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FARMING.

SIMPSON'S

Directors: H. H. FUDGER, J. W. FLAVELLE, A. E. AMES

Beginning a Regular Correspondence



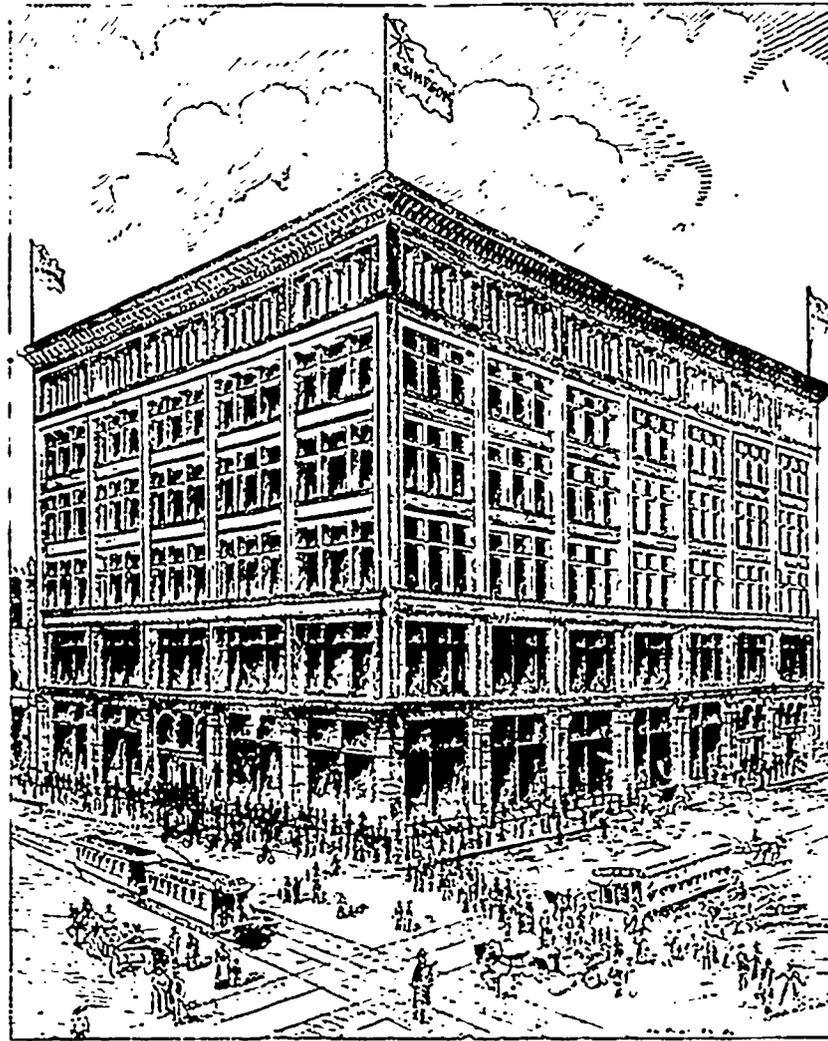
THE SIMPSON STORE, Toronto is to extend its Mail Order service throughout the Dominion.

Heretofore, we have confined our store news to the columns of the daily papers. But we think it is too good news to keep to the citizens of Toronto alone, and if you will follow our story in this space week by week we think you will find it rather interesting.

It will be a weekly news letter, which tells of store matters. We hope that it will be of a character which will draw forth an answer from you now and then, in fact, we hope that this is the beginning of a regular correspondence.

Department, a mammoth House Furnishing Section, an attractive Restaurant, in fact, almost everything comprised under the term, Canada's Modern Departmental Store.

If you have not already received our Spring and Summer Catalogue a postal card addressed as below will bring you one with pleasing haste.



THE SIMPSON STORE.

You probably know that we are among the largest buyers for retail consumption in the Dominion. We don't ask you to buy from us because we are one of the largest dealers. That of itself is of no consequence to you. But we do ask you to test for yourselves the Methods, the Policy, the Goods, and the Prices, which have given us that position.

We believe that our Mail Order service is the quickest in the country. We know that our collection of Spring and Summer Dress Goods, Silks, Wash Goods, Grenadines, and other lines of interest to purchasers by mail, are unequalled in the country. Besides Dry Goods this store has a complete Grocery

The Robert Simpson Co., Limited,

Department F,

TORONTO.

Isaleigh Grange Stock Farm

Ayrshire and Guernsey Cattle.
Improved Yorkshire Swine.



Shropshire Sheep. Our Ayrshire herd is headed by the noted bull, Matchless 7360, sire, Glencairn III., imp. 6955; dam, Nellie Osborne, imp. 5358.

Our Special Offer

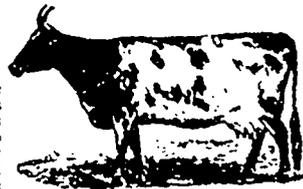
consists of six choice young Ayrshire bulls and a few heifers; two extra Guernsey bull calves, and a choice lot of sheep and pigs. All at very low figures for immediate sale.

T. D. McCallum, Manager.
Danville, Que.

J. N. GREENSHIELDS, Proprietor

GLENHURST HERD OF AYRSHIRE.

Noted prize-winners. Choice quality and heavy milking families. Extra fine young animals of both sexes for sale. Also Leicester Sheep and Berkshire Swine.



DAVID BENNING,
WILLIAMSTOWN, ONT.

506

...GOLDFINDER, Imp... -HEADS OUR AYRSHIRE HERD-

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.

R. NESS & SONS, Howick, Que.

MAPLE CLIFF STOCK AND DAIRY FARM

Ayrshire Cattle.
Berkshire and Tamworth Pigs.

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

R. REID & CO.,
Hintonburg, Ont.

One mile from Ottawa.)

HICKORY HILL STOCK FARM



Two young Ayrshire bulls for sale. One out of Dandy = 2223 =, the first prize in milk test at Guelph, 1896; the other out of Briery Bank Susie = 2547 =. Write or come and see.

NAAMAN DYMENT,
Clappison's Corners, 3 miles from Dundas.

HILL VIEW HERD OF AYRSHIRE, BERKSHIRES AND FANCY POULTRY.

FOR SALE—The stock Bull Grand Duke, sire Sir Laughlin, dam Primrose 4th, also choice young bull sired by Grand Duke. Large English Berkshire boar. Barred Plymouth Rocks and White Minorca Cockerels and Pullets.

R. E. WHITE, Perth, Ont.

FOR SALE

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 15.

JAS. McCORMACK & SONS,
Rockton Ont.

Dawes & Co.,

LACHINE, QUE.

-BREEDERS OF-

Ayrshire and Jersey Cattle and
Berkshire and Yorkshire Pigs.

- CHOICE AYRSHIRE -

FOR SALE—One two year old Bull and two Yearlings. Also three Bull Calves sired by Douglas of London 1874, bred by D. Morton & Sons, of Hamilton. Price to suit. Write for particulars.



R. W. TAYLOR,
Wollman's Corners, Ont.
Hoard's Station, G.T.R.

J. YUILL & SONS, Meadowside Farm, Caleton Place, Ont., Breeders of Ayrshire Cattle, Shropshire Sheep, Berkshire Swine and Barred Plymouth Rocks.

W. F. STEPHEN

Breeder of Choice Ayrshires from deep milking strains. The celebrated Uncle Sam, 6974, at head of herd. Orders now taken for bull calves. Write for prices, or come to Brook Hill Farm, Oars Crossing, Trout River, Que.

AYRSHIRE ... For Sale

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,
WARKWORTH, ONTARIO.

H. & J. MCKEE, Brookside Farm, Norwich, Ont.
Breeders Ayrshire Cattle, Silver Grey Dorkings.

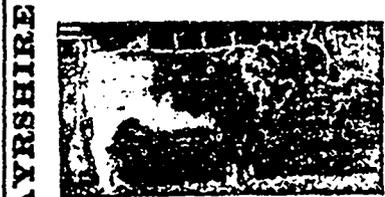
W. M. & J. C. SMITH, Fairfield Plains, Ont.,
Breeders World's Fair prize-winning Ayrshires, Merino Sheep, Poland-China Pigs, Poultry. Stock for sale.

WOODROFFE DAIRY AND STOCK FARM OTTAWA, CANADA



AYRSHIRE BULLS FOR SALE. One, two, and three-year-old. All prize winners at Ottawa Exhibition in 1896.
CLYDESDALES, YORKSHIRES.
J. G. CLARK, Ottawa.

Elm Shade Farm



The head of the herd is Lord Sterling, a prize winner. The imported Cows, Blue Bell, White Glen, and Kate Wallace, belong to this herd. Won the and herd prize at Montreal in 1897, against strong competition. Young stock of both sexes for sale bred from imported and prize-winning stock. WM. WYLIE, Howick, Que., or 228 Bleury St., Montreal.

FLEMING'S LUMP JAW CURE

Is sold under a positive guarantee to cure, or money is refunded

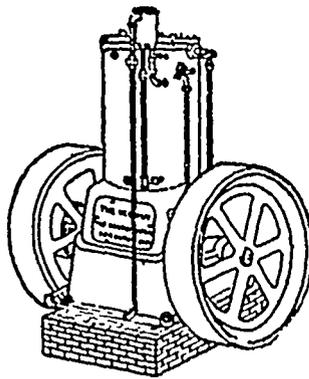


Trade Mark Reg'd.

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 and run several times before using it.
Yours truly,
FLEMING & SHORT.

PRICE, \$2.00, sent by mail
Illustrated Treatise on "Lump Jaw" sent free
Address

FLEMING BROS., Chemists, ST. GEORGE, ONT.



NORTHEY Gasoline Engine

The cheapest and best power on the farm for all work. Ready in one minute. Requires no water, no boiler, no fire. Our Booklet tells all about it. Write for it.

Northey Mfg. Co., Limited, Gas Engine Dept. O Toronto

EGGS FROM WINNERS

Matched to produce winners in Light Brahmas, Buff Cochins, Houdans, Red Caps, Black Spanish, S.L. Wyandottes, \$1.50 per 15. Barred Rocks, Brown and White Leghorns, \$1 per 15. Mammoth Pekin Ducks, \$1 per 15. Can also spare some high-class exhibition Game Eggs, \$2 per 15. Our stock won 269 prizes the past season. Satisfaction guaranteed. Address,

J. C. LYONS, Lucknow, Ont.

FOR SALE

Jersey Cattle, Duroc-Jersey and Chester Swine; Collie Dogs and Mammoth Bronze Turkeys; Choice Cows and Heifers fresh calved or soon due. Also young heifers and bulls. D. J. Sows due in March and April. Handsome Collies of both sexes and M. B. Turkey Eggs in season. Prices low.

CHAS. MACKAY, Box 80, Thornbury, Ont.
Glenhyrst Poultry Yards

REDCAPS, S.C. WHITE & BROWN LEGHORNS and WHITE WYANDOTTES.

Young Stock for Sale. EGGS, \$1 for 15. Imported Pure-Bred Tamworth Swine, both sexes, for sale. Satisfaction guaranteed.

DELOS REESOR,
Box Grove, Ont.

RIVER VIEW POULTRY YARDS

EGGS for HATCHING from Prize-winning Dark Brahmas, Barred and White Plymouth Rocks, Black Minorcas, R.C. White and S.C. Brown, Buff and Black Leghorns, Partridge and White Cochins, at \$1.50 per 15. Satisfaction guaranteed.

Address, A. J. GEORGE
Stock for sale. 53 Clarence St., LONDON, Ont.

S.C.W. LEGHORNS Utility strain, Extra large birds, Prolific layers of large eggs. 200 hens in 1897 averaged 16 1/2 doz. each. Also E. P. Rocks (E. B. Thompson's strain). Incubator R. C. ALLAN, Cobourg, Ont.

OLENTANGY INCUBATOR This Machine will hatch every fertile egg, 50 thousands testify. It is the best Self-Regulating machine made. Brooder \$25.00. Catalogue free. Address, GEO. S. SINGER, Cardington, O.

FOR SALE

50 BARRED Plymouth Rock Hens; also a few Silver Wyandotte and S.C. White Leghorn Cockerels. Prices to suit the farmers. Eggs from B.P. Rocks and Silver Wyandottes, \$1 per 15. Pekin Ducks, \$1 per 15. W. R. GRAHAM, Bayside Poultry Farm, Belleville, Ont.

Clydesdale Stallions

2 Prize-Winning Stallions

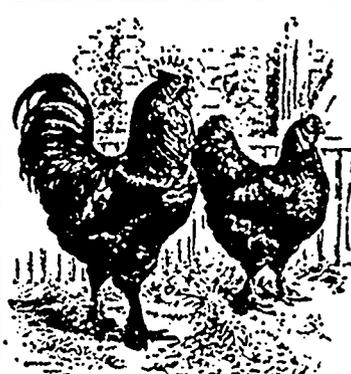
DOUGLASS MACPHERSON (Imp.) [1791], and GRANDEUR II. (2246). Also a number of Brood Mares and Fillies of superior breeding and several winners at the leading fairs of Ontario.

I. DAVIT & SON, Freeman.

HEAVY DRAFT STALLION FOR SALE

"Lord Douglas" (1054), foaled July 17th, 1887. Will sell for \$250 cash or will accept approved note. His get can be seen on the farm. JAMES BOWMAN, Guelph, Ont.

A.J.C.C. JERSEYS of the richest breeding. Our herd is noted for large butter records; can always supply animals of both sexes and ages. Whole herd rich in St. Lambert blood. Bulls ready for service, and several cows direct granddaughters of Stoke Fogis the 3rd. Prices to meet the times.
HILLSDALE STOCK FARM,
Milford, Hants. Co., N.S.



EGGS \$1.50 per Fifteen - \$2.50 per Thirty.

BLACK LANGSHANS Three Grand Yards SINGLE COMB WHITE LEGHORNS Two Yards

JOHN F. HILL, Welland, Ont.

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 in this variety than all other exhibitors combined. Eggs \$2.00 per 15. Plymouth Rocks and Dark Brahmas same price.

W. J. BELL, Angus, Ont.

HATCH Chickens BY STEAM—With the MODEL EXCELSIOR Incubator. Simple, Perfect, Self-Regulating. Thousands in successful operation. Lowest priced first-class hatching machine. GEO. H. STALL, 114 to 122 S. 6th St., Guelph, Ont.

GLENHYRST POULTRY YARD. EGGS FOR SALE.

White Wyandotte, White Plymouth Rock, Cornish Indian Game, Black Minorca, 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 here. Registered. Prices right. STRATFORD BROS. Brantford Ont.

OSHAWA POULTRY YARDS

S. L. Wyandottes, Red Caps, Golden Polands, and Rose Comb Black Minorcas. All high class stock. EGGS, \$1.00 per Thirteen.

W. H. KIRBY, - Oshawa, Ont.

Horse Owners! Use GOMBAULT'S



Caustic Balsam

A Safe Speedy and Painful Cure. The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all humors or rheumatisms from horses and cattle. SWIFTLY REMOVES ALL GAITHER OR FIRING. Inexpensive to produce scar or blisters. Every bottle sold is warranted to give satisfaction. Price \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars. FINE LAVERGNE & WILLIAMS CO. TORONTO

FARMING

VOL. XV.

APRIL 26TH, 1898.

No. 34

FARMING

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

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

TOPICS FOR THE WEEK

Our Clubbing List.

	Regular price.	With FARMING.
Canadian Magazine	\$2 50	\$2 50
Toronto Weekly Globe	1.00	1.50
Toronto Weekly Mail and Empire	1.00	1.40
Farm and Fireside	1.00	1.40
Montreal Daily Witness	3.00	3.00
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Montreal Weekly Witness	1.00	1.60
Family Herald and Weekly Star	1.00	1.75
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London Weekly Advertiser	1.00	1.60
Ottawa Semi-Weekly Free Press	1.00	1.60
Hoard's Dairyman	1.00	1.75
Rural New Yorker	1.00	1.85

Agricultural News and Comments.

Reports from Manitoba indicate that the spring seeding will be completed five weeks earlier than last year. This should prove a distinct advantage to the prairie farmer. His great difficulty is the summer frosts, and if the wheat crop is sufficiently mature before the frost comes not to be injured by it, the Manitoba farmer is sure of a good crop.

American fruit seems to be getting it on every side. The Austrian authorities have issued a decree forbidding the importation of American fresh fruit, plants, fresh fruit refuse, fruit wrappers and fruit packages, etc., in cases where the examination at the port of entry results in the discovery of traces of the San Jose scale. Such actions on the part of European governments may prove blessings in disguise to the American fruit-grower, as they will certainly have the effect of inducing more rigid investigation on the part of the authorities towards exterminating the pest in America.

Before the Agricultural Committee last week, Professor Robertson stated that there were 150 creameries in operation last winter, each turning out \$10,000 worth of butter. There are sixteen fully equipped creameries in the Northwest, which, in the year ending October 31st, 1897, produced \$85,264 worth of butter. Prof. Robertson spoke encouragingly of the prospect of working up a large trade in butter with Japan. The report of Prof. Robertson's department is now being prepared, and will be ready for distribution in three weeks. The Hon. Mr. Fisher, Minister of Agriculture, says that it will be the most complete compendium of agricultural information ever issued in Canada.

Quite an interest is being taken in some parts of the United States in what is known as mushroom farming. The demand for this fungus deli-

cacy is enormous as compared with the supply, regardless of the exorbitant prices at which mushrooms are sold. The mushroom can be grown at from five to fifteen cents per pound wholesale, and the present wholesale price is fifty cents per pound. The only expense attached to mushroom culture is for spawn, and time and labor of cultivation. The best spawn will cost from \$10 to \$15 per 100 lbs. The best soil is horse, cow and pig manure from grain fed animals.

Prof. Roberts, of Cornell University, values the manure produced during the seven winter months on a farm carrying four horses, twenty cows, fifty sheep and ten pigs, at \$250. In a great many cases from one third to one half of this is lost by neglect and poor management. By actual tests at Cornell it has been shown that horse manure thrown in a loose pile and subjected to the action of the elements will lose nearly one half of its valuable fertilizing constituents in six months, and that mixed horse and cow manure in a compact mass, and so placed that all water falling upon it quickly runs through and off, is subject to a considerable, though not so great a loss.

The following table is from the report of the United States Department of Agriculture, and represents the number and value of the hogs in the United States on the first of January each year for the past four years.

	No.	Value.
1898	39,759,993	\$191,972,961
1897	40,600,276	166,272,770
1896	42,842,759	186,529,745
1895	44,165,716	216,501,267

At the Union Stock Yards, Chicago, on April 8, 1898, prices ranged from \$3.75 to \$3.90 per cwt.; on April 9, 1897, from \$3.90 to \$3.97½; on April 10, 1896, from \$3.70 to \$3.90; and on April 12, 1895, from \$4.80 to \$5.00. In April, 1893, prices reached as high as \$7.30 for the medium to heavy grades.

The trade in eggs and poultry between Great Britain and France is declining, owing to increased imports from Belgium, Germany, Denmark, and Russia. During 1897 Great Britain paid for eggs to France £1,022,869, Belgium, £768,077, Germany, £813,022, Denmark, £596,282, and Russia, £812,297. The total imports from abroad amounted to four and one half millions sterling. Why is it not possible for Canadian poultrymen to supply a larger share of this trade?

The official estimates for the potato and hay crops of 1897 in Great Britain show a great deficiency of the former and an abundance of the latter. The yield per acre of potatoes was 16 cwt. per acre less than the ten years' average, while the area was 59,000 acres less than in 1896. The yield of hay from clover and rotation grasses was about ½ cwt. per acre over the ten years' average, and that of hay from permanent pasture was 2½ cwt. above.

So alarmed have the French breeders become regarding the importation of American horses into France that they have induced the Chamber of Deputies to raise the entrance duty to £8 for five-year olds and upwards, to £6 for four year olds, and to £3 for younger animals. In 1888 France exported 25,822 more horses than were imported, while during the last three years the imports have exceeded the exports by 14,000. No fewer than 46,000 horses were imported from the United States last year, which sold for about £35 each on the average.

According to the annual report of the superintendent of the London Central Meat Markets, there

was a falling off in the supply of country killed meat to those markets of 7,061 tons. On the other hand, there was an increase in the European meat of 6,995 tons, in Australia and New Zealand, 13,314 tons; but a falling off in American killed of 2,258 tons, giving a net increase in the foreign supply of 18,051 tons; and after deducting the loss on the country killed supply, from which must be taken an increase in the town killed supply of 1,774 tons, which left the actual reduction in the home supply only 5,287 tons, it appears that in 1897 there was an increased supply of 12,764 tons.

The Wool Situation.

According to *The Monthly Bulletin* of the National Wool Growers' Association, the world's supply of wool has been growing smaller for three years and the demand is increasing. European manufacturers are said to be very much in need of merinos and fine cross breeds, and in their endeavor to find cheap or reasonable values they have been seeking wool in very unusual places. England has cleaned up the Cape and South America wools at 15 per cent. advance over December values. Among the features in the European situation is an advance of 2 cents in the price of tops since the first of the year.

In America the volume of trade has been steadily advancing, and one can reasonably expect 25 to 33 per cent. greater volume in 1898 than in 1897. In this connection the situation of the wool manufacturer may be considered fortunate. The American wool grower is described as being "in clover." He will have a large amount of wool to sell and will very likely receive 75 to 100 per cent. more for his wool than the average for the past five years.

If it is true that the situation in the United States and Europe is so favorable for the wool grower, it is to be expected that the Canadian producer of wool will also come in for a share of the good things. There is no reason whatever why he should not profit by these favorable conditions. The one thing that may prevent him from doing so is the scarcity of supply. Many Canadian farmers of late have gone out of wool growing to a large extent.

Intensive Farming.

A correspondent asks for information regarding intensive farming. It is hard to say in so many words what is really meant by intensive farming. It may be described as a system of farming by which the farmer can by thorough cultivation, by regular rotation of crops, and by feeding more stock on the farm, not only increase the fertility of the land, but make it more productive. To do this successfully the farmer must be a student and must thoroughly understand the nature of the soil he has to deal with, and must also bring active business principles into his farming operations. A good sample of intensive farming is that practised in England. The English farmer practise thorough cultivation, and makes every effort to conserve the fertility of the soil.

In our issue of December 28th last we published an account of the farming operations of Mr. D. M. MacPherson, Lancaster, Ont., for 1897. Mr. MacPherson's system may be taken as a good example of intensive farming. Everyone who read that account must have realized that Mr. MacPherson practises a system of farming quite different to that practised by the average farmer. If the figures given in that account are correct, and we have no reason to doubt them, what Mr. MacPherson has produced from his 125 acre farm

is marvellous. The total cash receipts for the year were \$7,810.70, and the total cash disbursements, which include labor, feed purchased, stock purchased, and general expenses, were \$6,365.18, leaving a balance of \$1,445.52. The amount of capital invested was placed at \$13,000, thus showing a profit of over eleven per cent. on the investment. Mr. MacPherson believes thoroughly in keeping up the fertility of the soil, and in all his farming operations makes that his first object. He believes that for every dollar's worth of fertilizing value added to the land he can get one dollar's worth of increased crop the next year. In 1897 he spent \$2,180.50 in hard cash for feed, his contention being that by putting the fertility to be gained by feeding this extra feed on the farm into the soil, he could largely increase its productive power the following year. In other words, by practising a system of farming that will put more fertility into the soil than is taken out by the season's crop, the productive power of the land will go on steadily increasing year after year.

This is quite different from the system of farming practised by the average Canadian farmer. The trouble is that too many of our farmers are working too much land, and the consequence is that a great deal of the land is not half worked. In the older provinces like Ontario, where the land has either lost its original fertility or is gradually losing it, a better system of cultivation is necessary, and a system of farming that will not only preserve the fertility already in the soil, but will increase it. Of course a system of farming that has these objects in view must pertain largely of stock farming. For the older provinces stock farming is necessary if the farmer wishes to compete with settlers in the newer districts where grain farming is the mainstay.

The Canadian Hog on Trial in Chicago.

The following extract from *The Breeders' Gazette* in relation to Armour & Co.'s experiment re Canadian bacon pigs will be of interest to our farmers. Though the results obtained were not sufficient to warrant the importation of dutiable pigs for the American bacon trade, they show clearly that the Canadian bacon pig is far ahead of the American corn-fed hog for this particular purpose. It will be in the interests of the Canadian breeder if the American hog raiser clings to his corn-fed pig as the most profitable hog for him to produce. For the Canadian export trade a typical bacon hog is a necessity if we are to hold the market and further develop it. Our breeders cannot go too far in this particular. The sooner they adapt themselves to the changed condition of things the better, and the more profit will there be in the business of hog raising for them:

In December last Armour & Co. purchased in Canada a shipment of 150 York sires "bacon pigs," paid duty on them, and made them into bacon at their packing plant in this city and sent the product abroad to test the market for such bacon as compared with the cured product from the corn-fed hog of the West. Complete returns have been received from the venture and Mr. S. S. Conway, superintendent of the Armour packing-house, authorizes us to state in brief that the result proved that it was not profitable to import pigs from Canada and pay the duty in order to manufacture export bacon. The bacon from the experimental lot of Yorksires was entirely satisfactory and commanded a premium in the English market, but that premium was not sufficiently large to offset the increased cost of preparing it from imported dutiable pigs.

It now remains to be seen whether the premium commanded by the product from the bacon pigs will warrant packets in paying a premium to farmers sufficient to cover the enhanced cost of producing such pigs. That they can be produced in the States does not admit of doubt. It will probably take selection as well as feeding to do it, but we see no reason for going outside of the breeds now in possession of our farmers to produce this type if the market will warrant the growing of the bacon pig. Certain it is that nothing in the present or probable future conditions warrants breeders in setting about the undoing of the past half-century of work in swine-improvement by the introduction of the blood of the wild hog or his semi-civilized cousin.

Agriculture in the Public Schools.

In this issue we publish an address by C. C. James, M.A., Deputy Minister of Agriculture, on this important subject. It should be carefully read by everyone interested in the advancement

of the agricultural interests of this country. Mr. James shows very clearly the necessity of teaching the principles which underlie the science of agriculture in the public schools, and especially in the rural schools, and of directing the young mind at an early age to a study of the nature around it. As he points out, in order to teach agriculture successfully it is not necessary to teach practical farming. What is wanted is not a training in how to farm, but a system of instruction that will create in the young mind a love of nature and a liking for agriculture and agricultural pursuits. The young mind is very plastic, and capable of being moulded in almost any direction, and impressions made at an early age will be remembered in after years. So the kind of instruction in agriculture we want in our public schools is a system that will so impress the young mind with a love of the country and of the nature around it, that will induce its possessor to take up agriculture as an occupation not because he has to, but because he has such a love for the farm and the farmer's calling that he cannot do anything else. We believe that one strong reason why we have so many unsuccessful farmers to-day is because they have no particular love for their calling. They have been induced to farm owing to circumstances, perhaps, over which they had no control, and have been working on year after year in a kind of hur-drum fashion, with no particular interest in their work other than that it enabled them to make a living.

In his address Mr. James advises teaching agriculture in the town and city school as well as in the rural school. This is sound advice. While it is advisable to make the study of agriculture compulsory in the rural school, it might be made optional in the city school. At any rate we think the pupil of the city school should be given an opportunity to study the subject if he so desired. Many claim that this is not needed, and that if agriculture is taught to the pupil in the rural school all the needs of the situation will have been met. We do not look upon it in that way. If, as many contend, the tendency of our present educational system is to direct the rural youth to a professional calling or a life in the city, then ever since we had an educational system the girls and boys in the country have been educated away from the farm. If this be true, and it has many conscientious believers, is it not time for a change, and should we not begin right away to educate the youth of our towns and cities to make farming their life calling? The cities surely can stand such a depletion of their ranks. In fact it would be one of the best things that could happen the overcrowded professions, business establishments, and manufacturing industries, if 25 per cent., or even 10 per cent., of the children now being educated in our city schools could be induced to engage in the business of farming. So let us have a system of agricultural instruction in the public schools that will reach both the city and country pupils alike. Then if the city pupil has no inclination to become a farmer, he will know how a large share of the food he consumes every day is produced, which must be a distinct advantage to every consumer.

The Export Cattle Trade.

According to Mr. Hunnisett, of the firm of Crawford & Hunnisett, cattle exporters, who has just returned from a trip to England, Canada is likely to be outdistanced by South America in the cattle export trade. South American cattle of good quality are being shipped to the British markets, and are becoming competitors with Canada and the United States for that trade. One shipper from South America reports that no less than forty steamships laden with cattle from that country are on the ocean bound for the British markets. The South American dealers are bound to be at the top of the export cattle trade of America, and in order to improve their cattle the ranchers make it a practice to visit England annually to purchase the very best Shorthorn bulls obtainable for their herds. They do not use any of the progeny of these bulls or sires, as they claim that in

doing so their herds would become degenerated and produce lanky, long-legged, lean cattle, instead of the low-set, chunky animals with lots of flesh, such as the English trade demands.

This point is worthy of note by Canadian breeders. Though we would not go so far as to advise the use of only imported sires, still there is room for improvement along that line. We cannot hope to produce beef suitable for the English trade unless we have good stock to begin with, and to get this good stock our breeders will frequently have to go back to the original source of all good stock, viz., the live stock herds of Great Britain. There is, however, every indication of an improvement along this line, since the removal of the too stringent quarantine regulations a few months ago, and the allowing of importers to bring in animals on the certificate of an English veterinarian that no disease exists in the importation, and we may look for a great improvement in the quality of cattle produced for the export trade during the next few years. Our breeders and feeders cannot be too strongly impressed with the fact that only the finest types of beef cattle are suitable for the English trade. If they are not prepared to supply these they had better direct their energies towards developing some other side of the export trade. If we do not supply the right quality, other countries, such as South America, will, and will replace us in the British markets.

Mr. Hunnisett is also of the opinion that there is something wrong with the dead meat trade, either in the cold storage system or in the manner of killing or handling, as a good deal of the Canadian beef and some of the American arrives in bad condition. Our dressed meat trade is only beginning, and it may be that those operating it do not thoroughly understand its working yet. If the plan outlined for cold storage facilities has been fully carried out there should be no difficulty on that account. We understand that some of the shipments of dressed beef sent forward last year were not as neatly dressed and finished as they might have been, and consequently did not bring as good results. If every little detail is looked after in preparing and finishing the carcass and in providing cold storage facilities on board of the cars and boat, there should be no difficulty in developing the export trade in dead meats, providing, of course, that the right quality of stock is to be had to begin with. If the people of Australia and New Zealand can successfully ship dressed meat to England, surely we, who are much nearer the market, can do so. There is a general feeling among many cattlemen that their shipments must be more carefully handled, and that other and better arrangements than those at present in force must be adopted, both in England and Canada, before the export cattle trade will be a success.

Mr. Hunnisett points out that Canada is away behind in the quality of mutton, New Zealand having outdistanced us in quality and quantity. New Zealand ships large quantities of yearling lambs of good quality in cold storage, which arrive in England in extra good condition. On the other hand, Canada only ships bucks and ewes that have been fattened for the purpose. Englishmen prefer the juicy meat of the New Zealand lamb to our fat mutton.

This is something for our farmers to think of. Our market for lambs outside of Canada has been the United States. It is a question whether it would pay to devote some attention to preparing lambs for the British markets. It may be that our farmers would not be able to compete with the cheap mutton from New Zealand and Australia. At any rate, the question of sending Canadian lambs to England may be worth looking into.

The Outlook for Cheese.

The outlook for cheese has greatly improved during the past few weeks. Recent reports from England indicate a largely increased consumption. The consumption of cheese in Liverpool alone during the month of March amounted

to 87,000 boxes, which is considered unprecedented. The low prices, as was intimated some time ago, have induced an enormous consumption of cheese in Great Britain, and the old stocks are fast being absorbed. English fine Cheddars are reported to be getting quite scarce. The prospects at the present time are, that unless there is a larger quantity to go forward from this side than is anticipated, the season's wind-up will be much better than those in the trade expected.

Though it is difficult to estimate exactly the quantity of cheese on this side we are inclined to the opinion that the bulk of last year's goods has gone forward, and that the stocks on hand here will not be sufficient to affect the upward turn which the market is now taking. Besides, the very small make of early fodder cheese will help the situation considerably. Compared with last spring the make of early cheese is very small indeed. A great many of the large factories will make butter till the first of May, while others intend to make butter till the middle of May if prices will warrant it. It would be well if all factories would make butter as long as possible. It would help the situation wonderfully and cause prices to go still higher. No doubt the present low prices for cheese and high prices for butter will cause many dairymen to withhold their milk from the factories even if they do start. A year ago finest Canadian cheese were selling at Liverpool for 56s. and 57s., and now they are 37s. and 38s. per cwt., a shrinkage of 19s. per cwt., or about 4cts. per pound. Since last September the price in Liverpool has dropped from 47s. to 37s., which must show considerable loss on the part of those who invested largely in last fall make of cheese.

Though the prospects for the present season have greatly improved, our dairymen should bear in mind that there was an unprecedentedly large make of cheese last year, which if repeated during any season must inevitably overload the market and bring lower prices. We have reached our maximum limit in the production of cheese unless we are willing to accept lower prices, and any movement towards a further increase of the output would only tend to overload the British market with more than it could conveniently take. The energies of our dairymen then should be directed more to improvement in the quality of the product. Though we lead every other country exporting cheese to Great Britain in the quality of our goods, there is still room for improvement. Improvement in quality has not kept pace with the increase in quantity during the past ten years. Then, again, there is ample room for the surplus energies of our dairymen in developing the export butter trade. The average consumption of butter in Britain is much greater than that of cheese and affords a much wider scope for the energies of our dairymen.

Canadian Barley for Export.

There seems to be a possibility of developing a trade with Great Britain in Canadian barley. The proprietor of a large Scottish distillery is visiting Canada with a view to gaining information regarding the quality of Canadian barley, and the possibilities of securing supplies large and constant enough for manufacturing purposes. The home supply has run short, and the distillers are now dependent upon the continent of Europe for barley. If the right quality of barley can be secured here, there is no doubt that a good trade can be established.

Of late years the Canadian farmer has not given so much attention to the growing of barley for malting purposes. The larger share of the barley grown to day is for feeding purposes, and consequently is not of a quality suitable for the export trade. There is no doubt, however, that a good quality of barley can be grown here, as has been the case when the American markets were open, and there is no reason why the Canadian farmer should not be able to supply the British distillers with a quality of barley suited to their needs. Particular care must be given to the gathering of the crop, so that the bright color of the grain may

be preserved. If this is done, and a variety sown that will produce good plump grains, there should be no difficulty about pleasing the British distiller.

Beware of Preservatives.

In last week's issue we drew attention to the fact that the British authorities are taking urgent steps to prevent the sale of butter containing boric acid, and warned our dairymen against the use of any preservatives other than salt in making butter for the export trade. In this connection a very timely circular has been issued to dairymen by the Hon. John Dryden, Provincial Minister of Agriculture, in which they are strongly urged not to injure the good name of Canadian dairy products by the use of any preservatives in butter that might be classed as adulterants. The circular points out the importance, at this stage, when our creamery industry is so rapidly developing, of our dairymen turning out butter of a uniformly high quality, pure and unadulterated. The following extract from the circular sums up the situation most clearly and concisely:

The increasing use of these preservatives has alarmed the British consumer, and most radical measures are now proposed to exclude all butter in which traces of these preservatives are found. The British public has become alarmed, the press is actively discussing the matter, and public officials are now on the lookout for butter so adulterated. It must be carefully noted that all butter made from milk or cream to which anything but common salt has been added is adulterated. The butter producers of Ontario must make no mistake. The use of any of these preservatives is dangerous to the dairy interests of this country. Everything possible should be done to discourage the use of such substances, and the press should, as far as possible, prevent the advertising of them in this country. Ontario has a reputation for producing pure dairy goods of high quality. That reputation must be maintained, and every person interested in the dairy business in Ontario should assist in preventing these "preservatives" from getting a foothold in this Province. "An ounce of prevention is better than a pound of cure." We have a reputation now for making pure butter and cheese. Help to maintain that reputation. Do not advocate preservatives. Do not advertise preservatives. Do not use preservatives.

The Poultry Industry of Canada

By THOMAS A. DUFF, Toronto, Ont.

(Continued from last week.)

MATING AND FEEDING DUCKS.

In order to obtain the greatest profit out of your ducks you should have them lay as early as possible after the first of January, and begin hatching just as soon as you have enough eggs. Do not set the first dozen eggs which are laid by a duck, as they are usually unfertile. Your aim should be to get as many early ducklings as possible, because it is from the sale of these that you obtain the greatest profit. Young ducks should be fed all the good, strong food they will eat, and marketed when from eight to ten weeks old. Kill them when they have the least pin feathers.

Ducks do not need a very warm house, although they should be protected from the wind. Plenty of dry litter should be scattered upon the floor of their house.

By the first of January your ducks should be mated, leaving four ducks to one drake. Put them into the pen where you intend to keep them during the season, and do not remove them until through breeding, because if you do it will put them off from laying. It is best to mate a two-year-old drake with young ducks.

By seven o'clock in the morning you should feed your breeders. Never feed them whole grain. Always give them a mash composed of shorts, bran, oat chop and barley meal. When you wish them to lay add pea meal to the mash and feed plenty of meat scraps. Boil mangels, turnips, or potatoes for them, and mix these with the meal. Ducks are very fond of cabbage. They must also have plenty of grit and eggshell forming material.

In the feeding of ducks you should have a trough in front of which place slats, so that they will have to put their heads through these slats in order to get at the food, otherwise they are apt to trample all over it and waste a considerable quantity. Give them plenty of fresh water.

Canadian Oats in England.

As we pointed out in a former issue Canada is becoming an important factor in supplying Great Britain with oats in competition with Russia, the United States, Turkey and Holland. During the past season of 1897 and 1898 she has exported for Great Britain and the Continent over seven million bushels of oats as against half that quantity in the season previous. Owing to the shortage in the Russian supply it is expected that Canadian oats will continue to be wanted right up till next harvest. At Montreal at present the stocks of oats amount to 1,049,765 bushels as compared with 826,823 bushels a year ago, but a considerable portion of the same is already engaged for early shipment, principally for British ports.

Cheap Money for the Farmer.

Premier Turner, of British Columbia, has introduced into the local legislature a cheap money bill, which is the first measure of its class introduced in America. The bill provides for the organization of an Agriculturists' Credit Association whose debentures shall be guaranteed by the Government, the farmers thus obtaining for the making of permanent improvements the low interest rate obtainable upon the high credit of the province.

As there is a strong feeling in favor of some such arrangement in British Columbia, the bill will likely become law without much opposition. The working of the bill will be watched with interest. If it enables the farmer to get cheap money to carry on his farming operations, agriculture west of the Rockies will take on a new life.

Getting Ready for the 1898 Exhibition.

The Dairy and Honey Committees of the Industrial Fair Association met on April 21st last in the manager's office. The dairy display will be located in the same place as last year. The Exhibition Association is very desirous of doing every thing within its power to assist the dairymen in making a creditable display, but as this year ends the term of the lease under which the fair is managed, the directors are not in a position to make any new arrangements in reference to the dairy exhibit. Next year, when a new lease of the grounds is made, all the departments of the exhibition will be placed on the best footing possible.

A new and special attraction is being arranged for in the bee department. This will consist of an exhibit showing the natural history of the bee, the interior of the hive, queenless colonies of bees with queen cells, drones and workers, comb building and honey storing in different styles and will be placed in a tent in a central portion of the grounds.

NOTES AND IDEAS.

During 1897 the loss among cattle and sheep in the trade between South America and Great Britain amounted to 97 per 1,000 among cattle shipped, and to 37 per 1,002 among sheep, while the numbers between North America and Great Britain for the same period were 23 and 7 per 1,000, respectively. This is quite a good showing in favor of shipments from this continent.

* * *

Advices from Ontario millers state that they are paying 94c. to 95c. for red winter wheat. Large quantities of No. 1 Manitoba wheat have been sold at Fort William for May shipment. Late cable dispatches show a rise of 2s. 6d. to 3s. per quarter, and everything indicates great excitement in the wheat market owing to the war scare. These war values may not last long, and it would be advisable for holders to sell when the boom is on. With the supplies in sight at present, and the prospects for this year's crops, it is not likely that present high values will be maintained for a very long time, even if the war should continue.

THE RELATION OF AGRICULTURE TO OUR SCHOOL SYSTEM.

An address by C. C. James, M.A., Deputy Minister of Agriculture, before the Natural Science Department of the Provincial Teachers' Association, April 14, 1903.

"Perfect agriculture is the true foundation of trade and industry—it is the foundation of the riches of states."

These are the words of the great Liebig, one of the founders of the modern science of agriculture. They were uttered half a century ago, but they are more pregnant with truth at the end of the nineteenth century than they were in the middle of the century when Liebig was carrying on his agricultural investigations, or than at the beginning of the century when Sir Humphrey Davy was unfolding for the first time his memorable proposal for agricultural investigation before the learned societies of England. They are applicable to all civilized, to all semi-civilized countries, but they have a special significance when applied to Canada; for while our fisheries add annually to our wealth to the amount of about \$20,000,000, and our mines nearly \$30,000,000, and our forests about \$50,000,000—agriculture adds no less than \$600,000,000, or nearly five times as much as the other three sources of wealth combined.

The perfect agriculture of Liebig implies, of course, a class of agriculturists well equipped, thoroughly trained, and rationally educated.

Now let us quote a more modern educationist as to the workers in this field.

Identified as I am by birth and early education with the agricultural population of this country, I regret to see so many of our agricultural youth leave the noblest of earthly employments and the most independent of social pursuits for the professions, the counting room, the warehouse, and even for petty clerkships and livery shops. I know that persons in public offices, and inhabitants of cities and towns, who have no farms, must, for the most part, bring up their sons to other employments than that of agriculture; personal peculiarities and relations may prompt to the same course in regard to some farmers' sons, and a divine call may select from the farm, as well as from the shop and the college, for a divine vocation; but that, as a general rule, the sons of farmers, as soon as they begin to be educated, leave the farm is a mistake to the parties themselves, a loss to agriculture and to the country. A boy's leaving the farm because he has, or is acquiring, a good education, is an assumption or admission by all consenting parties that a farmer does not need such an education; and as long as this error is admitted, by farmers not being educated, agriculture will be looked down upon, instead of being looked up to, as a pursuit for educated men.

Politicians are accustomed to call farmers, by way of compliment, the bone and sinew of the land; and bone and sinew they will remain, and never be anything else, without education. It is a supreme law, illustrated by all history, that head rules muscle; and all farmers who educate only their muscles, and not their heads, must occupy the inferior relation of muscle. It is true that such farmers, as well as mechanics, may be and feel themselves quite as good as other people; but if they are not as intelligent—that is as well educated and informed—their goodness will be associated with ignorance, and their social position will necessarily be one of inferiority. But let the boy be educated to make him a better farmer, as well as a better citizen; let it be assumed, and become a recognized fact, that a farmer must be educated to be a good farmer, as a lawyer, doctor, or clergyman must be educated to be master of his work, and agriculture will hold a rank equal to, if not above, law or medicine. Educated farmers, educated merchants, and educated manufacturers and mechanics, will not only develop and advance the material interests of the country, but its civil and social interests, by

enabling the people to select chiefly intelligent and well-to-do men from these classes as their representatives—men not needing an office for support, or making politics a trade—affording the best chance of practical wisdom and honesty in legislation and government, and the hope of producing the great public desideratum—a generation of honest politicians and patriotic statesmen.

One might reasonably assume that this is an extract from an address before one of our Ontario Farmers' Institutes, or has been taken from a lately issued report of the Ontario Department of Agriculture, and that they are the words and opinions of some leading agriculturist. Not so, however.

These are the words of Egerton Ryerson, taken from the introduction to his text book on Agriculture for use in Ontario public schools, and written in 1870.

Were these statements true and applicable in 1870? Then they are even more so in 1898.

I can well believe that 25 years from the present some student of the educational and economic history of this province will be hard at work studying out and trying to explain why so little progress was made in general agricultural instruction in this province during the years from 1870 to 1898. During that period four text-books at least were available, the one by Dr. Ryerson already referred to, one by Prof. Henry Youle Hind, one by Dr. now Sir, Wm. Dawson, that first appeared in 1864, and the "First Principles of Agriculture," by Dr. Mills and Prof. Shaw, that appeared in 1890.

An interesting discussion might be made on the subject of why the trustees of rural public schools at least have not insisted upon having instruction given on this subject, based upon the book prepared by Messrs. Mills and Shaw.

It is not my purpose in this short address to take up this subject—instead of looking backward we should examine the present situation and lay plans for the future.

At the present time the subject of general instruction in public schools is being carefully worked out in France, Germany, Italy, and even in darkest Russia. Many of the most progressive of the States to the south of us are also discussing the question, and in some cases at least a promising start has been made.

In the Province of Manitoba a course of agricultural instruction has been laid down, and a text-book prepared adapted to the conditions of that province.

In Quebec more has been done in the way of editing and publishing text-books in various departments of agriculture than in any other province, and a continued effort has been made to make the instruction as general as possible.

In Ontario, however, we shall have to work out our system on the lines that are best adapted to this province, and it will not do to try to copy very closely the system of any other country or of any other province. We can have our own system if we desire it, and we can have a system adapted to our own conditions of agriculture and suited to the mental capacity of our pupils.

So much for what may be called the introduction to my paper. Let me now briefly state my views under three heads:

1. Should agriculture be taught in our schools?

2. When and where should it be taught in our school programme?

3. What can be taught, and how can it be taught?

1. Should agriculture be taught?

If agriculture can be taught in our schools, that is, if there is time and place for it, and if it can be presented in a form adapted to school pupils, the more reasonable form for this question, it seems to me, is, "Should agriculture not be taught?"

The agriculture of this province is in a critical condition. We certainly have not yet reached the most acute condition that has come to the farmers of Great Britain, France, and Germany, but we have reached a point which, compared with the conditions of the newer farming communities of Manitoba, the N.W.T., and other sections similarly situated, can be expressed by no better term than the one I have used, viz.: *critical*.

The building up of the purebred live stock interests of this province and the development of our dairy industry have been the two main factors in saving us from a condition that could be described only by the term "desperate."

Just at the present time the conditions are more favorable than they have been for some time. Prices have improved for us, mainly because of the temporary misfortunes of agriculturists in other parts of the world. One consequence of this is seen in the great rush at present in progress for the cheap productive lands of Manitoba and the N.W.T. If nothing be done to give a decided upward movement to our Ontario agriculture, however, we may soon find ourselves approaching the conditions now prevalent in the older farming lands of Europe. Let me give you a statement of that condition from the pen of one who is an authority. M. Tisserand, the late Director General of Agriculture in France, speaks as follows in a report to the Recess Committee of the British House of Commons dealing with the question of the industries of Ireland:

In this extraordinary century, when everything has been profoundly modified by steam, when distances have disappeared, and the Australian with his wool, the Indian with his corn, the American with his cattle and his dead meat, can reach the markets of Europe at less cost than it took the farmer of Yorkshire at the beginning of the century to get produce to London, old methods and paternal traditions have become insufficient for the struggle which has to be carried on against foreign competition. It is no longer the struggle for life between man and man which is in question; it is the struggle for existence between industry and industry, between agriculture and agriculture, between country and country.

The struggle which agriculture has to sustain is all the more intense and severe because it has been less prepared for it. The formidable transformation brought about by the progress of railways, navigation, and the telegraph has had a greater effect on agriculture than on any other industry, because it has been surprised, so to speak, in the midst of the calm and quietude which it had been enjoying. It is no doubt a great boon to humanity that the products of the earth may overflow with an extreme facility from the regions in which they abound to the countries that need them; that every individual is assured his daily bread, and has no longer to fear the horrible famines which in other times periodically decimated the population; that, thanks to the Australian wool and the vast pasturages of the new world, the workingman

*Reference is made here to the native of British India, and the word "corn" includes grain of every kind, with especial reference to wheat.

can obtain cheap clothing and cheap food to protect him against infirmity and give him health and strength. But if these are results to be thankful for from the humanitarian point of view, it is nevertheless true that they have had upon agriculture, through the general lowering of the prices of produce, an action which has placed it in a critical situation, and which has thrown the cultivators into confusion and brought discouragement and despair among the rural population. All thoughtful minds, the public powers, and Governments, are occupied with these considerations. In all directions it is felt that the agriculture of Europe is like an old and leaking ship, tossed and buffeted about upon a sea of breakers, and that, to save it from foundering, it needs to be steered by able hands and navigated by pilots who will join to a thorough practical training a profound and extensive scientific knowledge.

The authorities of France are thoroughly awake to the situation, and are now carrying on the most thorough system of general agricultural instruction in order to provide trained men to man the "ship" in her perilous career.

Two things especially are, in my opinion, of prime importance now to save the agriculture of this province and the agriculture of Canada from being reduced to the level of cheap lands, cheap labor, and cheap mental calibre. The first is the rapid development of our deep waterways system, so that the advantage may be maintained of the very lowest transportation rates on all farm products for export to Europe, and the completion of a perfect system of transportation, so that our fruits, including peaches and grapes, butter, eggs, poultry and other perishable products may be safely and cheaply transported to the consuming markets of Europe. It may be advisable to divert some of the rushing American tourists for Europe from New York and Boston to Montreal, St. John, or Halifax, but it means vastly more wealth to this country to be able to send our valuable and perishable farm products to London, Liverpool, Bristol, Glasgow, or Manchester in perfect condition.

The second requirement is that our agriculturists shall receive some grounding in the scientific principles underlying their work, so that farm practice may be more intelligently directed, and that some of the great waste of time and labor may be saved to this important industry.

One of the distinguishing features of the agriculture of to-day is the rise of co-operative associations. In Ontario we have had agricultural societies ever since the province was organized, and for nearly seventy years legislative grants have been made for their encouragement. But the societies for discussion of agricultural topics, for interchange of ideas, and for teaching or instruction by experts are of recent origin. We have associations of the owners and breeders of all the leading breeds of live stock. We have a Fruit Growers' Association, associations also of the poultry keepers and of the bee keepers, an association of experimenters, two associations of the dairymen, and an Entomological Society. All these, through their many meetings, and the hundreds of meetings of Farmers' Institutes, have quickened the minds of the workers. Supplementing these meetings, reports and bulletins have been distributed by the hundreds of thousands in the past ten years. But the point that I wish to make here is that the persons principally benefitted

by this work are the men and women of mature years. This is all very well in its way. These men appreciate thoroughly what is being done; they recognize the importance and the necessity of this instruction—but is it not beginning at the wrong end? Why should the farming class of this country have to wait until they become men before they learn that there is a science underlying their practice? If it is a good thing to educate a grown man or a grown woman in the principles of agricultural work, it is still more important, as far as practicable, to give the boy and the girl some training in these principles early in life, at the time when these principles are most easily acquired, and when they will be of most permanent benefit. I, therefore, have no hesitation in answering my first question by saying that agriculture in some form should be taught to the pupils of our schools.

2. When and where should it be taught?

Most persons, I think, are of the opinion that some instruction in agriculture should be given to pupils in rural schools, since they assume that these pupils are to be the future farmers. They are not, in general, of the opinion that the teaching should be given in town and city schools, because the pupils of such schools are likely to move out into professional pursuits, become school teachers, enter mercantile life, or follow some one of the many manufacturing lines of life. They are not quite sure that all pupils in rural schools even should be taught agriculture, as so many are yearly coming from the country to the town to reinforce the struggling city classes with new blood and new physique. Right here I would present a debatable statement. If agriculture can be taught in our schools in a manner such as I will suggest in my next division I am of the opinion that it should be on the course of study for town and city pupils as well as on the course for rural pupils. Perhaps in city and town schools it might be made optional but in rural schools it should be obligatory. The present situation is that with very few exceptions all town and city pupils will remain in city and town pursuits, and the country schools are also being annually drained of the majority of the brightest and most promising. But this, I contend, is not a very promising feature of our country's growth. It may be due in some part to the very nature of our present system. That I shall not here discuss. If we can, by altering or rearranging our system, keep more of the best rural pupils in touch and work with agriculture, and if we can at the same time arouse in some of the town and city pupils a sympathy for agricultural methods and agricultural life, we shall be looking to the best interests of the pupils and of the country as a whole. I am of the opinion that a course of agriculture can be given in town and city schools that will be interesting and beneficial and that will be in harmony with the best educational methods or system. I would put a course in the science of agriculture within the reach of every pupil in all of our schools, and I would therefore begin the work in the public schools, rural and urban alike. In the schools of France, where agricultural education has been most fully taught, instruction in this

work begins in the primary schools in the elementary course, with pupils from seven to nine years old, and is followed out through the middle course, nine to eleven years, and the superior course, with pupils from eleven to thirteen years old. It might be best to begin the work here by making agriculture a compulsory subject in the 4th form of our public schools, and from this as a starting point work out in time a system of instruction adapted to our conditions, prefacing it first by a simpler course in the 3rd form, and adding an advanced course to our high school work.

I believe that agriculture can be taught just as well to the public school pupils as are some of the subjects at present on the course, and I believe that the pupils themselves will come to the subject with as much eagerness. I do not care to particularize or to make comparisons, but perhaps you will permit one remark, viz.: if public school pupils can master the subject of physiology, hygiene, and temperance, they are well able to take hold of the subject of agriculture, and I think it can be made more intelligible to them.

3. What can be taught and how should it be taught?

This is the most important of the three questions; it is that upon which the whole argument turns. I think that delay in introducing agriculture into our schools has occurred principally because of the difficulty, in fact, the present impossibility, of introducing into our schools instruction as to how to farm. Our schools could not be equipped for training in the practice of agriculture except at an enormous cost, and our public school teachers could not be expected to teach the young idea how to farm even in the crudest manner. Here is the point—any instruction now given in our schools should deal simply with the science of agriculture; the practical application of the scientific principles may be left to the home training and to such specially equipped institutions as our Agricultural College. It is quite possible that in time something may be done for our rural schools as has been done in France and other European countries in the way of adding small gardens and plots where in some of the lessons of the schoolroom may be applied, and where illustrations may be found in the growing trees and shrubs and the development of seeds sown by the hands of the pupils themselves.

This mistake of confusing the science and the practice of agriculture is quite general, and some of the textbooks placed in the hands of young pupils have no little responsibility for continuing the mistake.

I consider the science of agriculture eminently adapted for school instruction, and a future student of natural science could not lay a better foundation for his future work than by first mastering the general principles of the various sciences which together form what we call the science of agriculture. Let us note briefly what it includes.

Agriculture consists mainly in the growth of plants, the feeding of these plants to animals, and the working over of the animal products resulting.

First of all we have the air and the soil. A study of these gives us an introduction to chemistry, geology, and meteorology.

The growth of plants brings in the study of botany, and closely follows an introduction to entomology.

The study of the animals at once calls for some of the simplest principles of zoology, anatomy, and physiology.

Even bacteriology comes in when we study the diseases of plants and animals and the making of cheese and butter.

And so we might sum up by saying that a study of the science of agriculture implies a beginning in the study of all the natural sciences that are afterwards found in our high schools and colleges. The study of the science of agriculture is to a large extent a course in "nature study," and since the illustrations are taken from plants, soils, insects, and animals with which all boys and girls are more or less familiar, the subject may be made to appeal to the everyday observation of the pupils. What should be done, then, is to give the pupils an insight into the first principles of the various sciences, laying stress upon these laws and principles that have an application to the work of agriculture. Let me put it in the form of a few questions.

1. What is the atmosphere, and how does it affect the soil?
2. What are the causes and effects of rain?
3. How is soil originated?
4. What are the principles underlying tillage and drainage?
5. What changes take place in the sprouting of seed?
6. How do plants feed and grow and mature seed?
7. How are new varieties of plants produced?
8. How do animals digest food?
9. What is the life history of a butterfly, a beetle, an aphid, or a honey bee?
10. What are the causes of fermentations in the soil, in the silo, and in milk and cream?

A thousand and one other questions might be put, the answers to which would be given by a knowledge of the first principles of the sciences of chemistry, botany, entomology, geology, physics, physiology, or bacteriology. An acquaintance with such would be useful and interesting to all classes of students, whether coming from the farm or not, and to all classes whether going to the farm or not.

What I am trying to lay before you as my idea of how agriculture might and should be taught in our schools has been more clearly and forcibly put by that master teacher, Huxley, who in addressing a farmers' club in England on this subject spoke as follows:

There are some general principles which apply to all technical training. The first of these, I think, is that practice is to be learned only by practice. The farmer must be made by thorough farm work. I think I ought to be able to give you a fair account of a bean plant, and of the manner and condition of its growth; but if I were to try to raise a crop of beans your club would probably laugh consumedly at the result. Nevertheless, I believe that practical people would be all the better for the scientific knowledge which does not enable me to grow beans. It would keep you from attempting hopeless experiments, and would enable you to take advantage of the innumerable hints which Dame Nature gives to the people who live in direct contact with things.

And this leads me to the general principle which I think applies to all technical training of all school boys and school girls, and that is that they should be led from the observation of the commonest facts to general scientific truths. If I were called upon to frame a

course of elementary instruction preparatory to agriculture, I am not sure that I would attempt chemistry, or botany, or physiology, or geology as such. It is a method fraught with the danger of spending too much time and attention on abstraction and theories, on words and notions, instead of things. The history of a bean, of a grain of wheat, of a turnip, of a sheep, of a pig, or of a cow, properly treated—with the introduction of the elements of chemistry, physiology and so on as they come in—would give all the elementary science which is needed for the comprehension of the processes of agriculture, in a form easily assimilated by the youthful mind, which loathes anything in the shape of long words and abstract notions, and small blame to it.

I have already mentioned one misconception that has retarded the introduction of agriculture as a permanent part of our school system, viz.: the idea that it was intended to give some instruction in the practice of agriculture, whereas nothing should be attempted but the first principles of the various sciences that are connected with or underlie agriculture, taking up the application of these sciences to agriculture.

Another fault is the attempt on the part of some persons to try to do too much. We must not crowd too much on the young mind, or mental dyspepsia will result, followed by a loathing of all forms of mental food. The work when first begun in the public schools should be very simple, very restricted, and should call into activity the open eyes and open ears of the pupils.

Every rain that falls, every tiny stream by the roadside, the shooting of the green blade in the spring, the nodding buttercups, the golden rod, the tall bull thistle, the early dropping apple with its worm hole, the ball of black knot upon the cherry, the jumping grasshopper, and the hundred of nature's children, should attract the attention of our children out of doors, and arouse in them a love that is not born of ignorance but of true knowledge. Nature in the country, in the village, in the town, and, to a limited sense, even in the city, lies before our children as a great unnoticed, unmeaning book. Our children, by their natural sympathy with nature, and by their God-given faculties, appeal through us to the great Creator of nature. "Open Thou mine eyes that I may behold wondrous things out of Thy Law."

Another objection that comes up in the minds of some, and that even finds expression, is that agriculture is not on a high enough plane, that there is more dirt than diamonds in it, that there is lacking the æsthetic element. Those who think and speak thus have evidently not given an honest consideration to the subject or are not aware of the marvelous progress of agricultural science in the past fifty years. I have, I think, answered this by saying that the science of agriculture is nothing else than a comprehensive grouping and intermingling of the other sciences that are now studied in our schools and colleges.

I could, had I time, discuss the possibilities of increasing our agricultural wealth by a general dissemination of agricultural information among the rural classes. Our annual agricultural product is now about \$250,000,000 in the province of Ontario alone. I could prove even to those of you who are not farmers that this can easily be increased by twenty-five per cent., and a sum added to our annual product that would

cause the tales of the Yukon to sink into insignificance.

In 1892 I addressed the Provincial Teachers' Association upon this subject and my opinions of that year are stronger and more decided in 1898. I shall close this paper with the concluding paragraph of that address:

Instruction in agriculture in our schools may be very limited, but if nothing more be done than to start our rural pupils thinking, to give them an impetus or a turn in the right direction, to develop in them a taste for agricultural study and investigation, to arouse in them a desire to know more and to read more about agricultural affairs, and especially to increase in them a respect for their work and a pride in their calling, then the most important end of their education will have been attained.

REMEDIES FOR SMUT IN OATS

By Dr. Wm. S. SAUNDERS, Director Experimental Farms, Ottawa

Smut in oats is very widely prevalent, and causes a large annual loss to the farmers of Canada, and has in the past been found difficult to subdue. The ordinary treatment which is found so effective when used for smut in wheat, namely, one pound of copper sulphate dissolved in three gallons of water, and sprinkled on ten bushels of grain, has not been found a reliable remedy for smut in oats.

Soaking in hot water for ten minutes, the water being kept at a heat of about 133° Fahr, has the effect of materially reducing the amount of smut in oats; but it is difficult and troublesome to treat large quantities of seed in this way, and at the same time keep the temperature up to the point required.

Potassium sulphide (liver of sulphur) has proved an effective remedy when used in the proportion of one and a half pounds of the potassium sulphide dissolved in twenty-five gallons of water, and the oats soaked in this solution for twenty-four hours; but the long soaking swells the oats and makes them difficult to handle in sowing; while soaking for a shorter time is only a partial success.

During the season of 1897 some comparative experiments were made by my assistant, Mr. W. T. Macoun (now horticulturist of the Central Experimental Farm), with smutty oats, treated before sowing with potassium sulphide, one and a half pounds in twenty-five gallons of water, and Bordeaux mixture, the oats being allowed to soak for different periods. The oats used were a very smutty sample: the size of the plots on which the heads were counted was 33x3 (ninety nine square feet), and the following results were obtained:

Number of smutty heads.	156	102	27	2	1010
Number of good heads.	2500	2575	3011	3264	3715
Total number of heads.	2502	2711	3013	3306	3717
Hours soaked.	4	8	12	24	24
Treatment.	Bordeaux mixture	Potassium sulphide	Bordeaux mixture	Potassium sulphide	Untreated

From the above experiment it would appear that smutty oats used for seed, if soaked in Bordeaux mixture for four hours, are rendered as free from smut as when soaked for the longer periods of eight, twelve and twenty-four hours. But where sulphide of potassium is used it appears to be necessary to steep the grain in the solution for twenty-four hours in order to entirely free it from smut. The Bordeaux mixture is a cheaper remedy than the potassium sulphide, and more easily obtainable.

The Bordeaux mixture in this instance was made with four pounds of copper sulphate, four pounds of lime, and one kerosene barrel (forty gallons, imperial measure) of water. To make this mixture, fill the barrel partly full of water; enclose the copper sulphate in a cotton bag, and suspend this by hanging it on a stick placed across the barrel so that the bag may be entirely immersed. By this method the copper sulphate will dissolve rapidly. In another vessel slake four pounds of fresh lime with about four gallons of water; when fully slaked, strain the creamy fluid through a piece of coarse sacking or a fine sieve into the barrel containing the sulphate of copper solution; fill the barrel with water; stir well and it will be ready for use.

This remedy can be so easily and cheaply prepared that it should be widely used.

[NOTE.—Dr. Saunders' article arrived too late to be of much practical benefit this season, but the information it contains is valuable indeed.—Ed.]

A NEW METHOD OF DETECTING THE TUBERCULOSIS BACILLI IN MILK.

A new method has been formulated by a Russian for the detection of the tuberculosis in milk. The process is founded upon the fact that such bacilli can be precipitated by a rapid centrifugal motion and a modified lactant, which makes 3600 revolutions per minute, is used for this purpose. The milk is first coagulated by dilute citric acid, the whey is separated by filtration and the caseine is dissolved by a phosphate of soda solution. To this are added six cubic centimeters of sulphuric ether, mixed with water in order that the emulsified fat corpuscles may be set free.

The action of the ether is hastened by shaking the mixture in a glass cylinder for fifteen minutes. The solution is allowed to stand, and, after the fat has been separated, the remainder of the liquid is allowed to run out. Dilute acetic acid is added to this until the first sign of coagulation appears. It is then transferred to the lactocrit, and the machine set in motion for fifteen minutes, when the vast majority of bacilli sink to the bottom. This deposit is then conveyed to two slides, stained, and examined with an oil immersion. If bacilli are present in the milk they will be found in this precipitate. This method is considered by the author to be more certain than the inoculation of animals with the suspected milk.

Mr. W. J. Black, Stanton, Ont., says "I cannot afford to lose a single copy of FARMING. It is a welcome visitor, especially since it became a weekly."

AMALGAMATE LOCAL SHOWS.

SIR,—I see there is a discussion opened in your valuable paper as to the number of "fairs" held in the province. Some years ago in England it was found that agricultural shows had become too thick on the ground, and did not bring together such good exhibits as they might, and many of the smaller shows amalgamated with good results.

I quite agree with Mr. Richardson that three shows in Ontario should be enough, but do not think such an arrangement would be a success at present, financially or otherwise, for many exhibitors would not exhibit or attend, for they would to some extent be "piqued" because the annual fete for themselves and families had been done away with. But take this district, for instance, within a radius of twenty miles, how many fairs are there? Woodstock, Paris, Drumbo, Brantford, Burford, Norwich, etc. Now, suppose these, or even half, amalgamated to make one good show of three or four days, and made one good "exhibition," with better prize money and better accommodation, would it not tend to improve the class of exhibits and improve stock generally, more than having a show in every little village with twenty houses in it?

From Mr. Edwards' letter he must have a poor opinion of Canadian judges at the shows, for he says it would tend to make a show of "beef cattle," and not of "breeders." Now who worthy the name of judge would not pass over any over-fed animal and give a prize to one in proper breeding condition? I have seen judges at shows go through a class and disqualify every entry not in proper condition for stock purposes before they began to judge "points," and so save much valuable time at the private parade.

No doubt the system of fewer fairs would do away with much of the pleasure part, but that would soon be taken up by people who know more about catering for a pleasure fair or garden party than they do about a good "Jersey" or a sample of grain, and I am sure the greater part of those who attend our fairs would derive more enjoyment in such a case, and exhibitors of stock, etc., would take greater pride and satisfaction in competing at a larger show than they do at half a dozen such as we have at present.

R. M. WILMOT.

Gobles, Ont.

CENTRALIZE THE PRIZE MONEY AT LOCAL FAIRS.

Editor of FARMING.

In your issue of the 12th inst. appeared a letter signed by "W.B.F." dealing with a very pertinent question and one which should bring out some discussion. The subject is an important one, and well worthy of the consideration of our local fair managers.

Far in Ontario there has been little if anything done in the way of centralizing the various breeds of live stock. There are, however, one or two sections of the province in which one or two breeds predominate above all others. Take, for instance, the Ayrshires in Eastern Ontario and some of the counties of Quebec. And perhaps the most noted district for turkeys is this eastern section, with Smith's Falls as a centre. But, as a rule, the various breeds are very much scattered, and a purchaser has to be content to select from a limited number or spend time and money travelling through the province.

The advantages of such a plan would, I think, be a benefit to both buyer and seller. We have had, and no doubt will continue to have, a larger number of buyers from the

Western States and our own Northwest, to purchase car lots of bulls, rams, etc., and in the majority of cases these are wanted all of one breed. We have to some extent our Shorthorn and Ayrshire centres. Why not the other breeds? And would it not also be an advantage to have our Shropshire and Southdown as well as Yorkshire and Tamworth centres where intending buyers could secure the quantity and quality wanted? Is it not a great measure due to the centralizing of the various breeds with a common object in view and the resulting competition that such excellent specimens are produced in Great Britain?

R. R. ELLIOTT, Herdsman.

Central Experimental Farm, April 16th, 1898.

WHEAT SPECULATION AND THE FARMERS' INTERESTS.

Editor of FARMING:

Your journal, FARMING, has been coming to me for two or three weeks past, and as you say that if I have any comments or suggestions to make that you will be pleased to have them, I therefore make bold to offer some impressions which have been forcing themselves on me for some time past.

First of all, let me say that I heartily endorse the sentiments contained in your article re "Wheat Speculation" on page 195. That the producer of wheat likes a good price goes without saying, but while he has, year after year, to sell his wheat at a low price on the other hand he sees the consumers' ability to consume reduced, as it inevitably must be, by the speculative prices that obtain. He sees but dimly if he does not see in it a double calamity in that his real dependence, the consumer, is being crippled as well for the future as for the time being, while those human "sharks" of the Leiter and Armour school are being fattened on the very life-blood of the country. Pardon me, however, if I suggest that there is one grave omission in your article. While, to quote your own words, "Why people allow this condition of things to exist is a marvel" yet you fail to offer any practical suggestions as to what remedy would be effective in doing away with the evil complained of.

With reference to your articles on the methods to be practised with most advantageous results to the farmer I have no complaint to make, they being doubly correct in principle and carefully thought out. But, Mr. Editor, is it in reality better methods that we require to assure the success of the farmer? Is it not a most palpable fact that, to-day, the world's farmer is producing in superabundance every commodity required at his hands? Now, if this statement be true, and I think it will stand unquestioned, it seems to me that while the practice of superior methods would be an advantage to the individual where better methods were not common as compared with those who did not practise them, yet if they become general, with the prevailing distribution the result must be the very opposite to what I as a farmer should desire.

Speaking in reference to the question of the distribution of the results of labor, what is the farmer's position to-day? Simply this, that while he constitutes at least 75 per cent. of the population of the country, and is therefore fairly entitled to the credit for the production of 75 per cent. of the wealth of the country, he is permitted, in common with his other brothers of toil, to appropriate as his share only the magnificent amount of 13 per cent. This is not a mere guess work conclusion, but is taken from statistics based upon the official census returns of the United States. These of this country will show but a trifling difference, as we follow the United States closely in everything, perhaps, but their virtues, that is to say, if they have any, a thing to be seriously doubted if we take certain things that transpire there occasionally as a criterion to judge by.

Now, Mr. Editor, would it not be well, as farmers, that we should try and gain some light on this very important question, viz.: the best method of securing to the great mass of humanity a larger share of the proceeds of their toil? This question, which has been but very cavalierly dealt with at best, is, I think, of the first importance, as it, if satisfactorily settled, would redound to the advantage, not only of farmers, but of every class of legitimate business men. The class known as "exploiters of labor" or "human sharks," would alone be liable to suffer. The world, however, can afford to let them suffer a little now.

S. THOMSON, Brandon, Man.

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 50,000 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. HOUSON, Secretary.
Parliament Buildings Toronto, Ont.

SPECKLED TROUT AND BLACK BASS.

By EDWARD HARRIS.

Ontario is now far behind the neighboring states in all that relates to trout and bass culture. Twenty-five states have established hatcheries for the free distribution of trout, bass, and other game fish to re-stock the various streams, ponds and other waters. This is in addition to the regular distribution of fry for commercial or net fishing, and solely to provide rod fishing with hook and line for the amusement, health and recreation of the people of those states, tourists and visitors.

A good-sized volume could be written upon the subject of the destruction of the trout and black bass which once inhabited the streams and waters of Ontario. In that belt of high land running from the Lake Erie shore of Elgin and New York to the northern peninsula of Bruce and Grey, dividing the old settled portions of western Ontario in the centre, there are traditions of trout streams once as famous as the Nepigon, as well as rivers and streams teeming with black bass from end to end. It cannot be that our agricultural population are behind the same class in the neighboring states in intelligence. Still, no pressure has ever been put upon the Government to re-stock the streams and bass waters of the province. The money appropriation required for the purpose is fractional compared with the beneficial results to follow. Our Federal Government has done something for commercial fishing by making an effort to re-stock the great lakes and salmon rivers with whitefish, salmon trout and salmon. In the neighboring Republic this has not only been done by the Federal Government, but the various states have done even more to re-stock private as well as public waters with brook trout, bass and other game fish for recreation purposes, and that done not only free to applicants, but with free delivery. Take the State of Pennsylvania, the oldest settled state in the Union. Ten years ago their trout streams and bass waters were utterly depleted. From 1891 to 1896 that state distributed free to applicants and paid freight on 13,910,891 brook trout to stock the streams of the state, and did it with success. The distribu-

tion on this plan still goes on. The same thing is done in Michigan, Ohio, New York, Massachusetts, Maine, etc.—in all twenty-five states. These states also distribute California trout, brown trout, black bass and other game fish.

The State of Pennsylvania has only forty-five miles out of nearly 800 miles of water frontage on Lake Erie, and from 1891 to 1896 they planted in Lake Erie 131,800,000 whitefish, and 223,900,000 yellow pickerel, and other high-class fish, the entire distribution of young fish for that one state in six years amounting to 502,025,517. It must not be forgotten that this is but the work of one state. Wisconsin, a new state, has done more, and has constructed one of the most complete fish hatcheries in the world. Neither the Federal Government of the States nor the separate states derive any revenue whatever from the fisheries, while the Province of Ontario alone pays our Government \$35,681.68 annually in license fees. That there is lethargy on the part of our people in this matter is plain. Governments no longer take the lead in matters of this kind. The modern legislator follows public opinion; he no longer leads. The people have been educated, and if they want any special legislation they must make the local representative understand that it is required. A depleted trout stream is not unlike an exhausted farm. Skill, care and proper husbandry are required to make it again productive. A trout stream once exhausted may give a few days' fishing every year to some of the local idle boys or to an occasional elderly "dead beat." The same stream stocked and cared for under proper regulations would give amusement, recreation and plenty of fish to the industrious classes in the country, both male and female, who best deserve a holiday. In Ontario our rivers and streams have become a desolation. The cities and towns are largely made up of men country-born and country bred, but the thousands of employes in financial, commercial, legal, medical, educational and various occupations and institutions, chiefly sons of farmers, leave the old homestead seldom to return. Amusement with rod and gun, the two great attractions connected with country life, are gone. Happily, if the people

desire it, all can be restored. The artificial reproduction of brook trout or speckled trout is so easy and now so well understood that it is waste of time to describe the process. With few exceptions any streams, ponds or lakes which once abounded in trout can be successfully restocked. The temperature of water can always be lowered by planting trees for shade at exposed points. Any streams having water too warm for trout are as a rule admirably suited for black bass, a fish equally attractive both for sport and the table as brook trout. Bass culture not being so well understood as trout culture a few remarks on the subject will be in order. It is now generally admitted by scientists that the proper way to reproduce black bass for restocking purposes is to take the parent fish, place them in artificial or open small ponds, and let them make their nests and rear their young. They may be allowed to spawn in ponds of a quarter of an acre to two acres. The bass mate and nest like robins. The nest is concave with a diameter from 2 feet to 3 feet 6 inches. The period of incubation is about nine days. The young are born, like most young fish, with a food sac which lasts about one week. After this is exhausted the young disperse in search of food and until then they are closely guarded by the parent fish. If there is any vegetation in the ponds the young will find plenty of proper food. When one inch long they will begin to eat smaller fishes if they can find them. When about two inches in length it is better to remove them from the smaller spawning ponds. It is easily done. Various plans are adopted, and none which cannot be improved upon. Successful bass culture makes it necessary to keep the larger and smaller of the young fish separate. A bass 3 inches long will swallow another of 1½ inches and prefer it to any other food. Brook trout are equally inclined to cannibalism and require classification. Bass fry can be safely handled for shipment when 1½ to 2 inches long. There is not an old-settled county in Ontario in which there are not streams, rivers, ponds or small lakes admirably suited either for bass culture or re-stocking. Muskoka and the northern counties are naturally a fisherman's paradise. Yet nothing is done except to continue the same process of destruction which is part of our history since the first settlement of the country.

The Commission of Industrial and Labor Statistics for the State of Maine, as far back as 1893, estimated that their summer visitors from out of the state left within it every year as the cost of their living the sum of \$10,000,000, and that fully \$3,000,000 of that sum could be directly attributed to the attraction of fishing and shooting. It is believed that since that date these figures have been largely increased. In the summer months from May until October for climate, fishing and shooting, the Province of Ontario is most accessible and should, if proper attractions were offered, be filled with tourists from end to end from

those rich but over heated states south of us.

EXCITABLE HORSES.

The best and only thing to do when your horse is excited is to calm him down. This is best done by getting to the horse's head and talking to him gently, rubbing his face and otherwise diverting his attention from the subject of his fright. If the horse is sullen or angry the same treatment will be found beneficial. In a high state of excitement the horse does not comprehend what you want, and it is useless, worse than folly, to attempt to beat the fright out of a horse.

All men are excitable, more or less; some more and very many unreasonably so. What would be the effect of trying to abuse one of these red-headed, excitable men into being calm and considerate when under the influence of passion? It would certainly end in disaster to somebody, and this may explain the consistency in some horses kicking the front end out of the wagon, and otherwise demolishing things when the whip is laid on his back because he got scared or excited about something.

The best thing for the driver to do is to keep calm and use common sense at all times in handling the team. When a horse understands that he is not to be hurt, he will not be excited or unreasonable, unless of a devilish disposition. Such cases require special treatment, and the judgment of the driver will determine the success of his work in handling the horse. Always take time to quiet an excited horse.

When you get an animal to understand your commands there is not much difficulty in directing its course. Avoid, if possible, bringing the excitable horse in contact with that which unnerves him. *Australian Farm and Home.*

SIMPLE REMEDY FOR SCRATCHES.

A simple and effective remedy for scratches is the following. Boil enough white oak bark (which can be procured at the druggist's) to make two gallons of strong juice, using 10 ozs. to the gallon; in this put one large tablespoonful of sugar of lead and two teaspoonfuls of alum; wash the legs with a cloth or a soft sponge, having the juice warm. In some instances scratches come from a diseased condition of the blood, and internal remedies such as mineral tonic, sulphate of iron, etc., will have to be given in conjunction with the local application described above.

Nature, taste, and the health of the horse all demand a clean, well-lighted, well-ventilated stable.

Young colts should be at school just now, as well as children. Begin now to train them in the way in which they should go. Teach them to be handled, halter-break them, and teach them ways of gentleness that will make them more valuable horses.

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TO OUR CASUAL READERS:

Presuming that you are interested in all matters pertaining to the farm, and anxious to make your business as a farmer as prosperous and remunerative as you can, we would like to call your attention to a few facts which we think are important to you in that connection.

There is not a profession, trade, or business industry in Canada which does not find it necessary to support, at least, one weekly publication in its interests, while some branches of trade support many such publications. Up to a very recent period, the most important industry in the Dominion could not boast of a single representative weekly newspaper. While every other business man not only recognized the necessity but insisted upon having his interests advocated by such a medium, and his trade news and information furnished fresh from week to week, the farmer was content to put up with a monthly or a semi-monthly journal. For nearly seventeen years

FARMING

and its predecessor, **The Canadian Live Stock and Farm Journal**, has insisted vigorously in its columns and by private argument

that nothing was too good for the industry upon which the prosperity of the community mainly depends: that the farmer, whose efforts and intelligence contributed to the prosperity of the country and to the elevation of his calling to a higher plane, was entitled to the most substantial recognition and to the support not only of those in authority, but of the public at large. In furtherance of this policy, and with a desire to give the farmer the same advantages with regard to a trade newspaper which other business industries possessed, we changed **FARMING** from a monthly to a weekly publication. There can be no question as to the importance of such a journal to the farmer. No one who has live stock or farm produce to sell can afford to dispense with its weekly reports on the condition of the market; and no one who desires to keep abreast with the times, or to take advantage of the best methods of the day, or to obtain the best results from stock or farm, can hope to succeed unless he has the means of obtaining the best and latest information available in time to make use of it in his business. It is quite certain that no monthly or semi-monthly paper can fill these requirements. The success which **FARMING** has attained as a weekly journal is very gratifying to us. But we do not propose to stand still. Our intention is to improve it and extend its sphere of usefulness by every means, so as to make it not only a good farm journal, but the best and most valuable paper of its class on the continent. Our aims are high, but we think they are by no means impossible of realization. If the Canadian farmers, whose interests are identical with our own, will continue to give us their loyal support, as we believe they will, the accomplishment of our aim is already assured. In order to obtain your co-operation we offer:

FARMING from 1st May, 1898,
to 1st January, 1899 **FOR 50 CENTS**

Remember, this entitles you to receive **thirty-five complete numbers**.

We cannot too strongly urge you to take advantage of this offer, in which we include the following guarantee: If, after three months' trial, you are not satisfied with **FARMING**, and do not want the paper, notify us and we will return you the fifty cents! We have sufficient confidence in the paper to make this offer without the slightest hesitation.

Yours sincerely,

THE BRYANT PRESS

44-46 Richmond Street West

TORONTO

THE THEORY AND PRACTICE OF BUTTERMAKING.

An address by Mr. J. A. RUDDICK, Superintendent Kingston Dairy School, at the Dairywomen's Convention, London, January, 1898.

The good or bad qualities of a sample of butter are usually divided under the head of flavor, body or grain, color, salting and finish. The comparative values of these qualities are fixed by most judges at forty-five per cent. for flavor, twenty-five per cent. for body or grain, fifteen per cent. for color, ten per cent. for salt, and five per cent. for finish.

It should be our business, then, as buttermakers, and caterers for one of the most dainty of foods, to make ourselves thoroughly familiar with the requirements of our markets and the demands of the public taste on the one hand, and to study carefully the conditions which affect these qualities during the process of production and manufacture on the other. Our standards should be fixed, not according to our own ideas, but rather in accordance with the ideas of the people who pay the money for our goods, and are thus entitled to first consideration. How many seem to forget this fact, and continue to do things as they think to be right, trying to force upon people that which they do not like!

It is not the purpose of this paper to set up any standards, except in a general way, but rather to discuss some of the principles underlying the work of buttermaking, and, if possible, make clear why certain results follow certain modifications in the process.

If we consider these qualities separately, flavor, being the most important, naturally comes first. The flavor of butter may be either good or bad, desirable or undesirable, but in either case the derivation is much the same. The flavor of butter is derived from three principal sources, viz., the food eaten by the cow, the period of lactation, and last but not least, the action of bacteria, or, in other words, the fermentations which take place during the ripening of the cream.

That the food has a marked influence on the flavor of butter will hardly be denied by the buttermaker who has tried to make a first class article from milk tainted with turnips, garlic, leeks, or other strong smelling foods. It is well known, I think, that the herbage of certain sections imparts to the butter a distinct sectional flavor. I have made butter on the dry plains of the West where the "sage brush" grows so plentifully, and could always detect the characteristic odor of that plant, in the butter. I am satisfied that we have a good deal to learn yet as to the full value, in this respect, of different

kinds of food. We have heretofore confined our attention largely to those foods which exert a bad influence on the quality of the butter, losing sight of the fact that there may be considerable difference even among foods usually classed as good. Then again some foods are often blamed for giving rise to bad flavors when it might more properly be laid to injudicious feeding, or other causes.

I have heard men assert that the flavor of milk, and consequently the butter made from it, was injured by the feeding of corn ensilage. I do not believe that good ensilage properly fed will have any bad effect, but I do believe that milk will absorb the odor of ensilage if exposed to it for any length of time. Right here let me say that a great many people make the mistake of thinking that warm milk will not absorb odors, but it will, in some cases, more readily than cold milk. The feeding of ensilage has been blamed in this way for what is due to carelessness in leaving the milk exposed in the stable, where the air is heavily charged with the smell of the silo. Some foods, first-class if fed in moderation, will, if fed to excess, induce indigestion, which, in turn, spoils the milk. But this is a feeding question, rather than one of buttermaking.

That the period of lactation affects the flavor of butter we know, because we find we can make a finer flavored article from cows fresh in milk than we can from those nearly dry, other conditions being the same. As regards the action of bacteria and their influence on the flavor of butter, one has only to think of the difference between sweet cream butter and that made from ripened or sour cream, and then consider that this difference is wholly due to the growth of these minute plants in the cream during the process of ripening, to be convinced that bacteria play a very important part in fixing the flavor of butter.

The temperatures employed during the handling of the cream or making the butter, have a very decided effect on the grain, high temperatures making it soft, while too low a temperature gives it a "tallowy" consistency. Of course overworking is a common cause of injury to the grain.

As regards the color, it is impossible to lay down any standard. The English market, which is so much sought after, demands a very pale shade, while local tastes favor a more pronounced color. Among the faults of color we put such things as mottles, white specks and white thread-like streaks, three things much confused but all due to different causes, and the result of bad buttermaking, as we shall presently see.

PREMIUMS Books on Agriculture

The following books on agriculture are recommended in the last report of the Ontario Agricultural College as suitable to the requirements of the Canadian farmer:

First Principles of Agriculture, by Voorhees.....	\$1 00
Soils and Crops of the Farm, by Morrow & Hunt.....	90
Milk and Its Products by H. H. Wing.....	90
Fertility of the Land, by Roberts.....	\$1 10
The Soil, by King.....	65
	\$5 55

The whole of these five books will be sent free for eight new yearly subscriptions at \$1.00 each. Any single book for two new yearly subscriptions at \$1.00 each.

FEEDS AND FEEDING, by PROF. W. A. HENRY, Dean of the Agricultural College of the University of Wisconsin. Price \$2.00. It is a substantial, large, 5vo volume of 675 pages, printed from new type upon clear white paper and substantially bound in art vellum. In its preparation the extensive experiments conducted by investigators in the old world, as well as the work of American stations, have all been carefully gathered, sifted, compared and arranged in the best form possible, care being taken to give the subject matter a practical, helpful bearing to the farmer and stockman. The numerous tables contained are well digested and arranged in form to convey quickly and accurately to the mind the data and summaries of results of feeding trials, analyses by the chemists, digestion work, etc. etc.

Sent free for three new yearly subscriptions at \$1.00 each.

THE BOOK OF THE DAIRY. By W. FLEISCHMAN. 344 pages, illustrated. Price, \$3.50. Sent free for five new yearly subscriptions at \$1.00 each.

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20 Packets Vegetables and Flowers. Price, \$1.00.

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1 " Stocks	1 " Musk Melon
1 " Balsam	1 " Lettuce
1 " Phlox	1 " Celery
1 " Sweet Peas	1 " Carrot
1 " Cauliflower	1 " Beet
1 " Cucumber	1 " Radish
1 " Onion	1 " Tomato
1 " Cabbage	1 " Vine Peach

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COLLECTION D.

20 Packets Vegetables. Price, \$1.

1 Packet Beet	1 Packet Carrot
1 " Parsnip	2 " Cabbage
2 lb. " Cucumber	1 " Lettuce
1 " Musk Melon	1 " Watermelon
1 " Citron	1 " Onion
1 " Radish	1 " Squash
1 " Tomato	1 " Vine Peach
1 " Parsley	1 " S. Savory
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Pkg. Beet, Early Intermediate.....	5c
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" Lettuce, Selected Nonpareil.....	5c
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" Parsnip, Intermediate, Half L. sp.....	10c
" Radish, Olive Gem.....	5c
" Squash, Hubbard.....	5c
" Asters, New Giant Flowering, Mixed.....	15c
" Sweet Peas, Selected Finest Mixed.....	10c
" Wild Garden Flower, Mixed.....	5c
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Seed Grains

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For one new yearly subscriber at \$1, and 18 cents added to pay for bag, we will give one bushel of Mandscheurl Barley.

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For one new yearly subscriber at \$1, and 15 cents added to pay for bag, we will give one bushel of Siberian White Oats.

Peas

For one new yearly subscription at \$1, with 15 cents added to pay for bag, we will give one bushel of the famous Prussian Blue Peas.

Potatoes

For one new yearly subscription at \$1, and 15 cents added for bag, we will send one peck of the Great Divide Potatoes or one bushel of Empire State or Rose of Erin Potatoes. These seeds are advertised by Mr. Bowman in another column.

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One pair of any of the following breeds of Fowls, from prize-winning stocks: Silver and Golden Wyandottes, Barred Plymouth Rocks, Black Langshans and Single Comb White Leghorns, for six new yearly subscribers at \$1 each.

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One setting of 13 eggs of any one of the following varieties: White and Barred Plymouth Rocks, S. L. Wyandottes, Golden Wyandottes, B. Minorcas, S. L. White and Brown Leghorns, for two new yearly subscribers at \$1 each.

The Apollo Harp

A good musical instrument is an essential requirement of every complete home. There are few people who would voluntarily deny themselves the pleasure of acquiring a satisfactory instrument like chiefly in the piano, which in the case of the piano, harp, or organ is often very hitlitive. But modern science and invention have made many things available to those of moderate means which were formerly attainable only by the rich and favored classes.

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To obtain one of these very desirable instruments is, in fact, only a matter of a few hours' pleasant work if our offer is taken advantage of at once. To anyone who will send us on or before 15th of May next eight new yearly subscriptions at \$1 each, or sixteen new special ones at 50c each, we will send an APOLLO HARP, No. 72 E. Remond's choice, fitted with 6-bar symphonic slide, and set regularly for \$3.50. This is really an extraordinary chance to obtain a fine musical instrument. This offer will not be repeated after May 15th.

Two special subscriptions at 50c, as offered on another page in this issue, will count as one yearly subscription in respect of any of these premiums. Now is your opportunity. Our friends should take advantage of this special offer to obtain some of the valuable premiums with very little trouble, and without incurring the least expense.

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Canadian Dairy Supply Company,

or to The Dominion Dairy Supply Co., Stratford, Ont. 327 Commissioners St., T. A. McLean & Co., Charlottetown, P. E. I., S. L. Walworth, Vancouver, B. C. **MONTREAL, CAN.**

Salting is also a matter of taste, and the buttermaker must be guided by the wishes of his customers.

We hear a great deal nowadays about pasteurizing cream. It is said that a large proportion of the Danish butter is made from pasteurized cream. It has been tried in Canada, but chiefly in an experimental way. The pasteurization of cream is based on the theory that a temperature of 158 degrees Fah. destroys most of the bacteria which develop in milk or cream, and thus leaves a clean "soil" for the introduction of the proper "seed" in the shape of a starter.

In practice, however, it is somewhat difficult to heat a large body of cream to a temperature of 158 degrees without heating some part of it to a higher degree, and then there is trouble with the cooked or boiled flavor. In fact a "cooked" flavor will be noticed at 158 degrees, but it passes off after cooling. The cream must be cooled quickly after being heated, for 10 or 15 minutes. When the appliances for doing this work are brought nearer perfection than they are at present, the labor and attention required may be much lessened. In the meantime my advice to buttermakers is go a little slow and do not attempt this sort of thing unless you understand thoroughly what you are undertaking, and are sure you will be able to carry it out properly.

The use of a "starter" in butter-making is all but universal. If the cream is pasteurized a starter is an absolute necessity. A great deal has been claimed for the "pure culture" starters, so called, and I have no doubt very beneficial results have followed their use, but I am inclined to think that much of the improvement is due to greater care exercised in handling the cream. It is natural that if a man tries anything of the kind, he will take a little more pains and watch it more closely. I do not think that the flavor of butter made from good, pure milk can be much improved by the use of any starter, but in creamery work there is always some milk not quite up to the mark, if not positively bad. In such cases a starter prepared from some of the best milk is a decided advantage. Another point in favor of the starter is that it enables the maker to ripen the cream at a lower temperature. Bacteriologists tell us, and experience confirms it, that a temperature of about 60 degrees Fah. is favorable to the development of the best class of fermentation in ripening cream.

Before we touch upon the question of churning it may be well to refer briefly to the character and composition of butter fat. Everybody knows that the fat in milk, and in cream before churning begins, has the form of tiny globules, invisible to the naked eye. It does not consist of one single fat, but a mixture of several kinds, which may be divided into two classes, viz.: fixed fats and volatile fats. The latter form only a very small part of the whole, and probably have more to do with flavor than bulk. The fixed fats are divided by Blyth as follows:

Stearin	} 50 per cent.
Palmitin		
Olein 40 "	
Butyrin 7 "	
Other fats 3 "	
	100 "	

Stearin is a hard, white fat, which melts at 157 degrees Fah. Beef and mutton tallow are largely composed of stearin. Palmitin is also a hard, white fat, with a melting point about twelve degrees below that of stearin. It is found in palm oil, etc. Olein is an oil at ordinary temperatures. These three fats are very common in nature, but the next, butyrin, is found only in butter, and is the characteristic fat of milk. Oleomargarine contains no butyrin.

When cows are on dry feed there is a larger proportion of the hard, white fats in the butter, while such food as grasses, silage, etc., produce more of the oily fat. This explains why butter is usually harder and whiter in winter. For the same reason we have to use higher temperatures in churning in the winter time as a rule. It is thought that the fat is in a liquid condition in cream and solidifies as a result of the agitation in the churn, when the globules begin to adhere to each other. When churning proceeds too rapidly as a result of too high a temperature only part of the fat is solidified, and the balance, or part of it, is incorporated with it in an oily state, hence the reason why such butter is always soft and greasy.

It is obvious from the foregoing that no fixed temperature can be laid down for churning. It must be varied according to conditions, but should always be done at as low a temperature as possible without taking too long. Half an hour in summer, and a little longer in winter is about right. Washing the butter is an important part of the process. I do not believe in much washing if the butter is for immediate use. One water will usually be sufficient. Too much cold water will destroy the fine flavor, because the flavoring oils are largely soluble in water. If the butter is to be kept for some time it is better to wash until the water comes away quite clear. The temperature of the water used for washing has a great deal to do with the grain of the butter. If it is too cold the butter will come out too hard and dry, a very common fault in the winter time. If on the other hand the water is too warm the butter will, of course, be soft, and retain too much moisture. The proper temperature leaves the granules of butter in such a condition that they can be handled without gathering into a mass, and at the same time adhere readily when pressure is applied. The right temperature will vary considerably according to circumstances. So much depends upon the natural consistency of the butter, that no rule can be applied other than the condition in which the butter is found after washing is finished. If the cows are on dry feed the butter will be hard, owing to the large proportion of stearin present. Cotton-seed meal has a tendency to make hard butter, while linseed meal has the opposite effect. Experiments have shown that the melting point of butter was, on the average, six degrees higher with a ration of cotton-seed meal than it was when linseed meal was fed to the same cows. The temperature of the washing in such cases would have to be varied to about the same extent. Generally speaking, from fifty degrees to fifty-five degrees will be about the right temperature, except in hot weather, when a lower temperature will be required to counteract the influence of warm air during working.

The salt should always be applied while the butter is in the granular state. The maker is enabled then to distribute it well throughout the mass, and that being done very little working is required. I prefer salting in the churn if one knows how much butter there should be in order to get at the proper amount of salt. I cannot understand why some makers will persist in pressing the butter into a mass before adding the salt, and even applying it during the process of working. When that is done the butter must be worked more than it should be to prevent the mottled appearance due to uneven distribution of salt. I need not impress upon anyone the necessity for using the very best fine salt for buttermaking. That is well known. A fact perhaps not so well known is that salt will, if exposed to strong odors, absorb them to such an extent as to impart the same to the butter.

The butter should be worked at a temperature about 50° to 55°. If too cold, the grain is injured by the heavy pressure required and a certain amount of grinding which the butter will receive from the worker. The surfaces exposed to the rollers will be given a "lardy" appearance, which will show as white, thread-like streaks under the trier. When too warm the surplus moisture cannot be expelled without overworking the butter.

If the salt has been well distributed while the butter was in the granular condition very little working will be required. I prefer to have it stand three or four hours after the salt has been applied before final working. If the temperature is right I think a better texture or grain will be secured. Of course I do not dispute that fancy butter can be made by finishing at once after removal from the churn, but I think more uniform results will be obtained the other way.

Now in conclusion I have only a few words to say regarding packages. One must be guided in the choice of package according to the market he is catering to. If for immediate consumption in local markets, there is nothing better than the standard square print. We put up nearly all our butter at the Dairy School in this way, and I want to describe our style of doing it. The butter is first wrapped in parchment paper, and then each pound is placed in a thick paper box, which folds tightly and almost completely excludes the air. The paper box prevents the parchment from drying and curling up, and is a help in preserving the butter. It is very convenient for the merchant, and has a dainty appearance. Both parchment and box have the name of the school printed thereon. When this butter is shipped to Montreal or other markets it is packed in twenty pound cases, which are made the exact size to hold that many prints. They are made of thin lumber simply nailed together, and are not returned. The total cost of parchment wrapper, paper box, and shipping case is less than one cent per pound. I am satisfied that we double the cost in extra price received for the butter, besides always finding a ready sale for all we make.

The square box is fast replacing the tub for packed butter. In fact I may say it has replaced it on our side of the line, where we began using it in 1892. The idea is to have a box that

will hold 56 lbs. or half the English hundred weight. In order to do this it must measure one cubic foot inside. A solid cubic foot of butter weighs slightly more than 56 lbs., but butter is never packed perfectly solid, and something ought to be allowed for shrinkage. We always put 57 lbs. in each box. The best shape for the box is square, only slightly larger at the top than at the bottom in order that the butter may be turned out. The dove-tailed box is generally preferred to one that is nailed. Spruce is the favorite timber. White poplar is said to be suitable, but I have had no experience with it. No matter what kind of wood is used it must be that grown on high land and thoroughly seasoned and kiln dried. The inside of the box should be coated with paraffine wax. I would not use any other kind. If not waxed the box must be soaked and scalded in the same way as tubs are treated, and then they get out of shape. Of course they are lined with parchment, but that does not take the place of "soaking" or other treatment of an unwaxed package as many seem to suppose. It is merely an extra precaution. I believe the reason that we have been hearing so much about "mouldy butter" for some time past is because buttermakers have been depending entirely upon the parchment paper to protect the butter. There certainly can be no foundation for the claim heard in some quarters that butter moulds more readily in boxes than it does in tubs. When made of the same wood and treated in the same manner the box is calculated to preserve the butter better than the tub.

Boxes should be filled full of butter cut off level with the top, the parchment folded over and the cover, which should rest on the butter, firmly nailed. When I say firmly, I do not mean that three inch nails should be used so that it will be necessary to break the cover to get it off. A thin nail with a large head should be used. A number of patent covers are on the market and I think the best of these are likely to supersede the nail cover.

DEVELOPING GOOD HOGS.

First, choose the breed. Have an ideal animal and work for it. Breed from matured and well-bred sows. Don't sacrifice individuality to pedigree. Breed prolific sows only. Avoid cross-breeding and feeding too much corn and ice-water, as this lessens the vitality and tends to make too light a bone. Feed young stock and the breeding sows oats, shorts, bran, and oilmeal, with but little corn. Give plenty of exercise.

Give plenty of room in sleeping quarters, and teach young pigs to eat early. March and April litters are best. Keep salt and charcoal by them at all times. The growing of frame for the first six months and the keeping of equal-sized pigs together must be looked to. It requires intelligence of the highest order, after the ideal hog is secured, to keep it, and not allow it to degenerate.—*American Agriculturist.*

Mr. W. J. Black, Stanton, Ont., says "I cannot afford to lose a single copy of FARMING. It is a welcome visitor, especially since it became a weekly."

KINGSTON DAIRY SCHOOL, SESSION 1897-98.

The fourth session of the Kingston Dairy School closed on April 6th. The attendance this year exceeded all previous records, the total number of students during the whole term being 118. During the long course there were 28 in the cheese department, and 18 in the butter department. Those in the cheese department all remained for the whole term and wrote on the examinations. All students at this school must have had previous experience in a factory for at least one year for the ordinary courses, and two years for the long course.

The improvements which were added to the school last year were very much appreciated by the students, and enabled the staff to do much better work. Further improvements are proposed for next year.

The students come from a very wide range of country, there being three from Prince Edward Island, three from the North West Territories, three from Province of Quebec, and the balance from Ontario, chiefly from the eastern part of the province.

Publishers' Desk.

Glenhyrst Poultry Yards.—Stratford Bros., of Brantford, have about as attractive a list of purebred poultry in this issue as can be seen anywhere. Their offer to exchange is novel and at the same time practical. If interested in poultry, Dorset and Shropshire sheep, Tamworth pigs, Shetland ponies, or Jersey cattle, their advertisement may prove profitable reading.

The Eastlake Shingles.—These shingles possess many very substantial advantages over the ordinary shingles in regard to economy of time and money. They are easily laid, practically indestructible, and an effective protection for all time, while their cost is so moderate as to bring them well within the reach of everyone. A postal card to The Metallic Roofing Co. will bring a quick response, giving full information and an estimate of the cost in any particular case if desired.

A Decided Advantage.—Wood cut up into stove lengths is in a decidedly better marketable condition than when left in the usual cordwood length, while the cost of cutting is greatly reduced with the improved appliances now on the market. The best all-around circular wood-sawing machine we have seen is the Jubilee Saw manufactured by the Lancaster Machine Works, Lancaster, Ont. The machine is strongly constructed, light-running with a newly designed recoil table that makes the work much lighter for the operator. Forty cords of hard maple cordwood is a moderate day's work with an ordinary two horse power.

The Dake Engine.—For the past ten years this engine has been constantly gaining in favor amongst those persons who require reliable power in units of from one to twenty-five horse power. It has been very highly recommended by Government steamery officials and has given entire satisfaction to all who use it. The fact that it is now very widely utilized as a motive power for driving farm machinery of various kinds, saws, pumps, dynamos, for farmers' general use, quarry contractors' and builders' hoists, creamery and cheese factory machinery, and for general manufacturing purposes, is an indication of its very wide scope of usefulness. It is claimed for it that it is the most compact and portable steam motor for agriculture and shop purposes made. The former Canadian manufacturers, The L. D. Phelps Co., of Eastman, have amalgamated with the Jenckes Machine Co., of Sherbrooke, Que., but this branch of the business is still under the personal supervision of Mr. L. D. Phelps. Improvements have lately been added, resulting in greatly increased economy and power from the same sized engine. Those interested can obtain full information, prices, etc., on application to The Jenckes Machine Co., Sherbrooke, Que., whose advt. appears in another column.

Stock Notes

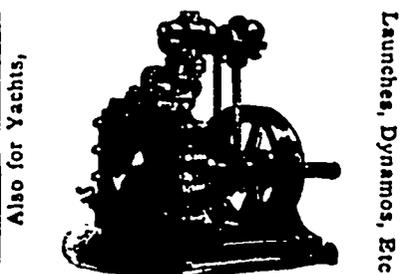
MR. R. R. SANGSTER, Lancaster, Ont., who last fall endeavored to dispose of all his Short-horns without success, reports business brisk this spring. He is now glad that he could not sell last fall, as the boom in cattle has greatly increased prices and figures are higher now than at any time for many years. Recently Mr. Sangster sold four head to V. C. Edwards & Co., Rockland, Ont., for their own herd, and two for a neighbor, and has priced quite a number more, refusing what may be considered high prices for others.

THE horse breeders of Western Manitoba have formed an organization for the protection of owners and breeders. The organization will be known as the Western Horse Breeders' Association of Manitoba. The president is Dr. Swinerton, Carberry, and the secretary-treasurer, Mr. J. A. S. MacMillan, Brandon. The insurance plan in connection with horses that stand for services is far from satisfactory. Though it is too late to adopt a new system this season it is the intention of the Association to take the matter up at the next meeting and make some new arrangements which will probably do away with the insurance and reduce the season rate.

JAMES McCORMACK & SONS, Rockton, Ont., write "In sending you a change of ad. might say our cattle have come through the winter in fine trim. Have had a good demand for stock and made quite a number of sales, among them a fine young cow to C. R. Dickie, Canmore, N.S.; a fine bull calf to Mr. F. G. Boyer, Charlottetown, P.I., for Wm. Miller, Marshfield, P.I., besides several other animals to different parts of Ontario. We have one nice bull left fit for service; he is sired by Jock Morton; his dam is sired by Sir Laughlin. We exhibited some of our poultry at Brantford and Hamilton's winter shows and were very successful. At Brantford we won on Hatched Rocks in a very strong class; 2nd on cockerel and 1st and 2nd on pullets; on Spanish, 2nd on cock, 1st on cockerel, and 2nd on hen. At Hamilton we won in very strong competition, 1st on Hatched Rock cockerel, and this bird also won the special for the best bird in the American class, and Mr. Butterfield pronounced him the best Hatched Rock cockerel he had judged this season; on Spanish, 1st on cock, 2nd on hen, 1st on cockerel. We also won quite a number of prizes on other classes. We are offering eggs from choice matings in Hatched Rocks, Spanish, Black Minorcas, and Black Red Game. Parties ordering from us can depend on getting choice stock, as our matings are choice and we buy and breed from nothing but the best."

The...

Dake Engine



For Driving every Description of Cutting, Grinding, Sawing, Threshing, and Pumping, or other Machinery used on a Farm.

ECONOMICAL. EASILY OPERATED. COMPACT and PORTABLE.

Send for special circular and testimonials.

THE JENCKES MACHINE CO., 30A LANSLOWNE STREET, Sherbrooke, Que.



No other make of salt will give such satisfaction. Every package is guaranteed to the purchaser.

Address R. & J. Ransford OHLINTON, ONT

Vegetables

can be raised at a profit, and the yield enlarged, if properly fertilized. Most fertilizers do not contain enough

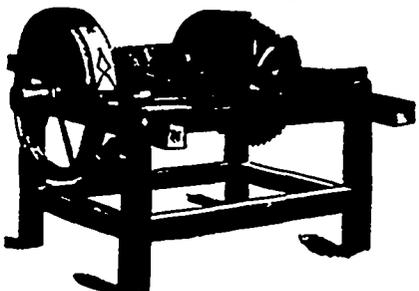
Potash.

Vegetables need plenty of potash—at least 10%—besides the phosphoric acid and nitrogen.

Write for our books which tell all about fertilizers. They are free.

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

Jubilee Circular Sawing Machines



Lightest Running. Fastest Cutting. Easiest on Operator. Lancaster Machine Works, Lancaster, Ont.

Farmers' Binder Twine and Agricultural Implement Manufacturing Co., Limited. (BRANTFORD, ONTARIO).

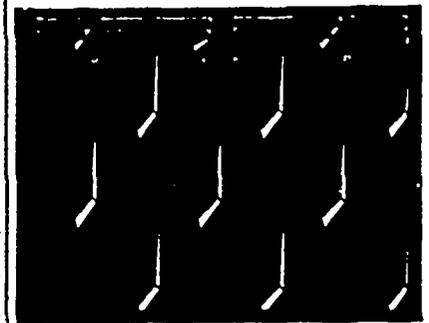
WE think it necessary to immediately advise you to refute the treacherous and damnable reports that are being put out and circulated against this co-operative movement of farmers by our enemies. Some are stating that this mill is closed down, others that we are pleading with the Government to re-instate the duty on binder twine; others that raw material has tremendously advanced, and 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 will 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; that we have requested the Government not to reinstate the duty on twine; and that we are manufacturing pure Manila 650 feet long, known as our Sampson brand. It and our splendid Red Star are superior to anything that has ever yet been placed on the Canadian market. As in the past, we will again shortly set the price on binder twine for the coming harvest at a fraction above actual cost of production, and all we ask, after five years of honest and determined endeavor in the interest of the agriculturists of this country 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.



We ask you, as an intelligent man, to plead with your people to realize the importance of this company getting their undivided individual support, 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.

Faithfully yours, JOSEPH STRATFORD, General Manager, Brantford

You Aren't Fair To Yourself If you don't cover your roof with **Eastlake Steel Shingles**



One Shingle. Think of Their Advantages! The most economical and durable. Quickly laid. Fire, rust, and lightning proof. With a patent side lock that makes leakage impossible. It doesn't pay to experiment when by using EAST-LAKES you're sure of satisfaction. Write us for full information.

METALLIC ROOFING CO. (LIMITED) 1192 KING ST. WEST. - TORONTO

Canadian Horse Show

To be held in conjunction with the **Military Tournament** of the Toronto Garrison in the **Armouries, Toronto, Canada** Wednesday, Thursday, Friday, Saturday, May 4th, 5th, 6th and 7th, 1898.

Price List can be obtained from the Secretary. ENTRIES CLOSE on Wednesday, April 30, 1898 and should be addressed to Henry Wadley, Secy. Parliament Buildings, Toronto

MARKET REVIEW AND FORECAST.

Office of FARMING,
44 and 46 Richmond Street W., Toronto.
April 25th, 1898.

The prospects for general Canadian trade continue bright. The whole trade of the country is now on a better basis than it has been for many years. As an indication of this the number of failures in business is each week getting less. The depression of the past two years has had the effect of squeezing many weak firms out of business, leaving, as a rule, only those which are financially strong.

Wheat.

The wheat markets during the past week or two have been kind of barometers indicating the condition of the war atmosphere. As the war feeling grew stronger the markets became firmer, and now that war is a certainty both the European and American wheat markets are in a state of excitement, and prices have advanced several cents. It is likely that after the novelty of the war feeling wears off prices will return to the normal, as there does not appear to be anything in the wheat situation to warrant a continuance of very high values. The wheat supply in sight is greater by several million bushels than it was last fall, and the prospects for the coming wheat crop are very bright. However, if the war should continue for some time it would likely stimulate the market in certain districts.

Late cable despatches show a sharp advance in the price of wheat, hard Manitoba having gone up 2s. 6d. per quarter, with a good demand at the advanced prices.

The receipts at Montreal during the week show a large increase. The market is much firmer and higher, sales having been made of No. 1 Manitoba hard for May shipment at equal to \$1.14 to \$1.16 had down in Montreal. An advance of 5 cents is reported in Ontario. Sales are reported at western points at 92 cents, which is equal to 97c. to 98c. affort at Montreal in May.

At the Toronto market comparatively little wheat is being offered. The market, however, is excited an higher, and that of winter is quoted at 93c. west, but it would probably be hard to get very much at that price, and likely a few cents more would have to be paid to get it in carload lots. The Chicago market is also excited and dealers are somewhat nervous. There have been some large transactions during the week on export account. The shipments from Argentina during the week were 1,113,000 bushels as compared with 1,000,000 bushels the week previous.

Barley and Oats.

The British market for oats is excited, and values are steadily rising. Some large sales of Canadian have been put through at 63 to 9d. per quarter over the previous week, 16s. 9d. to 17s. having been paid for and 1 for White Canadian. At Montreal sales aggregating between 300,000 and 400,000 bushels have been made at from 33 1/2c. to 30 1/2c. affort May. Receipts have also increased, but the market is firm, with an upward tendency. Sales are reported at 35c. to 35 1/2c. in s.o.c. The export demand is good. The Toronto market continues firm, with an advance in prices during the week of 1c. At the end of the week oats were bringing 32c.

At Toronto barley continues dull, and prices are nominal. There is little more doing in Montreal. The market is reported steady but quiet, with values the same as last week.

Peas and Corn.

The Old Country market for peas is higher and more active with a good demand at an advance of 9d. per quarter. At Montreal receipts continue about the same with sales at 66c. to 67c. affort May, and at 64c. to 65c. May. At Toronto towards the end of the week prices were 1c. dearer at 58c. north and west, with a better demand.

The corn market shows a little steadier feeling. Canadian yellow at Toronto is selling for 32c. west, and American at 38c. At Montreal the market is firm at the recent advance. A large shipment was sold on English account at 37c.

Buckwheat.

Buckwheat is reported scarce at Toronto and firmer at 40c. At Montreal there have been a few transactions at 49c. in store.

Bran and Shorts.

At Montreal the market is quiet and bran is quoted at about \$14. The quotations for shorts range from \$15 to \$16. At Toronto the market is steady with a fair demand. On Friday cars of bran sold at equal to \$12 To-

ronto freights. Shorts have been selling during the week at from \$12 to \$14.

Timothy and Clover Seed.

At Montreal the market is unchanged and quotations are practically the same as last week. At Toronto the demand is small. During the week timothy is quoted at \$1 60 to \$2.25, red clover \$3 to \$3.90, and alsike \$3 to \$4.80.

Potatoes.

At Montreal the market is quiet with prices at from 55c. to 65c. as to quality. Towards the end of the week at Toronto potatoes were quoted in car lots at 50c. to 52c. They sell at 60c. to 65c. out of store.

Eggs and Poultry.

Late cable despatches report the English market as quiet, but low prices are stimulating consumption and preventing any great accumulation of stocks. At Montreal the receipts are ample, some large sales having been made at from 9c. to 9 1/2c. No. 2 sell at \$12c. At Toronto prices have advanced a little and were selling the latter part of the week at 10c. Poultry is dull; chickens are quoted at 60c. to 75c.

Maple Syrup.

The season is about over and the demand is getting smaller. The market is steady at 65c. for wine gallons. At Montreal the market is quiet with 52c. for small tins and 60c. in large tins.

Hay.

Cars on the track are quoted at \$8 to \$8 50. At Montreal No. 1 is firm and sales are reported at \$11 to \$11.25 in car lots; No. 2, \$8.50 to \$9.50.

Cheese.

Cheese has taken a decided move on, and the situation continues to gradually improve. Late cable despatches show a gradual reduction of stocks in Great Britain, and a strong upward tendency in the market. Holders are demanding further advances, with Canadian quoted at 40s. to 41s. A late cable despatch to the Montreal Trade Bulletin from Liverpool reports sales of colored cheese up to 43s. and white 39s. Last week a sale of 10,000 boxes of old stuff is reported at Montreal at from \$4c. to \$5c. for white and colored respectively. This virtually cleans out the old stock at Montreal, and gave the seller fully 1c. per pound more than he could have obtained a month or six weeks ago. A few lots of new cheese have sold at 7 1/2c. for the local trade. This is also about the ruling price for export. It will likely be a few weeks before any large stock of new goods is ready for shipping, and by that time values may be much higher.

Butter.

In marked contrast to cheese the butter market has taken a decided slump during the week. This was to be expected, but then, no one looked for a drop of fully 4c. per lb. The supply has rapidly increased during the past month, and when the severe depression in price came the receipts were very large. However, late advices from Montreal indicate a reaction and less anxiety on the part of holders to sell. Prices for creamery are from 15 1/2 to 16 1/2. One good feature in last week's business is that although supplies have been large there has been no accumulation of stocks. During the latter part of the week there was a slight falling off in receipts.

The English market is dull, and with liberal stocks holders are anxious to realize. Prices, however, are about the same, with Canadian selling at 92s. to 96s. in Liverpool for fine to finest, and at 94s. to 98s. in London.

At Toronto prices for good creamery have not receded so much, though they will likely be lower this week. At the end of the week prints were selling at 19 to 20c. and tubs at 18c. to 19c. Dairy was quoted at 15 to 16c.

Cattle.

London cable reports indicate a firmer tone in the market, with a good demand at an advance of 2d. per stone. Advices from the western markets also indicate a somewhat stronger feeling. Toronto market, however, showed an easier feeling.

Export cattle.—At Tuesday and Friday's markets prices were firmer and supplies were tight, and range from \$3.75 to \$4.30 per cwt., though on Tuesday some sales were made at 4 1/2c. for extra choice.

Butcher's cattle have been dull and slow during the week at 3 1/2c. for the best, 3c. to 3 1/2c. for medium and good, and \$2.75 to \$2.80 per cwt. for common. On Tuesday's market some choice lots went as high as \$3.80 to \$3.90. At Montreal good butchers' cattle

Unbounded Success
WITH THE
American Cream Separator



A CLEAN SKIMMER
MRS. RICHARDSON & WEBSTER, Jarvis, Ont., July 26th, 1897.
GENTLEMEN,—In reply to your letter of the 23rd, I would say the American Cream Separator that I purchased from you last September has done all that you claimed for it. I went to Toronto far last fall with the intention of buying a separator; after looking over the different makes, I concluded to buy the "American," and it has given me entire satisfaction. I find it runs easy, is most perfect machine on the market. In my opinion it is the best cream separator on the market. They all have something of the same to say. Are you building a creamery? If so, get our prices for the complete outfit. We manufacture and handle the churns, butter workers, engines and boilers, cream separators, and everything required for making butter or cheese.

RICHARDSON & WEBSTER,

ST. MARY'S, ONT.

are quoted at from 2 1/2c. to 4 1/2c. as to quality.

Stocks and feeders.—Some Buffalo buyers were operating at Tue-day's market. Prices have ruled at 3c. to 3 1/2c. for light stockers for Buffalo and 3 1/2c. to 3 3/4c. for feeders. Milch cows and springers are in fair demand at \$25 to \$40 each. Choice newly-calv. d cows are wanted.

Cows.—Choice calves are scarce, \$3 to \$6 50 each being the general run of prices. Extra choice would bring about \$8.

Sheep and Lambs.

Towards the end of the week the market was more active. Good ewes and wethers sold at 3 1/2c. to 3 3/4c., and bucks at 2 1/2c. Yearlings sold at 5c. to 5 1/2c. Spring lambs are selling for from \$3 to \$5 each. Offerings at Montreal show an increase but were pretty well cleaned up at 4c. to 4 1/2c. Spring lambs are reported plentiful at \$2 to \$4 each.

The British market is firmer and higher, with a large business reported at an advance of 2d.

Hogs.

This market has been steady during the week with quotations on Friday at \$4.63 to \$4.75 for choice singers, \$4.35 for light and heavy, \$3 to \$3.25 for sows, and 2c. to 2 1/2c. for stags.

Horses.

A special cable to the Montreal Trade Bulletin on April 21st from London reads as follows: "There is a firm market for all desirable animals, and a good enquiry for heavy Canadian draught horses. There was a good attendance of buyers at the auction sales last week."

.. Windmills ..

The Canadian Steel Airmotor has been adopted by the Imperial Government and C.P.R.

Painted or Galvanized.

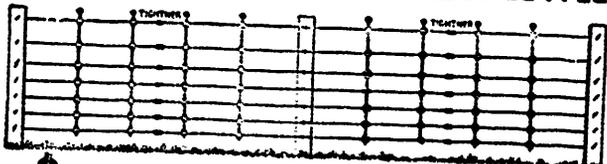
MERITS:

- Power
- Strength
- Durability
- Full line of Pumps, Tanks, Grinders, Hay Tools
- Woodward Watering Basins

No farmer should be without them.

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

FENCE MACHINE GIVEN AWAY



To introduce the best Fence made into new localities we will give a Fence Machine and License FREE to any person buying material for 100 rods of Fence.

Get particulars from

CANADA FENCE CO., - LONDON, CAN.

CAMPBELL'S BANNER..
ROOT CUTTER

Turns all roots and vegetables into Fine Shreds. It is indispensable to dairymen and sheep breeders and of greatest value to poultry farmers and poultry raisers. It is also useful for cutting up all sorts of roots and vegetables for stock. It is made in Canada by the CAMPBELL FARMING MELL CO., of Chatham, Ontario.

SELECT SEEDS

WILLIAM EWING & CO.'S

Illustrated Priced Catalogue of Farm, Vegetable and Flower Seeds is now ready and will be mailed free on application.

142 McGill Street - MONTREAL

BRANTFORD



GALVANIZED STEEL WINDMILLS

For Power and Pumping
With Patent Roller and Ball Bearings



Makers of the lightest running and best constructed Galvanized Steel Windmills and Towers made.



Write for Illustrated Circulars.

BRANTFORD CAN.

New Metal Roofing...



Patent Safe Lock Shingle.



TOP LOCK
Cut showing Top and Bottom Lock.



SIDE LOCK
Cut showing Side Lock.

Our Patent Safe Lock Shingles are so constructed that they lock or fasten on all four sides, making perfect joints, absolutely proof against the weather.

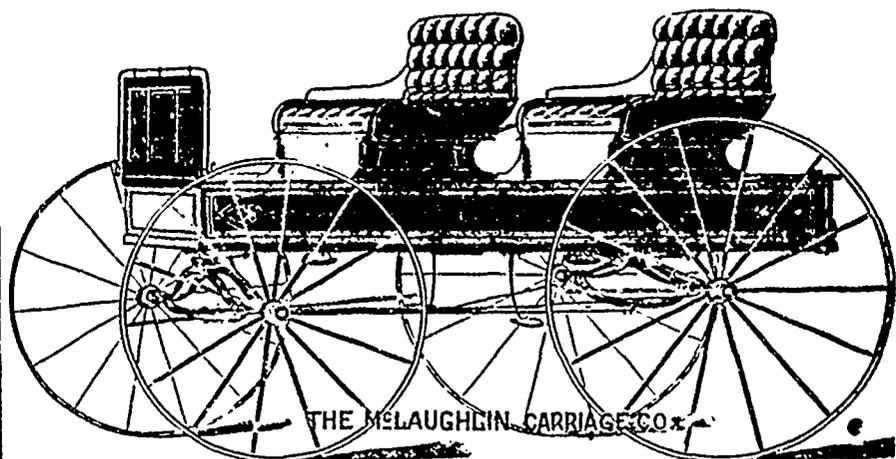
Buildings covered with our roofing look pretty, are fire and lightning proof, and will last a lifetime.

Samples and Prices sent free upon application.

Metal Shingle and Siding Company Limited

PRESTON, ONTARIO

83 VARIETIES BUT "ONE GRADE ONLY AND THAT THE BEST."



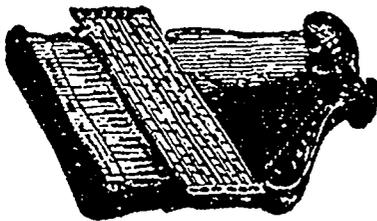
THE McLAUGHLIN CARRIAGE CO.

No. 40.—Duplex Spring Wagon, Low Down, Light Draught, Easy Riding, Handsomely Striped and Finished. Best Leather Trimmings, Spring Cushions, Full Drop Backs, Silver Rail on Dash. Band Iron Strips on top of body, also on bottom. Drop end gate full width of body, extra heavy ash sills. Made as follows: Axles and Wheels, 1 inch, 1 1/4 inches, or 1 1/2 inches. Bodies, 31 1/2, 34 1/2 or 36 inches. Capacities, 800, 1,000, or 1,200 pounds. See Catalogue for full particulars.

15 Styles of Democrats with bodies from 29 to 41 inches wide, any kind of gear with any capacity. See our Agent before you buy and make sure that the name plate reads as follows:—

The McLaughlin Carriage Co., Oshawa, Ont.

Your last chance to secure an Apollo Harp at a Big Bargain



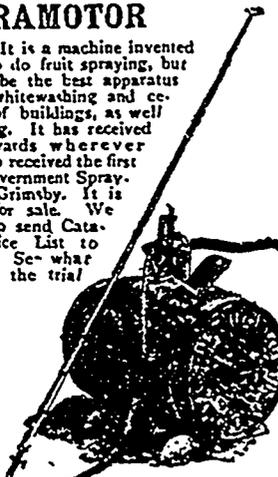
Mention FARMING.

25% DISCOUNT from regular prices on last year's styles. Only a few left. First come, first served. **DON'T MISS THIS CHANCE.** Every harp guaranteed all right, and a high grade instrument. Money refunded if not right.

A. H. PUTNAM SOLE CANADIAN AGENT CONFEDERATION LIFE BUILDING TORONTO

THE SPRAMOTOR

What is it? It is a machine invented and designed to do fruit spraying, but has proved to be the best apparatus known to do whitewashing and cement covering of buildings, as well as fruit spraying. It has received the highest awards wherever shown, and also received the first place at the Government Spraying Contest at Grimby. It is now offered for sale. We will be glad to send Catalogue and Price List to those applying. See what the judges of the trial say:



CERTIFICATE OF OFFICIAL AWARD:

This is to certify that at the contest of Spraying Apparatus, held at Grimby on April 2nd and 3rd, 1898, under the auspices of the Board of Control of the Fruit Experimental Stations of Ontario, in which there were eleven contestants, the Spramotor, made by the Spramotor Co., of London, Ont., was awarded First Place.

H. L. HURT, } Judge.
M. PATTIS, }

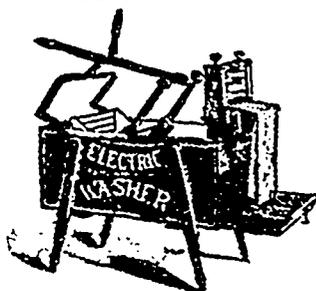
SPRAMOTOR CO.

337 Richmond St., LONDON, Ont.

Mention FARMING.

THE ELECTRIC WASHER

The Leading Machine—Excels all Others



The most complete and scientific machine, operated by a double-action lever movement. Very light running. It has a uniform rubbing motion.

Made from the best of material, and guaranteed not to leak. N.B.—Agents wanted. Territory for sale. SEMMENS & SON, 174 York St., HAMILTON

Walter Hall,

Washington, Ont., Breeder of Polled Angus Cattle of the choicest strain. Choice Stock from my prize-winning herd of 1876 and 1877 for sale.



WALTER HALL, Washington, Ont.

Churn Churn Churn

Does your butter work to a "paste" before the salt you use dissolves?

Poor salt spoils what might be good butter. A sharp-grained salt is practically insoluble.

Windsor Salt dissolves easily—it is "taken up" in the butter with very little working. Progressive grocers sell

Windsor Salt

The Windsor Salt Co. Limited, Windsor, Ont.

Woodstock Steel Windmills

FOR POWER AND PUMPING



Get a **DANDY**

GRAPHITE BEARINGS They Run without Oil.

Steel Towers, Pumps, Tanks, Saw Tables and Watering Troughs, etc.

WOODSTOCK WINDMOTOR CO. Limited.

Woodstock, Ont.

ULRICH'S ENSILAGE Seed Corn

This Celebrated Corn is Sold all over Canada.

Giant Prolific, Mammoth White, Red Cob Yellow Dent, Improved Leaming.

Ask your dealer to procure SEED for you and you will be well pleased with results. No fancy prices. Write for Free Samples and Book of Testimonials.

E. R. ULRICH & SONS, Springfield, Illinois.

2,000 Cream Separators

This is the size of one single order given for

MELLOTTE HAND SEPARATORS

Do not buy without writing about the Melotte points

Eastest Driving Highest Capacity High-Class Construction

CAPACITIES, 330 to 850 lbs. PRICES, - - \$100 to \$185.

R. A. LISTER & CO., Limited, Dairy Machinery Supplies, 18 ST. MAURICE ST., MONTREAL.

All Eyes are on this Invention!

Patented 1893, '95, and '96.

HARVESTING PEAS



The Genuine Tolton Pea Harvester with New Pat. Buncher at work

Harvesting in the most complete manner from eight to ten acres per day. Harvesters 10 suit all kinds of mowers.

EVERY MACHINE WARRANTED.

Our Motto: "Not How Cheap But How Good."

No drilling holes in Mower Bar or Inside Sole. A wrench is all that is required to attach it to any Mower. Give your orders to any of our local agents, or send them direct to

TOLTON BROS.,

GUELPH, ONTARIO.

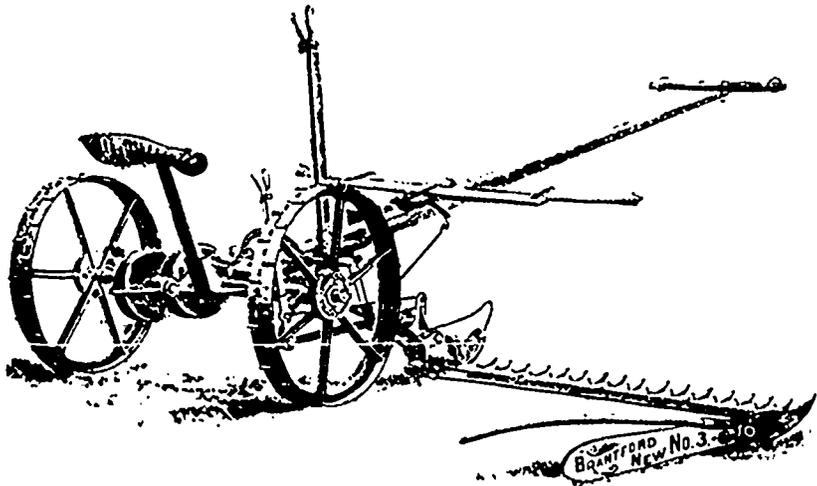


The
Massey-Harris

BRANTFORD

No 3 Mowers

Are Famed the
World over.



They do their Work Beautifully

MASSEY-HARRIS CO., = Toronto
Limited.

Deafness and Head Noises - - -

Relieved by using

Wilson's COMMON SENSE Ear Drums

They are safe, comfortable, and invisible; have no wire or string attachments. Read this letter:-

Stratford, Ont., Feb. 2nd, 1898.

C. H. Miller, Freehold Loan Building,
Toronto, Canada.

Dear Sir, - I got a pair of Common Sense Ear Drums from you on January 20th, 1897, while I was in Seaford, and have been using them ever since. I lost one this morning and as my work is telegraphing must have good hearing.

I gave the Pamphlet I had to a party in Wingham, so please send me price of Drums alone.

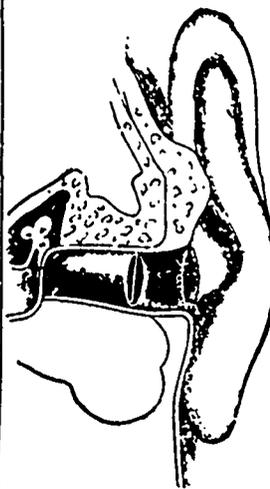
I have recommended them to several, but do not know if they got them or not.

I could not do without them now - so please send Drums as soon as possible. Yours truly, W. J. SMITH.

Write for Pamphlet giving many other testimonials showing benefit in cases of

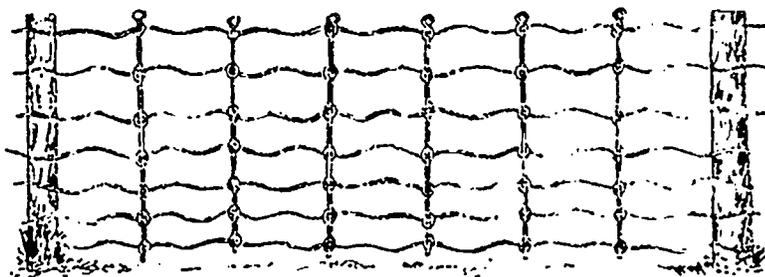
Catarrhal Deafness, Roaring and Hissing Sounds, Discharge from Ears, Relaxed, Sunken or Thickened Drums.

Stops Progress of Deafness and Protects Sensitive Ears



C. B. MILLER, Sole Agent for Canada, Freehold Building, 60 Victoria Street, Toronto

The Rankin Coiled Spring Wire Fence...



Farmers wanting fences will find it to their advantage to write us for particulars of our new fence. Easily built, no heavy tools required. Up-to-date in every particular. Agents wanted, where not already represented.

THE RANKIN FENCE CO., 275 S. Martin St., Montreal.

Seed Peas and Potatoes - Prussian Blue Peas (some bags) 75c a bushel. Great Divide Potatoes, 50c a Peck. Empire State and Rose of Erin Potatoes, 75c per Bag of 50 pounds. These varieties stand well up to the top of the O.A.C., Guelph. JAMES BOWMAN, Guelph, Ont.

BARRED ROCKS Choice Prize-winning Stock Setting (13 eggs) \$2.00 Two settings at one time \$3.50. You need vigorous stock and new blood.
R. F. HOLTERMANN, BRANTFORD, ONT.

Alberts' Thomas-Phosphate Powder (Registered)

Produces earlier maturity and more perfect ripening for CORN and other grains

It will DOUBLE the feeding value of CORN ensilage

WALLACE & FRASER

Toronto Office
CANADA LIFE BUILDING

ST. JOHN, N.B.

FAIRVIEW SHROPSHIRE.

SOLD OUT

except a few imported yearling ewes

ORDERS WILL BE BOOKED FOR

1898 RAM LAMBS

JOHN CAMPBELL,

Fairview Farm, WOODVILLE, Ont.

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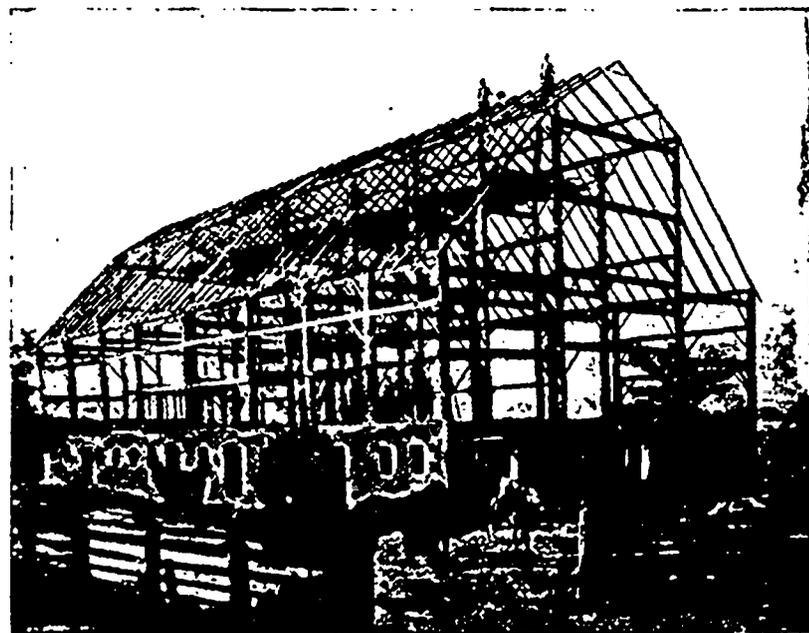
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