull, and a decline of £1 to £2 per head was reported during the week. Receipts at Chicago are increasing, and prices have declined somewhat. The very choicest animals, however, command good prices. The Buffalo market has also been slow during the week, and prices have a lower tendency. Good prime



The Maple Leaf Churn

EASIEST AND BEST

Ask your dealer for it, or send direct to the manufacturers,

WILSON BROS.
COLLINGWOOD ONT.

draught horses bring from \$90 to \$140 each; good to extra drivers \$90 to \$160; exporters \$80 to \$125 each at Buffalo.

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REASONS WHY



A Canadian Steel Air-motor is superior to Gasoline or Steam Engines for the Farm:

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Power, Strength and Durability

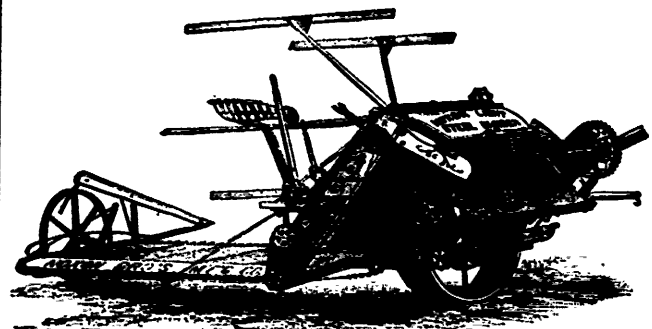
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Ont. Wind Engine & Pump Co. Limited
LIBERTY ST. - TORONTO

PLASTER IN THE STABLE.

If every owner of a horse, cow or chicken really knew the value of land plaster for fixing the ammonia in the manure, he would see to it that a barrel of it was always handy, and that it would be sprinkled in the stables every morning after the manure is cleaned out. This will largely prevent fire fang and preserve all plant food that is in the manure. Plaster should always be used sprinkled around all horses that are kept in the same building with fine carriages to absorb the ammonia, as this gas is detrimental to the paint, and its absorption keeps the building sweet.

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Noxon Bros. Mfg. Co., Limited

INGERSOLL, ONTARIO.

Farmers' Binder Twine and Agricultural Implement Manufacturing Co., Limited.

(BRANTFORD, ONTARIO).

WE think it necessary to immediately advise you to refute the treacherous and damnable reports that are being put out and circulated against this co-operative movement of farmers by our enemies. Some are stating that this mill is closed down, others that we are pleading with the Government to reinstate the duty on binder twine; others that raw material has so tremendously advanced, that the present moment is the correct time to buy twine requirements for the harvest of 1898; while still others are claiming that the great American combine must absorb this enterprise, as it will be impossible for us to manufacture twine on a free trade basis. We have simply to say, in answer to all these diabolical statements, that there is not a single word of truth in them; the mill is being run three hundred days in the year to its utmost capacity; we have requested the Government not to reinstate the duty on twine; and we are just now manufacturing a quality of pure Manila 650 feet long, known as our Sampson brand. It and our splendid Red Star (the farmer's pride) are superior to anything that has ever yet been placed on the Canadian market. As in the past, we will again shortly set prices on binder twine for the coming harvest at a fraction above actual cost of production, that all other manufacturers and dealers will have to follow. All we now ask, after five years of honest and determined endeavor in the interest of agriculturists of Canada to hold this Company as an independent concern, is that they, the farmers, give us their continued loyal support. Order our twine early from our appointed agents, listen to no statements made by the enemy, and remain truly loyal in not purchasing one single pound of American or other twine in opposition to us until they inform themselves positively that every ball of this Company's twine is exhausted. Small samples and prices will be sent you in the near future, or can be had on application.

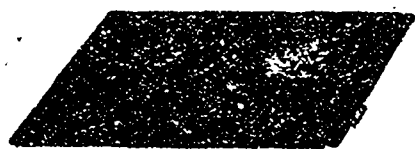
See copy of a letter enclosed that appeared in *The Farmers' Weekly Sun*, February 24th, for your careful perusal. We specially request you, as an intelligent man, to plead with your people to realize the importance of this company getting their undivided individual support instantly, and to understand what our being driven from existence through indifference or scepticism on their part would mean to them in the future. The Salt Act would simply be repeated a hundredfold.

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Next time you churn try Windsor Salt—it is the salt that suits the taste of particular buttermakers—and butter eaters.

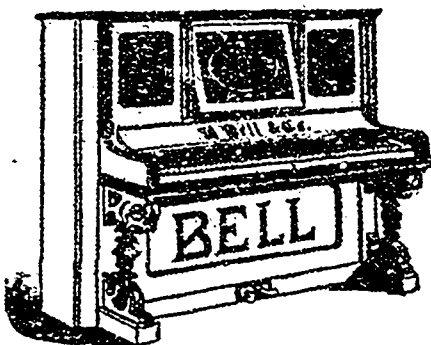
Other salt is said to be "as pure as Windsor Salt"—that usually settles it.

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The Windsor Salt Co.
Limited,
Windsor, Ont.

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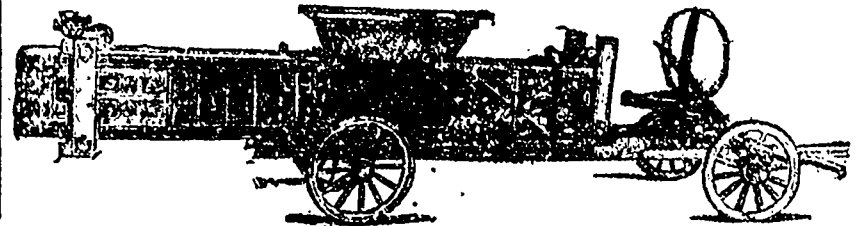
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