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THE FARMER'S ADVOCATE

AND HOME MAGAZINE

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

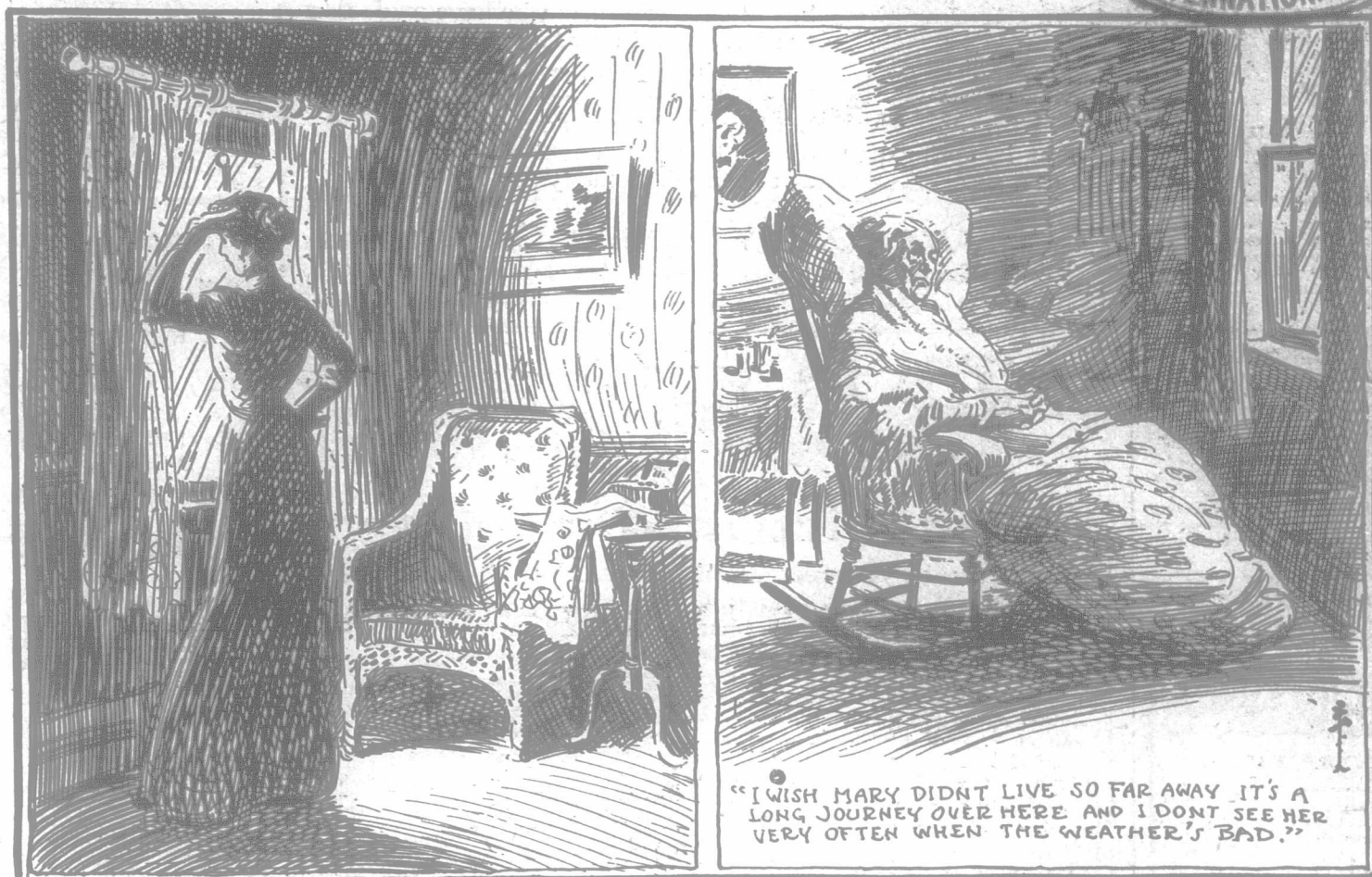
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Vol. XLVIII.

LONDON, ONTARIO, JANUARY 16, 1913.



"I WISH I KNEW HOW MOTHER WAS TO-DAY"

THE PHONE BANISHES LONELINESS AND RELIEVES ANXIETY

This is Telephone Time

THE above illustration shows one of fifty ways in which the telephone can be of service in improving the social, domestic and business life on the farm. "Canada and the Telephone"—a graphically illustrated book—shows the other ways. Women especially should write for a copy of this book. It's free.

Between 500 and 600 local companies and associations are successfully operating local telephone systems in Ontario. About 35 townships are giving their ratepayers splendid local service. So you see, there is no doubt but that an independent telephone system could be made a success in your locality.

The first step is to get in touch with us. We have assisted the majority of the independent companies in getting into business. We will be glad to help you too. Just write us, and we will send you full information, also names of companies which we have supplied with telephones and equipment.

This is telephone time. In January, February and March you can make the plans for your system and have everything ready to commence work early in the spring. Right now is the time to send for our No. 3 Bulletin—the latest book about telephones—and get posted on building local telephone lines. Send us your name and address to-day.

Canadian Independent Telephone Company, Ltd.
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"GOES LIKE SIXTY"**



Anybody can operate the simple "GOES LIKE SIXTY" Engine. Ready for work the moment you get it. Built strong and solid to last a lifetime. Will give long, unflinching satisfaction. Gas, gasoline or kerosene can be used for fuel.

Gilson quality gives full value for your money—dependable service, great durability, highest economy and perfect satisfaction; freedom from trouble, delays and expense.

Every engine **ABSOLUTELY GUARANTEED**. You can try this engine on your own farm before settling for it. You take no chances.

The "GOES LIKE SIXTY" Line has an engine for every purpose. All styles and sizes from 1 to 40 h.p.

Write for catalogue
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SYNOPSIS OF DOMINION LAND REGULATIONS

ANY PERSON who is the sole head of a family, or any male over 18 years old, may homestead a quarter section of available Dominion land in Manitoba, Saskatchewan or Alberta. The applicant must appear in person at the Dominion Agency or Sub-agency of the district. Entry by proxy may be made at any agency, on certain conditions, by father, mother, son, daughter, brother or sister of the intending homesteader.

Duties—Six months' residence upon and cultivation of the land in each of three years. A homesteader may live within nine miles of his homestead on a farm of at least 80 acres solely owned and occupied by him or by his father, mother, son, daughter, brother or sister.

In certain districts a homesteader in good standing may pre-empt a quarter-section alongside his homestead. Price \$3.00 per acre.

Duties—Must reside upon a homestead or pre-emption six months in each of six years from date of homestead entry (including the time required to own homestead patent) and cultivate 50 acres each year.

A homesteader who has exhausted his homestead rights and cannot obtain a pre-emption may enter for a purchased homestead in certain districts. Price \$2.00 per acre. Duties—must reside six months in each of three years, cultivate fifty acres and erect a house worth \$300.00.

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Deputy of the Minister of the Interior.

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Only Double Track Route

Round trip tourist tickets, giving choice of all the best routes, together with full information, may be obtained from any Grand Trunk Agent.

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If you are troubled with stumps, give our "Patent-Samson Stump Extractor" a trial. It has now been in use in Europe for the past three years with the greatest success. By its assistance, two men will do the work of three men and a horse. It can also be used for felling trees.

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CREAM SEPARATORS**

Don't Delay Buying One a Single Day Longer

If you are selling cream or making butter and have no separator or are using an inferior machine, you are wasting cream every day you delay the purchase of a De Laval.

There can only be two real reasons why you should put off buying a De Laval; either you do not really appreciate how great your loss in dollars and cents actually is or else you do not believe the De Laval Cream Separator will make the saving claimed for it.



In either case there is one conclusive answer: "Let the De Laval agent in your locality set up a machine for you on your place and see for yourself what the De Laval will do."

You have nothing to risk, and a million other cow owners who have made this test have found they had much to gain.

Don't wait till spring. Even if you have only two or three cows in milk you can buy a De Laval now and save half its cost by spring, and you can buy a De Laval machine for cash, or on such liberal terms that it will actually pay for itself.

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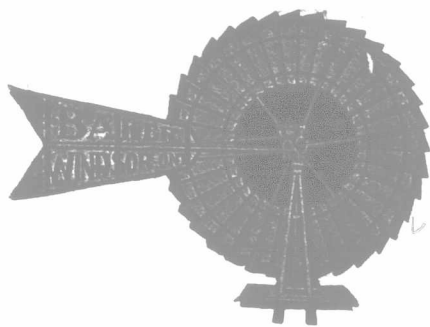
"BAKER"

No Friction Windmills

Mechanically Correct NOW, and Always Have Been

Originators of the Hub and Stationary Spindle in Windmill Construction—the ONLY PROPER PLAN of Carrying the Weight of the Wheel.

No part connected by the revolution of the wheel can be thrown out of line, while with other mills the weight and leverage of the wheel keyed to the shaft will wear out the boxing and gears. The wheel and gearing will become out of line, requiring repairs and new parts. The use of the stationary spindle on all "BAKER" mills enables us to bring the wheel close to the tower, which greatly lessens wear-friction and permits us to place wheel within a few inches of the pump-rod. Supporting the weight of the wheel directly over hub reduces friction, and substantiates our claim that it is the easiest running mill made, and has won for the "BAKER" the reputation of being a non-friction mill, in which class it has no competition.



The "BAKER" (built on a hub) has a long constantly lubricated bearing on both sides of the wheel. Other mills with wheel keyed to a shaft have bearing only on the inside, thus causing leverage, friction and excessive wear on boxings, which cannot be avoided in "shaft mills."

Any geared windmill with wheel keyed to a shaft, whether so-called single or "double-gear" mills, the weight of the wheel and consequent friction will soon wear out the boxings, causing the pinions to bind and the gears to cut-out, and the wheel will become out of line and dip toward the tower.

With "BAKER" Windmills the wheel is carried lightly and with little or no friction, and even in the event of wear, the wheel will always be balanced and the gears cannot become out of mesh. Write for booklet.

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MANUFACTURERS OF
Wind Engines, Pumps, Tanks, Etc.
WINDSOR, ONTARIO, CANADA.

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Home knitting is quick and easy with any one of our 6 Family Knitting Machines. Socks and Stockings, Underwear, Caps, Gloves, Mittens, etc.—Plain or Ribbed—can be knitted ten times as fast as by hand, and for far less than they cost ready-made.

A child can work our machines. Besides your own family work, you can make good money knitting for others.

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A well-balanced Molasses Feed FOR DAIRY CATTLE

Made by
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Write for prices and particulars.

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Our specialty is Canadian Raw Furs. Write for our free price list of Canadian Furs. We pay all mail and express charges. Remit same day as goods received. Hold shipments separate when requested. Prepay charges for returning furs if valuation is not satisfactory. We do not buy from dealers, but from trappers only.

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WHEREVER the old wheelbarrow cleaning system is used you find a mussy stable.

It's too much to expect that a man will brush and sweep the passage ways every time he cleans the stable. He hasn't the time for one thing—and it's discouraging work for another.

But nowadays we think more about clean stables.

We know that dirty stables breed disease.

It's up to you, Mr. Farmer, to make your stable easy to clean—then it will always be clean.

You can learn something about how to do this in Dillon's Book on Clean Stables, which is sent free to Farmers. Dillon's make a Litter Carrier that lightens work about the stable. It's an equipment any man can put up, and is adaptable to stables large or small. The free book explains it fully.

DILLON'S Litter Carrier

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Light, strong, lasting, and fully guaranteed.

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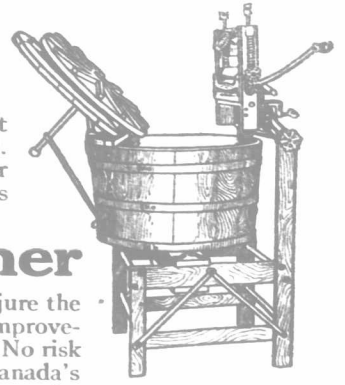
Saves Clothes

The Connor Ball-Bearing Washer saves clothes. It washes them without any rubbing on the wash board. And unlike other washers, there is no post or obstruction in the Connor around which clothes might wind or tear.

Connor Ball-Bearing Washer

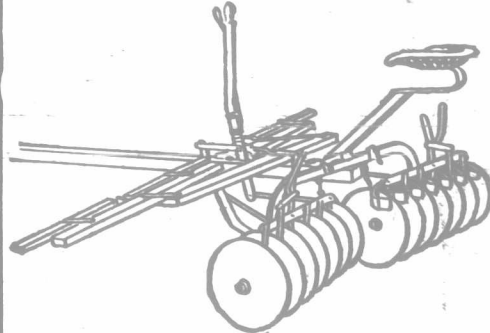
is the SAFE washer. Nothing about it that can injure the most delicate fabric or loosen a button. Has new improvements and conveniences found on no other washer. No risk in getting one, because fully guaranteed by one of Canada's largest washing machine corporations. Look for the "money back guarantee" on the washer.

Ask for Booklet Send for booklet giving complete description. It will open your eyes. Such a convenient, easy-running, time-saving washer was never thought possible three years ago.



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The "Bissell" has the capacity



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The special shape of the "Bissell" plates cause them to enter the ground naturally and TURN THE SOIL EASILY. Steel scraper blades meet the

Disk Plates chisel fashion and keep the plates clean of trash by movable clod irons—the only Harrow that has this feature.

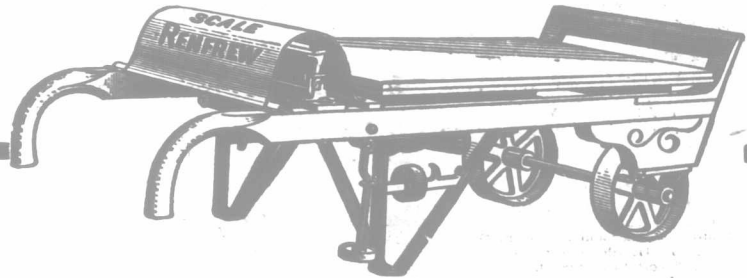
Anti-friction balls (40) are used in the bearings, on every "Bissell" Disk.

The seat is placed back on the Harrow so that the weight of the driver when riding balances over the frame and REMOVES NECK WEIGHT. The hitch is well back, MAKING LIGHT DRAUGHT.

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The RENFREW Handy Two-Wheel Truck Scale

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It was to protect farmers against these losses that the Renfrew Truck Scale was designed and built.

And it does protect them—by being absolutely accurate.

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Weighs anything from one pound to 2,000 lbs.—and weighs it right.

To verify these statements, mail coupon now for our Free Booklet

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Raw Furs

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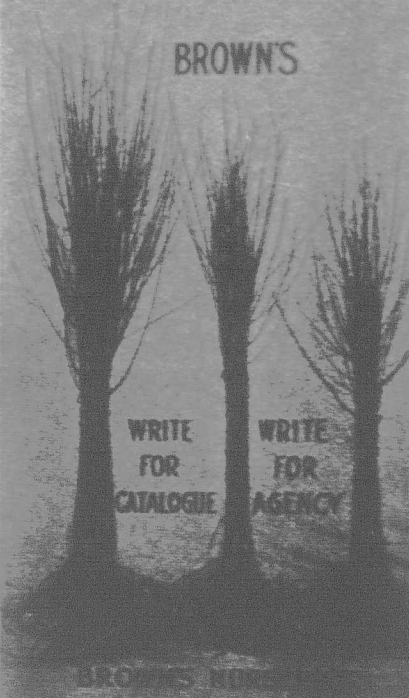
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Genasco

THE TRINIDAD LAKE ASPHALT Ready Roofing

It gives lasting protection to all your buildings, and increases their value.

Write for the Good Roof Guide Book and samples—free. Mineral or smooth surface. Ask your dealer for Genasco.



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The Barber Asphalt Paving Company
Largest producers of asphalt, and largest manufacturers of ready roofing in the world.
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Pump Water, Saw Wood, Grind Grain, Churn

and do many other labor-saving tasks with the Barrie Engine. Will pay for itself quickly by saving valuable time for you. Strong, rugged construction. So simple a lad can run it. Sure in action. Economical in operation. Every farmer needs one.

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Distributors: James Rae, Medicine Hat; Canada Machinery Agency, Montreal; McCusker Imp. Co., Regina; The Tudhope-Anderson Co., Ltd., Winnipeg, Calgary, Edmonton, Lethbridge, Saskatoon, Regina.



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Stationary or Portable; 3 to 100 h.p., for gasoline, distillate, natural gas and producer gas. Make and break or jump spark ignition.

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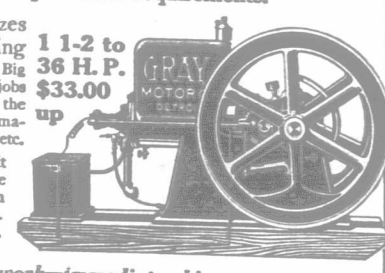
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Big Engines for fall and winter work—immediate shipments.

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125-Egg Incubator and Brooder Both \$13.75

If ordered together we send both machines for only \$13.75 and we pay all freight and duty charges to any R. R. station in Canada. We have branch warehouses in Winnipeg, Man. and Toronto, Ont. Orders shipped from nearest warehouse to your R. R. station. Hot water, double walls, dead-air space between, double glass doors, copper tanks and boilers, self-regulating. Nursery under shipped complete with thermometers, lamps, egg testers—ready to use when you get them. Five years guarantee—30 days trial. Incubators finished in natural colors showing the high grade California Redwood lumber used—not painted to cover inferior material. If you will compare our machines with others, we feel sure of your order. Don't buy until you do this—you'll save money—it pays to investigate before you buy. Remember our price of \$13.75 is for both incubator and brooder and covers freight and duty charges. Send for FREE catalog today, or send in your order and save time.

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Write us today. Don't delay.



QUALITY AND EFFICIENCY ARE MAIN ESSENTIALS IN A PIANO

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BELL PIANO

We take the time and pains to build them right. There are many good features in the BELL never found in other makes. Information in our (free) catalogue No. 40. Send for it.

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5 times more light at 1/3 the cost



200 candle power of pure white brilliant light costing less than 1/2 cent per hour. No smoke, or odor. No greasy oil lamps. No wicks to trim. So simple a child can operate it. Cannot explode—absolutely safe—fully guaranteed five years. An ornament in any home. Write to-day for circular A.

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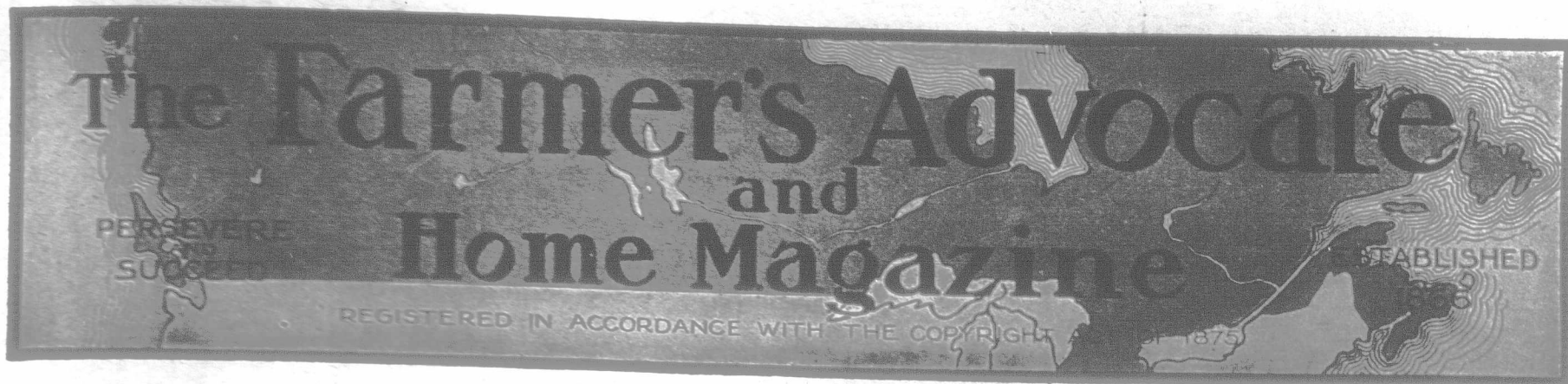
Toronto or Regina

4 1/2 per cent.

Sums of \$100 and upward can be placed in the hands of this Company for investment. Interest is paid at the rate of 4 1/2% per annum, and the safety of both principal and interest is guaranteed. Write for booklet.

THE FIDELITY TRUSTS COMPANY OF ONTARIO

Masonic Temple, LONDON, ONT.



Vol. XLVIII.

LONDON, ONTARIO, JANUARY 16, 1913.

No. 1060

EDITORIAL.

In the production of rapid and beautiful landscape effects, what artist can surpass the snow and sleet storms of a Canadian winter?

Rural teachers and scholars are finding a continuing source of instructive delight in the "Nature's Diary" articles by A. B. Klugh, M.A.

To obtain a useful understanding of the principles of animal nutrition we can, without any reservation, commend a winter course in a stableful of cattle.

On our fall-plowed lands the snow and frost are now engaged in tillage operations for next season's crop. It remains for us merely to apply the finishing touches in spring.

That farmers become the best-read and most thoughtful citizens is in large measure due to the splendid opportunities which the long winter evenings afford for solid reading.

Do not let it escape your notice that there are a host of things in the woods and fields about home just as intensely interesting as any town moving picture show, and far more wholesome in their surroundings.

A hustling Western city that keeps itself very much in the limelight of publicity is reported to have six hundred real-estate agents who will see that newcomers are promptly introduced to the land.

Very well put, indeed, is this paragraph by a Western farmer, who, being past the age of activity, has retired to a small piece of land in the neighborhood where he was raised.

"A farmer retiring from the soil where he has lived his best days reminds me of an old plow thrown in a fence corner to rust out. Now compare the plow rusting out in idleness and one that comes out of the last furrow bright and shining; it is past repair but still shining."

A case of considerable general interest through the Province of Ontario recently arose in Toronto over the prosecution of J. A. Webster, of Elgin County, for the sale of a quantity of apples on December 24, 1912, under a city by-law forbidding sales of less than a bushel at the St. Lawrence Market. The trial before Police Magistrate Kingsford, however, resulted in favor of the defendant, the magistrate holding that farmers were exempt under the regulation in question. It is said the city of Toronto will appeal the case.

The continued appreciation of its readers is one of the chief sources of satisfaction in the publication of "The Farmer's Advocate," and this is aptly expressed in a letter from a subscriber, who refers to the paper as "an old friend," and says he has not missed one copy for thirty years. Owing to international postage, the subscription price to American readers is \$1 more than in Canada, but merit counts above price with discriminating readers. For instance, James Kidd, of Lackawanna Co., Pennsylvania, writes: "Your Christmas Number is just received, and am highly pleased with it. No paper here publishes such an issue. The "Farmer's Advocate" cannot be beat as an agricultural paper. Find enclosed \$2.50 for another year's subscription."

Corporation vs. Individual Farming

Failure of the National Land, Fruit and Packing Company, whose extensive project in the operation of rented apple orchards has attracted attention during the last few years, recalls certain observations made in these columns a year ago by way of comment upon our own quite successful, but more limited, experience with leased orchards. To quote from our files:

"As the acreage increases, difficulties multiply. Successful orcharding demands considerable labor, and certain of the operations, such as spraying and picking, must be accomplished in a limited time. To secure an adequate supply of even moderately efficient day-labor is difficult at the best, and, with extensive operations, becomes almost impossible. There is nothing wrong about this state of affairs, but it may well give pause to the syndicate orchardist. . . . We should be exceedingly sorry to see the splendid orchard possibilities of this country taken out of the hands of the individual farmers to whom they belong and leased for a song to capitalists. Notwithstanding certain probable advantages of corporation control in respect to marketing and rapid introduction of improvement in cultural methods, we are convinced that there is much more aggregate profit to be realized when each farmer takes care of his own orchard and harvests the crop himself, relying mainly upon his regular farm help. Instead of corporation marketing we should like to see co-operation; instead of hired managers, individual proprietors; and instead of capitalistic profits, an ampler revenue realized by the owner of the farm. Our experience furnishes reason for believing that extensive corporation control of orchards will not prove an ultimate success."

While sympathizing with the investors, therefore, we are, from another point of view, rather relieved to note that our prognostication has been affirmed by the facts. Goldsmith was near the truth when he said, "A bold peasantry, their country's pride, when once destroyed, can never be supplied."

From the standpoint of citizenship as well as agriculture, a race of individual free-holders is of the utmost importance to the State; hence we are gratified to observe evidence that business reasons will tend to preserve it yet awhile in Canada. Even allowing for the tendency of modern invention with the advantage it throws towards capital, it still seems to be the case that the interested thrift of a proprietor-manager who is in a position not merely to direct the work personally, but to perform a portion of it himself, is necessary for the highest type of success in the mixed farming of Eastern Canada. If there is one branch of mixed farming where syndicate operation should have its best chance, that branch is apple growing, but we are pleased to note that even in apple culture the best opportunities for profit are open to the enterprising farmer who will care properly for the orchard on his own land. The day of the independent self-employed farmer—the bulwark of our citizenship—is not yet past. May co-operative organization prolong it.

Mail Delivery and Roads.

One of the indirect results of the rapid and general extension throughout the older-settled portions of the country of mail delivery will be to rivet attention upon the condition of rural highways. That this will tend to their betterment there is every reason to believe. Very fortunately, too, in our judgment, these are, and will be for the most part, the ordinary roads leading hither and thither from the post-offices where the mail is sorted and the routes start in charge of the courier. Rural mail distribution will, therefore, not lend itself to the furtherance of trans-provincial or transcontinental touring highways for the idle rich. Who knows but what by the time these great pleasure routes were completed some other rapid transit fad like aerial motoring would be in vogue? Properly constructed and maintained main lines of road needed for the increasing ordinary traffic of the country are highly desirable, but so are the roads radiating from all the local centers of business which draw their sustenance from the farms, and it is over these that many of the rural mail conveyances will daily travel. The cost, speed and comfort of delivery will bear a very direct relation to the condition of the roads. Bad roads will increase the wear and tear on harness, horses, and rigs, and on the temper and nerves of the courier. The better the roads the less will be the cost of delivery, other things being equal. Comparatively few persons yet realize the large expenditures that rural delivery will entail upon the national Postal Department. While its revenues will, no doubt, greatly increase because of the better public service rendered, the net cost will be heavy, and this ultimately falls upon the people, indirectly, perhaps, but none the less certainly. It is, therefore, in their interest that the cost of operation be not unduly increased by the bad state of the roads. No investment which farmers make, whether through taxation or by their own individual efforts, brings more certain and gratifying returns than that intelligently expended upon the roads in constant use, either for pleasure or for business. Farmers have an individual and a community interest, therefore, in the up-keep of the highways, and they should not rest content to wait for municipal or government action, but bestir themselves locally as well as bringing pressure to bear upon "the powers that be." Here, as in other spheres, heaven will help those who help themselves. Under the old mail-stage regime, now passing away, the main gravelled roads were, as a rule, the ones traversed, but rural delivery will tend to promote traffic along the concession and side lines over which the routes are laid out, and these will now, perforce, receive more attention in all schemes of rural road improvement. It is well that this should be so. Furthermore, it is only a question of time when the public boon of a parcel-post system, as developed in other countries, will be initiated in Canada. While this will go to swell the postal revenues, it will entail more commodious carrier vehicle accommodation, and make still more desirable that better road-beds for the heavier traffic should be provided.

Better roads and better rural mail delivery must go hand-in-hand.

THE FARMER'S ADVOCATE AND HOME MAGAZINE.

THE LEADING AGRICULTURAL JOURNAL
IN THE DOMINION.

PUBLISHED WEEKLY BY
THE WILLIAM WELD COMPANY (LIMITED).

JOHN WELD, MANAGER.

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

1. **THE FARMER'S ADVOCATE AND HOME MAGAZINE** is published every Thursday. It is impartial and independent of all cliques and parties, handsomely illustrated with original engravings, and furnishes the most practical, reliable and profitable information for farmers, dairymen, gardeners, stockmen and home-makers of any publication in Canada.
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Have you sent us your renewal subscription to "The Farmer's Advocate and Home Magazine"?

Our subscribers are our best circulation getters. They can conscientiously recommend it to others, feeling that \$1.50 cannot be invested in any other manner that will give as much pleasure and profit. The larger our circulation becomes, the better paper we can give our readers.

Old subscribers sending us two NEW names and \$3.00 may have their own subscription advanced twelve months; or, for your own renewal and one NEW name, we will accept \$2.50. In either case we expect the new subscriber to pay the regular subscription price of \$1.50.

What Constitutes a Good Stable.

What are the essentials of a good stable? What points are important to secure, and how can they be best attained in the case of stables for horses, cattle, sheep and swine? Upon this subject we have been at pains to secure expressions of opinion from a number of practical men, some of whom have, to our knowledge, recently erected up-to-date stabling on their own farms. In addition to these expressions of opinion we shall welcome the views of other readers. The subject is important and timely. By way of suggestion we submit the following list of questions.

(1) Site and drainage, (under site you might discuss the propriety or otherwise of having the stable partly below ground level) on one or more sides.

(b) Plan of construction preferred, whether basement or one-story byre with reasons for and against.

(c) Kind and construction of wall. Discuss sloop cement, cement block, stone, frame, etc. What thickness of each would you recommend,

and for your locality how would the different walls compare in point, of cost?

(d) Discuss material, contour and construction of flooring for the respective classes of stock.

(e) Light, with specific suggestions as to size, number and location of windows. How would you have them hinged?

(f) Ventilation, what system do you favor, and to what extent would you ventilate? Do you aim to keep your stable close enough that manure will never freeze in it?

The Call of "Home."

[Note.—Written for "The Farmer's Advocate" on New Year's day by the noted dramatic singer and reciter whose name is subscribed below. Readers will be interested to know that he is not only an actor and poet, but also a farmer, having purchased a farm some years ago in Glengarry Co., Ont. On the stage he was connected with the late Sir Henry Irving Co.—Editor.]

When you're rushing, roaring, rattling around the cities of the earth

Do you ever hear the gentle "calls" of home? When the "special" lifts you here, roars along and sets you there

Just wherever it may chance you have to roam. When the "footlight" glare burns low, and "last curtain" ends your "show,"

And you pass into the silence of the night, Don't they creep into your ear,

The "calls" you hold so dear, Can't you see afar your little homestead light?

Ah the calling, calling, calling from the dear old home afar—

Don't it pull your heart strings tight and make them ache?

Don't it set your brain agonging, Don't it fill your soul with longing,

Don't you wish that you had wings for its dear sake?

Ah, amid the whirl and turmoil, and the bustle and the rush

I can often hear the lowing of my kine, And in fancy love to trace each simple gentle face Wending home at eventide in solemn line.

And I hear my horses whinny when I shake the old oat pail.

And "coltie," the most roguish and most dear, Knows well there's no resisting

Him an "extra special fistin'." When his velvet muzzle gently rubs my ear.

Ah the calling, calling, calling, as you wander home at night—

Don't it pull your heart strings tight and make them ache?

Don't it set your brain agonging, Don't it fill your soul with longing,

Don't it wring your heart until it's like to break?

New Year's Day. RUPERT MAR.

Learning or Loafing?

Winter usually brings a lull in farm operations for the average farmer's son. The manner of using these quieter hours will determine the kind of man the boy will be ten years from now. If the youth loafs, the man will dwindle, and the dwindling farmer will never get anywhere. Further, it is the loafing country boy who usually leaves the farm, as idleness is the mother of discontent.

The best thing for the average boy who has considerable spare time on his hands is for him to go to school. The man without an education is under a serious handicap, and every hour spent in a good school places the boy several degrees nearer manly usefulness. If school is out of the question, then a course of reading on matters pertaining to farm work should be undertaken. A letter dropped to the O. A. C. asking for direction in such a course would be the first step. Of course the boy will need to determine what he wishes to become proficient in, such as poultry, dairy or seed growing. This once resolved upon, the remainder of the work is comparatively easy. It is a simple matter of will power and sticking at it. The meetings of the farmer's clubs should be attended. Not an opportunity for growing in useful knowledge should be allowed to escape him. This does not ignore the fact that young people require a good deal of time for social recreation. It is simply a plea for the making the best use of the advantages of the leisure hours of the winter. Loafing means loss. Learning means life. The mind has its own place. The thrifty farmer thinks hard, and the school and reading are the first steps in preparing for the strenuous brain-twisting the boy will be required to do when he is on a farm of his own.

O. C.

A City Expert on Farming.

I hae just got back frae spendin' a couple o' days in toon where I was celebratin' the comin' in o' the New Year wi' some auld cronies o' mine. We had an unco' sociable time, I can tell ye, an' there was na' mony problems in releegion or politics that we didna' settle tae oor staisfaction. An' we didna' overlook agriculture either. When these chaps in the city get hauld o' an auld greenhorn frae the country, like mysel', it's wunnerfu' a' they can tell him aboot his ain business, an' the way he should rin it.

Ane o' them in partecular had sae muckle tae say aboot the "follies o' farmers," as he called it, that I'm minded tae gie ye a few o' his ideas, an' ye can tak' them for what ye think they're worth. He had spent his younger days on the farm, an' he tried tae mak' me believe he kenned what he was talkin' aboot.

"Sandy," says he, "the farmer is no' a guid business man; ye maun admit it."

"Weel," I says, "I'm not sae sure o' that. Did ye ever try tae buy a horse frae ony o' them?"

"I did," says he, "an' I gat sae badly cheated by the chap, that I took unco' guid care I never went tae him for another. Gin misrepresentation is what ye ca' ruid business, I'm thinkin' ye'd better be gettin' a new dictionary. In the city noo-a-days a mon gaen' intae business o' any kind may as well mak' up his mind tae gie everybody a square deal. It's the only way o' gettin' tae the tap o' the pile an' stayin' there. Gin he canna' dae that he micht just as weel gie himsel' up tae the police at once, an' end the misery. An' this is where a hale lot o' you farmers gae wrong Sandy," says he, "a copper in sight is worth mair tae ye apparently than a five-dollar bill behind the ither fellows back, an' ye'll get that copper even gin it spoils yer chance for the fiver later on. But it wasna' on a matter o' morals that I was thinkin' o' speakin' tae ye, Sandy" he went on, "for I ken fine that ye're as honest as circumstances will permit. And when I said farmers werena' guid business men I was thinkin' o' something else entirely. It's in the management o' yer farms that maist o' you chaps show yer lack o' a business training. I didna' believe there is anither occupation on the face o' the airth that is taken up by sae mony half-trained men. An' it's tae the credit o' the business an' not tae those engaged in it, that there is comparatively sae few failures amang them. Oor farmers are supportin' a lot of apprentices, an' it's a compliment tae some o' them tae ca' them even that. An' it's no' as if they didna' hae a chance tae get a better understanding o' their profession. They hae Farmers' Institute meetings in your part o' the country, do they no', Sandy?" "O, aye," says I. "An' hoo were they attended by the farmers roond aboot, this year?" he went on.

"Weel," says I, "countin' the editor in, alang wi' the retired farmers o' the toon that were present, I should say that there was aboot fifteen or saxteen, beside mysel', there in the afternoon, but I'm hearin' that the meeting at nicht had tae be ca'ed off, as there was nae body present but the chairman."

"There ye are," says my friend, "the chance o' learnin' something aboot their profession was next thing tae forced on them, but they wouldna' hae it. They'll go along in the same auld way that their grandfathers went, but they winna' get as muckle for their work as these same grandfathers did, for the land is no' what it was seventy-five years back. At that time ye could turn it over, sow yer seed an' get a crop, an' next year ye could turn it back an' get anither an' so on. But the farmer noo-a-days canna' dae that. He's got tae ken something aboot keepin' up the fertility o' the soil wi' manure an' clover, an' cultivation an' so on. An' he's got tae ken hoo tae feed stock tae get maist for his money, an' a hundred ither things that gin he kenned them a' wud mak' him what ye micht ca' an' educated business man. He would na' be ane that ye'd see drawin' manure tae the field, an' puttin' it in a big pile to heat for a couple o' months or sae. Upon ma word Sandy, it maks me mad, when I'm drivin' through the country, tae see these manure heaps on ilka farm wi' the steam risin' frae them till ye wanner that they didna' pit a smoke-stack on tap o' them. Talk aboot burnin' money! It tak's some o' you farmers tae gie pointers tae the prodigal son alang this line.

"An' anither thing, I hae noticed, that has, I'm thinkin', mair to dae wi' keepin' farmers oot o' the millionaire class than anything else, is the grade o' live-stock they keep, especially the coos. We a' ken the income that may be had frae a herd o' guid milkers, an' why sae mony men will gae on year aifter year keepin' coos juist for their company, I canna' understand. "Aye," says I, "I mind, when I was a wee gaffer, o' some coos we had. I had aye tae brace ma feet an' shut ma eyes when I was milkin', tae get anything out o' them."

"Weel Sandy," continued ma friend, "you've had mair or less experience alang the line on

which I'm ric to-da mair place, ance is payin' to mal him w it stri onway. "Ay heid w heard catechi chief en on," a wi' ye value o his bus dae tha

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Editor Will satisfia 1.— keeping as a s same s and g years children dies an joy the of perli as long of the guardia Mary some circum in this her ye children 2.— keeping being Mary she did one, it ed pos chooses again three c How likely John d ly div being s much a Mary's amon wife r usually do not To seems the pr ing of

which I hae been talkin', an' I think ye'll admit I'm richt when I say that what the farmer o' to-day needs tae mak' a success o' his calling is mair brain-power. Horse-power is a' richt in it's place, but the day for main-strength an' ignorance is past, an' gin he's gaein' to keep on payin' one hundred cents on the dollar he's got to mak' use o' a' the faculties the Lord gave him when he started him oot. That's the way it strikes a chap lookin' on frae the ootside onway."

"Aye," says I, "I guess yer richt. A mon's heid was made to save his heels. Na doot ye've heard about the wee laddie wha was sayin' his catechism. When they asked him what was the chief end o' man he says, 'the end wi' the heid on,' an' we canna' say he wasna' richt. I'm wi' ye ilka time when it comes tae pittin' a high value on a guid head-piece. A chap needs it in his business, even gin he has naething mair to dae than give free advice tae his friends."

SANDY FRASER.

Marketing Farm Products.

Systems of marketing farm products and the demand for them at trade centers are the subjects of a special report by the United States Secretary of Agriculture. This report treats of the movement of farm products from the farm to the consumer through a great variety of channels. The simplest distribution is the direct one of delivery by farmer to consumer. The intervention of one, two, three, and even more, middlemen in the distribution is quite common. Onions raised in Kentucky are sometimes bought by a local merchant and shipped to Louisville, where they may be put into sacks and consigned to a New York wholesaler or commission man, who in turn sells to a New York retailer, who passes them on to the consumer, each getting a profit. Fruit often passes through the hands of five middlemen and eggs often are handled by at least four. Market places and warehouses aid the producer to dispose of his products, but, according to this report, farmers must associate themselves together for the purpose of assembling their individual contributions of products, of shipping in carload lots, of obtaining market news at places to which it is practical to send their products, to sell in a considerable number of markets, if not in many markets, and to secure the various other gains of associative selling. Co-operation in selling is the solution. The consumer can also cheapen the cost of farm products by co-operative buying and by reducing the expenses of retail and other local distribution. The United States Government purposes sending out field agents and correspondents to make estimates of fruit and vegetable supplies, to help producers to organize for marketing purposes, and to investigate storage, commission business and markets.

Willing to the Widow.

Editor "The Farmer's Advocate":

Will some one please explain the following, satisfactorily? I cannot think it out.

1.—John and Mary get married and start house-keeping, probably farming. John receives \$3,000 as a start from his father; Mary receives the same sum from her father. They labor together and get along fairly well until ten or twelve years have passed. Meantime three or four children have been born to them. Now John dies and has made a will whereby Mary may enjoy the interest (the property of course was sold) of perhaps four or five thousand dollars a year as long as she remains his widow (the remainder of the property to be held in trust by some guardian for his children until of age). Should Mary, however, choose to marry again (and some of these Marys are almost compelled by circumstances to do so) she will lose all interest in this property, as the principal which furnished her yearly income now reverts back to John's children.

2.—John and Mary get married and start house-keeping the same as in No. 1, the only difference being that at the end of ten or twelve years Mary dies. Now Mary did not make a will, as she did not own anything to bequeath to anyone, it all belonging to John, who has undisputed possession of it, and therefore can do as he chooses with it. In all likelihood he marries again in a year or two, and perhaps another three or four children are born into this family.

How much of Mary's share of this estate will likely be inherited by her children? Should John die, and leave all his property to be equally divided among his children, Mary's children being so much older, would still not receive as much as John's later children, and, of course, Mary's share of the estate would be divided among all the children, while, should the second wife receive some money from her father, it usually is carefully managed that Mary's children do not receive any of this.

To me this way of disposing of the property seems very unfair. The husband is recognized as the provider of the family; however, in disposing of his property is he not overly anxious to

leave a good lump for each of his children when of age, and thereby treat his help-meet unfairly, and almost starves her and the children until they get old enough to earn a living or come into the legacy awaiting them?

Why make the struggle so hard for poor Mary with her children to care for? Why cut her out altogether should she commit the crime of marrying again? (I do not believe the number is so very great who choose to do so.)

Why, if they twain be one flesh, cast this part of his flesh out almost altogether for the sake of his other flesh which after all seems so much dearer? Will some one please answer these whys?

NOT YET A SUFFRAGETTE.

more important questions: "What does it do?" "How does it live?" "Where does it live?" "What are its relations to other forms of life about it?" But first comes the name, for a name is a handle, and a handle is a very necessary part of most of the things we use.

Now, many plants have two kinds of names, though a large proportion have but one kind. If they are generally and widely known, they have a common name; and they all, whether commonly known or not, have a scientific name. Scientific names are usually far from appreciated by the general reader; they are denounced as of uncouth sound, of great difficulty of pronunciation, and sometimes ridiculed as useless.

"Why not use common names entirely?" is frequently asked of the botanist. The answer is simple. Because the majority of plants have none, because in the case of those which have, the names are different in different countries and very often in various parts of the same country, and because the same name is often applied to several different plants. But a scientific name is standard and means the same plant in Ontario as in Florida, in Germany, or in France. As to their difficulty of pronunciation, it is more a bogey than a reality. Divide it into syllables and pronounce as in English and you will not be far astray. How is a scientific name composed? It consists of two Latin or Greek words—the first is the name of the genus, which is written with a

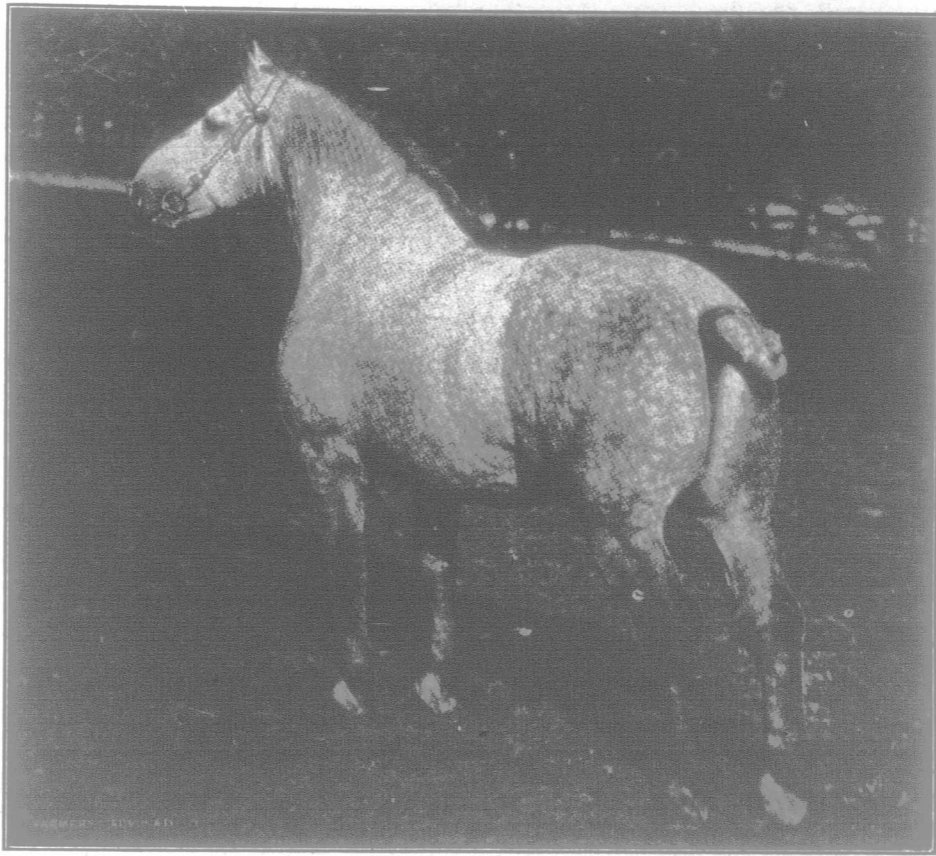
capital letter, and stands for a group to which the plant belongs, much as Brown does in the case of the name of a man; the second is the name of the species, and is the "christian" name of the plant, as James would be in the man's case. The specific name is written with a small letter. Then scientific names mean something; they usually describe some characteristic of the plant, as *Trifolium grandiflorum*—the "large flowered lily with three petals."

Now, in order to find out the names of the plants we meet in wood and field, it is necessary to procure what are termed "keys" or "manuals."

With the aid of these and a hand lens, the plant may be "run down," that is placed in a certain family; then a certain genus, and finally the species ascertained. In the matter of the flowering plants, the ferns and their allies, the horsetails and club-mosses, we are fortunate in having an excellent manual which covers Eastern Canada—the seventh edition of "Gray's Manual." If one desires to pay particular attention to the ferns, he will find Clute's "Our Ferns in their Haunts" of much assistance. The study of mosses, lichens, fungi, and algae is a different matter, as it entails

the use of a compound microscopogen and a pretty extensive acquaintance with botanical literature. Some work on mosses, may, however, be done with the aid of Grout's "Mosses and Hand Lens" and some on the common fleshy fungi (mushrooms, "toad-stools") with Marshall's "Mushrooms."

In the field study of botany nothing serves to so quickly impress upon one the names and appearance of plants as to make a collection of



Imprecation.

Grand champion Percheron stallion at the Chicago International in 1911 and 1912.

Nature's Diary.

By A. B. Klugh, M. A.

It is rarely that "Indian Summer" reaches so far into the winter as to include Christmas Day, but that is what it did in parts of Southern Ontario this season. No snow on the ground, no cold wind and the thermometer at 40 degrees!

Now is the time to lay out plans for our studies of nature during the coming spring and summer, and we shall consequently devote a little



Hysope.

Grand champion Percheron mare at Chicago, 1912.

space to this subject, beginning with the consideration of plant life. One of the essentials of the study of any phase of nature is to answer the question, "What is it?" Before we can talk of a thing, or even place it satisfactorily in our own minds, we must know its name. Now, this does not mean that to find out the name of a thing is the sole aim and end of our study of that thing—it is merely a beginning. After learning the name, come the more interesting and

the use of a compound microscopogen and a pretty extensive acquaintance with botanical literature. Some work on mosses, may, however, be done with the aid of Grout's "Mosses and Hand Lens" and some on the common fleshy fungi (mushrooms, "toad-stools") with Marshall's "Mushrooms."

In the field study of botany nothing serves to so quickly impress upon one the names and appearance of plants as to make a collection of

them. In collecting small plants, dig them up root and all. Carry into the field a press, of which each side is made of four slats of zinc or basswood, 18 in. long, by 1 in. wide, by $\frac{1}{4}$ in. thick, held together by two hardwood slats 13 in. long, by 1 in. wide, by $\frac{1}{4}$ in. thick. Fasten two straps (with buckles on) to the hardwood slats of one side and run the straps through leather loops on the hardwood slats of the other side. Cut pieces of the gray felt-paper which is used under carpets to fit the press. Place these in the press with a folded sheet of newspaper between each two pieces of felt. Lay the plants as they are collected in the newspaper and arrange each plant so as to show to the best advantage. After having identified the plant, write a label tearing its name, the date, the locality in which it was collected, and your name in with the plant. Then place the newspaper in another press similar to the one described above, only with a sheet of black tailor's batting between each two sheets of felt-paper. Thus, the order in the press will be felt-paper, tailor's batting, felt-paper, newspaper with plant, felt-paper, tailor's batting, felt-paper, and so on. Then pull the straps very tight, and hang the press in a dry place. The use of the tailor's batting between the felt-paper does away with the necessity of changing the sheets of felt-paper every day, as must be done if not used, for it allows the air to get in and prevents moulding. In such a press I have dried plants perfectly even under such adverse conditions as in a tent without a stove in it during continual wet weather. When perfectly dry, the plants should be mounted by gluing them to sheets of ledger paper, 16 $\frac{1}{2}$ in. by 11 $\frac{1}{2}$ in. (which may be obtained from dealers in botanical supplies) and the label pasted on the lower right-hand corner.

HORSES.

Parasitic Mange.

Parasitic Mange is defined by a writer in the Journal of the Board of Agriculture of Great Britain as a condition of the skin caused by parasites, which are known as mites or acari. They belong to the family of Acaridae. Mange assumes the character of a contagious disease, since the parasites may be conveyed to other equine animals.

The writer goes on to describe the mites as exceedingly small, round or oval in shape, and usually only visible when magnified by the use of a hand lens or microscope. There are several distinct stages in their development; the newly-hatched mites (larvæ) have three pairs of legs, but after further development they acquire a fourth pair. The legs are furnished with bristles, claws, and sometimes with suckers. From the head project the feeding organs, and the jaws resemble saws. The body is furnished with scales, spines, and bristles. The adult females lay eggs, which hatch out into larvae in from four to seven days. These larvae, after successive moultings, develop into adults. The mites can exist on moist dung for several weeks, but live for a shorter time on a dry surface. The eggs are said to retain their vitality for several weeks if moisture is present, but in a dry atmosphere only for from three to six days. The mites are killed in a short period if exposed to a temperature of 104° F. or over, but moderate warmth stimulates them and renders them more active. This occurs, for instance, in warm stables and at summer temperatures.

FORMS OF MANGE.

Three varieties of parasitic mange affect horses, asses, and mules, viz.:—(1) Sarcopic, (2) Psoropic, (3) Symbiotic. Each is caused by a special mite which has a somewhat different mode of life.

The Sarcopic form spreads slowly, but is the most serious on account of its being the most difficult to cure. The mites, known as the Sarcopites, bore their way through the outer skin, burrow underneath it, and cause irritation to the animal, setting up inflammation of the skin. In the small galleries or tunnels thus formed the mites lay their eggs. It is on account of this burrowing habit that it is difficult to reach the parasites with destructive agents. The mites may attack any part of the body, but they usually settle first about those parts which come in contact with the saddle or other harness, from which they may spread to other parts. The Sarcopic form of mange is analogous to the itch or scabies of man.

The Psoropic form generally spreads more rapidly over the body. It is more prevalent than the Sarcopic form. At first it is usually confined to those parts situated near the long hair of the body, such as the neck, withers, rump, and base of tail, but in advanced or neglected cases the parasites may spread all over the body, and be found on the buttocks and inside of the thigh. The mites, which are known

as Psoropites, live on the outer surface of the skin, and cling to it by means of their mouths and limbs. They bite the skin to obtain food, causing irritation and inflammation. Over the injured parts scabs are formed and scurf accumulates, amongst which the mites shelter, feed, and breed. The scab increases in size as the mites increase in number, and each new generation of young parasites selects fresh feeding ground, usually around the edge of the older scab, or the mites may, through the grooming, be distributed, setting up additional centres of disease on other parts of the skin.

The Symbiotic form is probably the most prevalent, but it is not so serious as the two former. This form is usually confined to the extremities of the legs, but may also affect the tail. It develops slowly, and only exceptionally invades other parts of the body.

An animal may harbor more than one form of mange at the same time.

SYMPTOMS.

Mange may not always be detected until it has made considerable progress, or the early symptoms may not have been regarded with importance by the owner or the attendants.

The first indication is that the animal is restless, appears to be itchy, is incessantly rubbing against any objects within reach, including the pole or shafts of the cart, or against other horses, as is frequently seen at grass. Affected animals will even bite and gnaw the parts attacked by the parasites, scratch the parts with the hind limbs if accessible, and stand rubbing one leg against the other. They may be seen or heard scraping, pawing, kicking, or stamping the feet a good deal, especially during the night in a warm stable. There may also be switching and rubbing of the tail. When the scabby parts are touched with the hand or passed over with the grooming tools, the animal will lean towards the attendant and manifest a sense of pleasure, which is frequently accompanied by a nibbling movement of the lips. The hair over the affected parts bristles or stands erect, and in more advanced cases is twisted or broken off short. Bare patches of skin are seen, due to the hair falling out or having been pulled or rubbed out. The skin may show an inflamed, pimply surface, with some long or broken hairs still in place, or the part may be quite bare and scurfy. The parasites cause pimples to appear on the skin wherever they bite. Yellow lymph exudes from the pimple, and helps to form small scabs. This lymph may mat the scabs and hairs together into a hard mass, which may be partly or entirely rubbed off, leaving an excoriated surface. On the hairless parts red, scabby spots may be seen, which readily bleed, and there may be patches of scab containing blood adhering to the skin. In advanced, neglected, and bad cases the skin loses its elasticity, becomes dry and hard, and is wrinkled or corrugated into folds. Finally, the scabby skin may crack, forming deep fissures. These may bleed and leave nasty, unhealthy-looking sores which in turn may fester or suppurate. There is also an offensively smelling discharge in many cases. If the disease is allowed to proceed unchecked the animal speedily loses condition, and becomes emaciated. The animal gets no rest from the incessant irritation, the appetite fails, the animal has a very dejected and repulsive appearance, becomes weaker and weaker, and may even die in a state of exhaustion.

In the Symbiotic form of mange a horse may do serious injury to its limbs, particularly to the coronet, by bruising it with the opposite foot in making attempts to relieve the itchiness.

METHODS OF SPREAD.

Parasitic Mange can only be produced by one or other of the previously mentioned mites breeding and multiplying on the animal's skin. A single fertilized egg-bearing female is sufficient to start a case of mange in an animal, and, in turn, a serious outbreak of mange in a stable containing a large number of horses. All cases of mange can be traced to contagion from an existing or pre-existing case, either near at hand or perhaps miles away. The parasites can be spread directly from one animal to another, or indirectly through the medium of litter, rugs, bandages, grooming tools, saddles, harness, manures, stable stalls, loose boxes, stablemen and their clothing, and stable utensils. The parasites may be picked up by an animal at a hostelry, on board ship, at sales and fairs, in horse-boxes or railway trucks, at grass, by loan or exchange of harness or by the use of second-hand harness, and from shafts of carts. In fact anything that has been in contact with a mangy animal, and which has not been subsequently disinfected, may be a vehicle of infection. Given infection, there are certain conditions which, in some animals, at least, appear to be more favorable to the development and spread of the disease; such are low condition and want of grooming. The parasites may live off the animal for some weeks in harness, clothing, litter etc., and may therefore be capable of infecting another animal, or even re-infecting the same animal at a future date.

TREATMENT.

Mange is not primarily a disease, but a condition of the skin resulting from the presence and action of the parasites or mites, which obtain their nourishment by piercing the skin. The treatment must be directed to the destruction of the parasites and their eggs, and it is possible to use effective local remedies in the form of skin dressings, which will not only destroy the mites without causing further injury to the inflamed and irritated areas, but will act beneficially by allaying the irritation. The treatment is essentially an external one, but plenty of good food should be given, and if the animal's condition has been reduced or the health materially impaired, tonic medicine given internally may be indicated. Usually, however, recovery is effected without internal treatment.

PREVENTION.

All newly-purchased animals should be carefully examined for suspicious areas on the skin, and if such are present the animals should be isolated and kept under observation until expert advice can be obtained. Care should be taken not to use second-hand or borrowed harness, clothing, grooming and stable utensils which have not been thoroughly cleansed and disinfected. Owners should be particular about the livery stables which their horses frequent, and litter which has been used for other animals should be regarded with suspicion.

In addition to the isolation and treatment of an animal actually affected with mange, particular attention must be paid to cleansing and disinfecting the stable, litter, harness, and all articles that have been used about the patient. The premises and articles to be included in the disinfection must be reckoned from a time prior to the recognition of the disease.

Buying a Stallion.

The purchase of a stallion perhaps requires more good judgment than the buying of any other animal. The purchaser must not only satisfy himself, but he must also cater somewhat to the desires of the community in which he lives. If the stallion owner is to realize any profit, he must stand a good horse, one just a little better than any other in the neighborhood.

In some sections, cheap horses are found and they probably always will be to some extent. For the most part, however, people are beginning to realize more and more the value of superior sires, and the natural result will be the weeding out of the inferior ones.

A prospective buyer must study the needs of his locality. He must choose a breed which is popular in his vicinity, and also one for which there is a growing demand. If the mares are of the heavy draft type, it would be wise to select the heavier and more rugged stallion. If the mares are small, ranging in weight between 1200 and 1400 pounds, a lighter stallion would be more desirable.

Unless a man is a good judge himself, he had better take with him a competent and trustworthy judge when he seeks a stallion. Two men can size up a horse better than one, and by balancing opinions will probably get a better horse than if just one man went. Again, the average man hardly knows what he does want when he goes to buy a horse, and, sometimes the dealer or importer influences him to buy an animal which will not prove at all popular.

Sometimes associations are formed among farmers and what is known as a "company" horse is bought. I know of at least a half dozen of such associations which have been formed, and in every case they have proved a failure. Usually the farmers pay an outrageous price for a mediocre horse that no one outside of the company cares to use. In a few years, the \$3000 horse is sold to some member of the firm for a small amount, and the company dissolves. In most cases failure was due to poor judgment in selecting the horse.

Unsoundnesses are to be guarded against. If the buyer is not sure of his own judgment, he had better have the horse examined by a competent veterinarian before the purchase is made. Some of the more common unsoundnesses and diseases which should disqualify a horse are ophthalmia, roaring, heaves, chorea, bone-spavin, ring-bone, side-bone, bog-spavin, curby hocks, glanders, farcy, mange, urethral gleet and melanosis, any one of which depreciates very greatly the value of the horse as a breeder.

Young horses very rarely prove to be poor breeders, but horses no older than six or seven years often prove sterile. To guard against this, a test if the semen should be made for spermatozoa. Oftentimes the breeder or seller furnishes a guarantee, stating that he will take the horse back if he does not prove a sure breeder. There is little satisfaction in that, for with a sire that is impotent a man may waste one whole season and disappoint many mare owners.

I know of a case where a man paid a fabulous

price for a horse that was grand champion at some of the leading shows. This stallion was a magnificent animal and the owner looked forward to a very busy and prosperous season. A large number of mares were bred. Time passed on, and the mares began to come back, not once, but twice, and it began to dawn upon the owner that his horse must be "off" and that he was out some money.

A test was made of the horse, which was found to be sterile. Some forty mares were covered, but not a colt resulted. Mare owners were disappointed, and the stallion owner went out and bought another horse at a long price in order to keep up his business.

Prospective buyers should avoid purchasing horses that have been on the show circuit and have been fitted up several times for show. Excessive fattening is injurious, particularly to the generative organs. This holds true, not only with stallions, but also with mares. Really, the safest plan is to select a rugged young horse, say a two- or three-year-old.

A good disposition is something that can not be emphasized too strongly in selecting a stallion. Disposition is determined to a great extent by the size and clearness of the eye, size of nostrils and width between eyes. A small, sunken eye, and a narrow face are usually accompanied by a treacherous disposition and lack of width of body in general.

The throat should be clean cut, the neck should be well crested, and the neck should blend smoothly and snugly into the shoulders.

A stallion should by all means possess a short back, well-sprung ribs, and a strong, well-muscled loin. The rump should be long, not steep, broad, and the muscling carried well down to the gaskins. Good depth of body is important, insuring plenty of lung space and ample room for the digestive apparatus.

Feet and legs should next be considered. A horse should first of all stand squarely. The fore legs should be set well apart, but not too much, on the outside of the body, for then the horse will have a rolling gait. Toeing in, or toeing out, should be avoided. The hind hocks should

neither bow in or out, but set straight and well apart.

The legs should be clean. By this I mean free from meatiness. The bone should be fine, wide and flat, with the tendons well set out from the bone. A curby conformation common to the hind legs should never be tolerated.

The feet should be set true to the legs, as the set of feet determines to a great extent the action of the horse. The foot should be high at the heels, broad and long on the sole. The height, width and length should be as one, two, three. Fine texture of hoof is desirable, also a fine frog.

Many men disregard action in buying stallions, but this should not be. Before a long price is paid, the buyer should demand an animal with a good walk and a long, easy, straight, true stride when trotting.

Johnson Co., Ill.

W. H. UNDERWOOD.

Notwithstanding the increasing use of all sorts of motor vehicles, the horse business continues to thrive. The proprietor of a leading Toronto horse exchange reports that last year they had sold more horses than ever before, in their history.

LIVE STOCK.

Light and Ventilation.

Editor "The Farmer's Advocate":

Six years ago I built a cattle barn as nearly modern as I knew. This building was placed on a slope of, say, 4 feet in 40. The site was on an excellently drained knoll. No water is visible at any time in my yard, and the nature of the soil is such that it stayed hard. The north wall was levelled to top to furnish approach to barn above, giving south front to allow windows in wall and each end. The most important thing about stabling is light and ventilation. These two important factors are absolutely essential in

my opinion in any stable. Where cattle and horses are fed dry feed, feed which contains no water, as in the case of silage or roots, I do not think they require frost-proof stables so much as the ones fed on succulent foods, but we must admit it cheaper to keep up body heat by warm stabling than foods high in fats and carbohydrates. I do not recommend stables so warm that the water runs down the window panes, but just warm enough that no frost is present or the water, if you have such inside, will freeze.

As to light, about one-third the area of the three walls of my stable, is windows, so that at any time of day during the colder weather the sun can shine in stable. These windows are divided in center by a mullen, so every other sash falls back 2 inches at top to admit fresh air and they are never closed except in extremely cold weather. The outlet is similar to that of the King system, taking the impure air out at each stall about 2 feet from floor. These air shafts join mains and lead up to cupolas on top of barn. My walls are stone, two feet thick and floor cement. As regards walls, a cement block wall is A 1, but probably most costly. The cost of wall must be governed by the material most convenient and most easily placed on spot.

If suitable gravel is convenient, a one-foot cement wall is most neat, and probably as cheap as stone, but if plenty of hard heads and flat stones are handy I would use them, as they make a good substantial wall.

The cost is according to convenience of material. Many are the plans for convenient stabling, but one thing I would like to recommend—that is, a good-sized drop behind cattle, 15 x 8 inches is all right, and nothing less, in my opinion.

As regards stabling on the level in wooden structures, I have seen many good stables and warm, too, but I prefer all stables below, that the whole barn may be utilized for hay and grain.

I think what applies to horses will also work with cattle, and vice versa, only I plank over cement in horse stalls.

CARMEN METCALF.

Prince Edward Co., Ont.



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"Evening—Ile d' Orleans."

From a painting by Horatio Walker.

A sense of weariness pervades this picture. The horses are ready to be relieved of their harness.

A National Winter Fair.

Editor "The Farmer's Advocate":

I was much pleased with the broad-minded and emphatic tone of your article in the last Farmer's Advocate on the subject "Does Canada Need an International Winter Fat Stock Show." As an old exhibitor at the Guelph Winter Fair I must say I am heartily in sympathy with the views expressed in the article, and I hope the agricultural press of our country will take this matter up and in season and out of season press it upon the attention of the powers that be. No local jealousies or political influence should be allowed to stand in the way of locating a great National Winter Fair at the Toronto Show Grounds.

I don't like the title Fat Stock Show, as the exhibits are not confined to fat stock, but comprise breeding stock of many kinds as well as dairy stock and seed grain and potatoes, as well as the greatest exhibit of live poultry on the continent. I would therefore suggest that the title "National Winter Fair" would be the most appropriate under the circumstances. I believe now is the time to strike, when I understand great alterations and improvements are about to be made on the Toronto Show Grounds, in the matter of the erection of up-to-date stables and a great judging arena which could all be utilized at both fall and winter shows. Although at the recent Guelph Show the great majority of the dairy cattle exhibitors were so dissatisfied that they declared for cutting loose from the Ontario Winter Fair and establishing a National Dairy Show; I still entertain a warm feeling for a united show, provided that ample accommodation is provided for an exhibit not only of dairy cattle in increased numbers and classes, but for an exhibit also of dairy products, dairy utensils and machinery, along the lines followed at the Chicago Dairy Show. I feel confident that the general public will be better satisfied to have a united show, as at present, only on broader lines as I have suggested. It might be that in a few years the show would be developed to such an extent that it would be desirable to follow the plan pursued at Chicago and divide the dairy interests into an exhibition by itself, but in any event both shows should be held on the Toronto Show Grounds, and in the same buildings though on different dates.

Oxford Co., Ont.

JOHN MCKEE.

Pasteurized Whey for Calves.

In answer to your letter of inquiry, I would say that, first, I keep only the largest calves. I feed them three quarts of milk twice a day for five weeks. At about two weeks old I start feeding them hay and oats. When five weeks old I start one quart of whey and two of milk as the milk comes from the cow. Before they are two months old I have them all on whey, giving them what I think is a good drink twice a day, increasing hay and oats as they grow older. I never feed meal or calf food of any kind. I keep the calves in till pasture is good and ground is warm. I find calves never do well in an orchard. I have fed pasteurized whey for three years, and have raised twenty-two calves. As to weights, they would average six hundred at eight months old. I consider the pasteurized whey just double the value of skimmed milk. We pay at our factory seventy-five cents per ton of cheese, for having it pasteurized. I do not think I ever invested money any better.

Middlesex Co., Ont.

D. P. CORNISH.

Ohio reports a smaller than average number of cattle and sheep being fed this winter.

THE FARM.

How to Build a Plank Frame Barn.

As I intend building a plank-frame barn next spring, I will be greatly obliged if you will give a bill of material for same, to be 112 feet long and 48 feet wide and 18-foot posts, two threshing floors 14 feet wide, with a wide mow and a granary between.

I would like to use a self-supporting semi-circular roof, as shown in your issue of April 20th, 1911, adopted by Edgar Zavitz, to be covered with galvanized roofing.

Would spruce or pine be suitable for making the rafter?

How are the rafters attached to the plate?

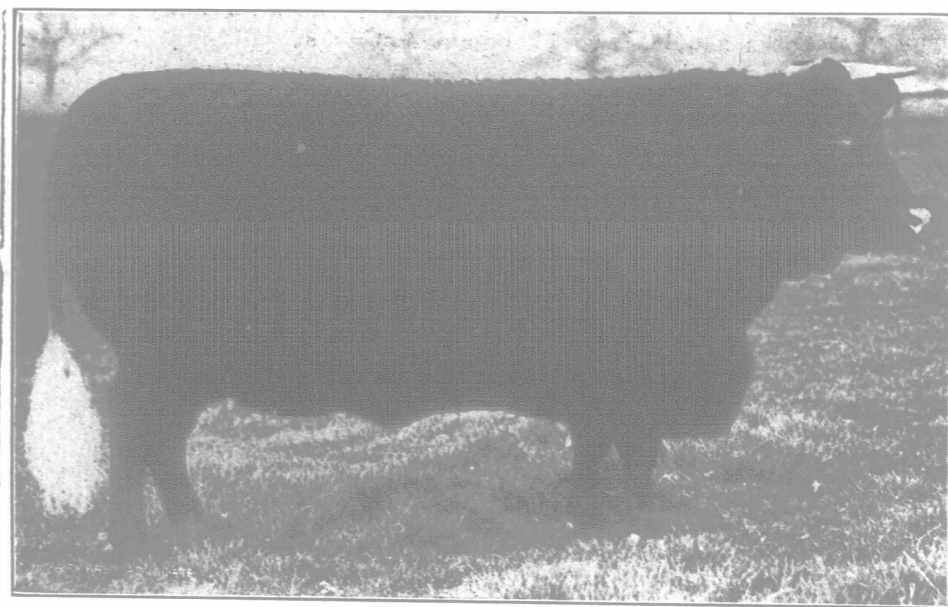
ALFRED G. CRAWFORD.

So many are asking for bills of material and other information bearing on this popular kind of frame that I have decided to give some time to a description of how to lay one out and also how to erect it. The giving of lists of material for some particular size of a barn does little to help the other readers who may intend to erect a similar frame, but of different size, and I have arrived at the conclusion that it is best to go

carefully over the subject in such a manner to enable any ordinary barn carpenter or intelligent farmer to make his own bill of material and superintend the framing and erection.

Designing.—In designing this or any other frame it is best to keep it ordinary width, not because the plank frame cannot be built very wide; but because it is a great deal cheaper, per cubic feet of interior space, to build barns from 36 feet to 50 feet wide, and in my estimation the ideal barn is only from 36 feet to 40 feet wide. I am led to say this because modern requirements call for four square feet of glass area for each animal in the stable and in wide barns where the rows of stalls run across the building it is simply impossible to get anywhere near this amount of light area. Then again it is hard to ventilate these wide stables and there are sure to be dark, dreary, unhealthy stalls somewhere. These causes should make a man hesitate before building a very wide stable; but when the cost shows a large increase per cubic foot for wide frames over medium sizes, I think any wise farmer or carpenter will see why it is to his advantage to build a narrower but longer barn. The plank frame, like the steel bridge, is designed along scientific lines, and has timbers of the correct size to overcome any strain likely to come upon them. This makes the cost of wide barns considerably greater than of narrow ones, as each important timber must be made larger as the width increases.

Another feature in plank frames is the designing of the bents close together, the ordinary distance being from 12 to 18 feet, but 14 to 16 feet is the distance I always try to have mine apart. This is because of two reasons, the first being the advisability of using light bents made of timber easy to get, and the second is because girths and plates can always be got 14 or 16 feet long at a reasonable price without waste. This brings me to an important point, and one well worth careful consideration by the designer.



Beauty of Windsor.

Devon heifer; age two years seven months. First in class, Smithfield, 1912. Bred and exhibited by H. M. the King.

This is the use of stock sizes and lengths for just as many pieces used in the frame as possible. It is almost a criminal waste to buy 16-foot girths and have to cut them off to 15 feet to fit some uneven spaces, when this foot might have just as well have been covering some of the building. In fact, uneven spacing and odd sizes cost builders a great deal larger sums than they ever suppose, for material and labor cutting and fitting. Use even measurements wherever possible and do not be buying firewood at \$50 a cord.

The frame.—It is not the quantity of timber that gives strength to a plank frame, but it is the position in which the pieces are placed that makes this the strongest in existence. This is best understood when we consider a joist which, when set on edge and secured against any side pressure, will carry hundreds of pounds over a considerable span, whereas if it was laid flat, a small weight would spring it alarmingly, while it would be absolutely no use as a support under any load. Now, take a beam in the same position—it will be four times the size of the joist, yet will carry little more weight without springing, but it has one advantage: it can be turned over on the side, and sustain just as much as the way it was placed first. Now, is this a real required advantage? Is it wise to pay four times the price for a timber to guard against a thing that cannot possibly happen? Wouldn't the joist be quite safe when set and secured against overturning? Wouldn't it be easier-handled, cheaper and much better in appearance than a heavy timber? Well, that argument applies to the plank frame in every particular. Each piece is set and

secured to overcome a load in some particular direction, and this makes it essential that directions be followed closely.

The sills are made of pieces varying in width from 6 to 12 inches, according to the size of the barn, and always 2 inches thick. This part of the sill is laid in soft mortar on the foundation wall, and when it has been bedded nicely by pounding down with a heavy hammer, a second part of the same width as the first, but only one inch thick, is nailed down on it, so that this second part breaks the joints and so holds all the planks up close end to end. This makes a sill three inches thick, and it should be kept in two inches from the extreme measurements of the barn all around, to allow of a third part made of a 2 x 6-inch piece set down on edge, with the inside face close up against the outside edge of the sill just completed and well spiked to it. This last part stands up 3 inches above the 3-inch sill all the way around.

The joists, 2 x 8 or 3 x 8, are now set on proper centers to carry the load, and this will vary from 12 to 24 inches, according to size of joist, span and load, but the depth of 8 inches should be adhered to, as the ends being rested on the flat part of the sill stand 5 inches above the edge of the 2 x 6 inches and allow of another 2 x 6-inch piece being spiked to these ends all the way along each side. This last piece stands 1 inch above the top edge of the joists and allows the under floor boards to finish against it, and then when the top or finish floor is put down, the boards will lay right out over this joint and finish against the wall covering. This method closes this part of the building so effectively that no beam-filling is required and allows the air getting to the sill and preventing dry rot.

At the points where the bents are to be, two joists are set, each 3 inches, on either side of the exact center mark of the bent to allow of the posts slipping down in as the bent is raised up, and makes a box 8 inches deep to keep it in place.

This requires the flooring being left open at each post. I usually have the first floor all down except at these points, and find that a good close floor is a great help in fast working when putting the bents together.

Before commencing to frame, I find the best thing to do is check over the list of material while sorting out the different lengths and sizes so no mistakes are likely to be made when framing. Then I begin to lay out one each of every piece, marking on it what it is for and how many pieces of it are required. This is by the workmen who taken for a templet cut the quantity

marked and then lay this templet on top of the pile to tell what it is for. This enables me to keep a lot of men busy and insures against mistakes, as every thing is measured by me. In square and single-bevel cuts we generally pile eight or ten pieces up, then lay the templet on top, and square lines down both sides of the pile to guide when sawing. These quantities are cut with a cross-cut saw, and by this and like methods all the way through we can frame barns 40 x 60 feet in ten hours with four men. When all is cut, we begin to put the bents together on the floor and generally use the first one as a templet to put all the rest on, and so avoid taking frequent measurements, and, besides, insure against making mistakes. It is a large barn that four men cannot assemble in two days and generally half a day will raise any frame and set braces and rafters. The frame is composed of the following members and number of pieces: The main or side posts are made 2 x 8 when the barn is not over 16 feet high to the roof and 2 x 10 if under 24 feet, and each post has two of these pieces kept 2 inches apart by the ties and braces which connect it to the purlin post and to permit of the lower end of the roof support going between the two planks. The purlin posts, like the main posts, vary in size from 2 x 8 to 2 x 12, and are also 2 inches apart to permit the ties and braces going between the members and securing it and the main post together. It starts from just inside the main post and runs up and inward to the purlin plate, and is secured to the main post at the bottom by a short tie between each.

The roof support is a single plank 2 x 10 inches

to 2 x 12 inches, and commences between the two planks of the main post just under the main plate and runs at an angle of 45 degrees to the ridge of the roof where it connects with the one from the opposite side, and is secured there too by two pieces 2 x 12-inch plank 4 feet long, similar to collar ties. These are bolted one on each side of the roof supports. The sub-support is a single 2 x 6, which starts from between the planks of the purlin post, and runs up at an angle of 34 degrees and lies on top of the roof support, to which it fits by a long bevel, and is spiked down into the larger member.

The struts are two pieces of 2 x 4 inches, one on each side of the sub-support just after it leaves the purlin post, and connects the former at right angles to the roof support just below.

The end bents are built with similar purlin posts, and have end posts at regular 12 to 16 feet distances. These end posts are made of three pieces 2 x 6 inches, all spiked together and set edge-ways to resist the inside pressure, and are the same height as the main posts. The end beam has a 2 x 8-inch plank spiked right across, level under the main plate, one of these being inside and one outside of the end and purlin posts and then between the purlins across the center, two or more planks 2 x 10 are spiked flat across the tops of the end posts and from one-beam plank. These present the edges to the pressure and always resist well under every circumstance. To further support these ends a 2 x 8-inch plank is spiked flat against the inside of the purlin post and the inner end is spiked to the outside edge of the center end post, while outer end is kept tight up against the under side of the main plates and secured there at a distance of about 2 feet in from the corner post. This makes the end very rigid, and is actually a truss.

The main plate consists of a 2 x 8-inch plank spiked right along from bent to bent on top of the posts and another on the outside of the posts, with the top edge flush with the upper surface of the first to form a sort of angle like that used in steel construction. Then a plank 2 x 10 ins. is spiked flat on top of all and covers the edge of the second one just placed, making a plate 10 inches wide.

The purlin plate is made of two planks 2 x 8 inches set 2 inches apart and connected at every post with another piece 2 x 8 plank 6 feet long, which fits between the main planks of the plate. The position of the purlin plate is found as follows: Divide the width of the building into five equal parts and take the one of these on each side as the run for the lower rafters and the three remaining or center ones as the span for the upper rafters.

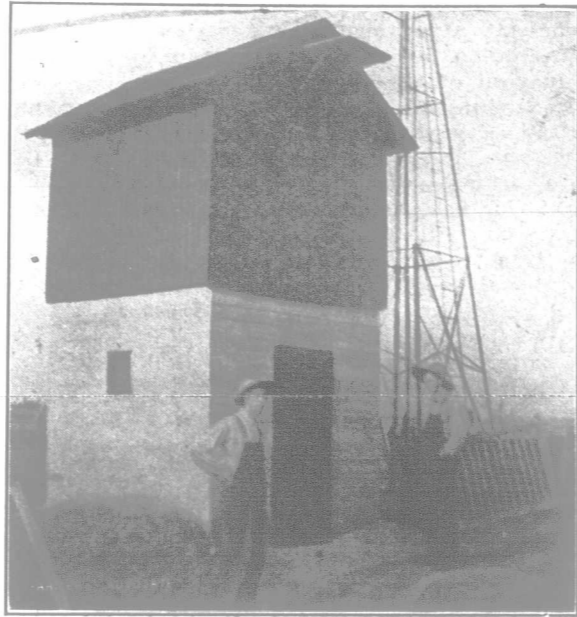
For example, let us suppose the barn is 40 feet wide, and it is desired to build a gambrel roof on it, the dividing will give us a sum of 8 feet for the lower rafters and 24 feet to be covered by the upper ones, this shows that the purlin plate will sit 8 feet in from the main plate measuring face to face, and as the lower roof has a rise of 18 inches to every foot of run, this means 8 times 18 inches or 12 feet above the level of the main plate will be the position of the purlin plate, while the length of the lower rafter can be found by measuring from 12 inches on one leg of the frame's square to 8 inches on the other leg; this will be in inches, of course, but just consider them as feet and you have the length. In getting the length for the top rafters, please notice that the total rise of the lower ones was 12 feet and the run 8 feet, and now take note that the span from one purlin plate to the other is 24 feet, making the run of each rafter 12 feet, and as all top roofs should have 8 inches rise per foot of run, we get 8 x 12 inches which equals 96 inches or 8 feet, which means exactly the same as if we turned the lower rafters end for end and used them for the upper roof.

This makes the nicest roof that can be built and is the strongest. The method of girthing and bracing consists of setting an upright plumb in the center of each span with the edge presented out and lined up with the outside edge of the posts. These are generally 2 x 8 and run from sill to plate. Then from each of the main posts on each side of this upright a 2 x 6 brace rises up to the main plate and rests one on either side of the upright. These also present the edges outward and to both all the girths are nailed at every bearing. The system continues around sides and ends and also in gables as a center upright extends from the end beam right up to the ridge of the upper roof.

The only tie beams in the frame are those between the main and purlin post and consist of one 2 x 8 right under the roof support, and their one 2 x 6 about 4 feet below the first, then another 4 feet below this one, while a diagonal brace runs from one to the other of all these.

Raising.—Although I have often raised these frames with men and pike poles, I prefer to use two gin poles for the work, and take the hitch

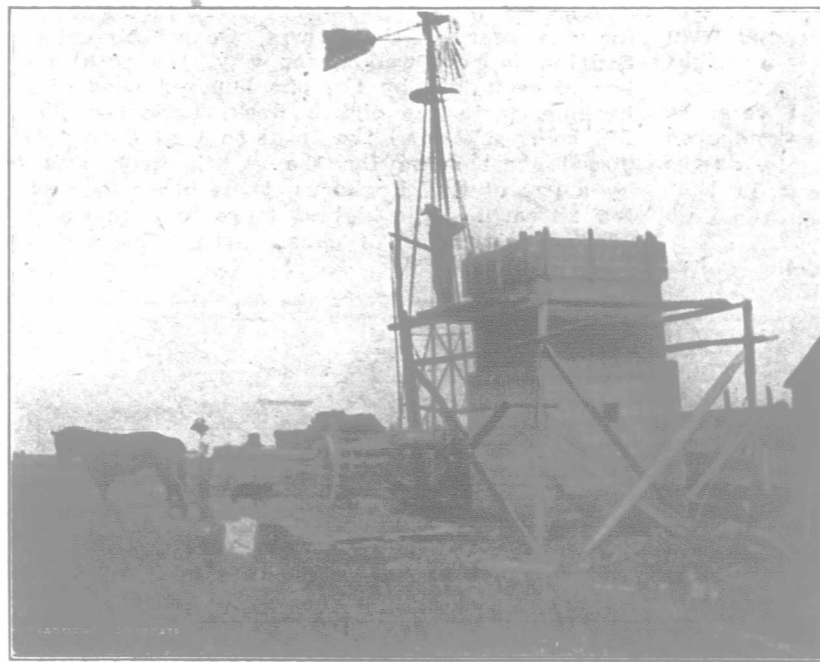
around the bent at the junction of the purlin post and the roof support. In this work always have the top of the bents next the poles and lift them bodily up clear of everything so the posts can be swung over the openings and then lowered to place. All girths and braces should be put on and a guy rope from the top of the purlin posts of the first bent raised, so, as the plates go on, the frame becomes rigid and stays so until all braces are in place, when the guys can be removed. I have frequently found it best to spike a 2 x 6 across the face of the purlin post and also on the under side of the roof support to make them stiffer while erecting. Sometimes I have fastened the lower and upper rafters together at the hip joint by fish-plates on each side and pushed up both together to save time raising the top ones from a scaffold. In this case it is necessary to drop the purlin plate the thickness of the rafters to allow them to simply rest on it.



A Cement Tank.

Of late years the bracing of the purlin posts is easily done by means of a rod from the top of the end, or any other post for that matter, running down diagonally close under the lower edges of the lower rafters and secured to the main plate. Two of these on each side is enough, and they save a lot of cutting and fitting of braces.

Covering.—On account of the girths being made of light material, a good number are used, and this makes the building well adapted for covering with corrugated iron and the roofs are not boarded close, as 1 x 6 pieces are put across the rafters about 2 inches apart and furnish good nailing places for the iron. In fact, now a farmer can build a plank frame barn and cover it all with good galvanized corrugated iron for less



Building the Tank.

money than he can build one of the old timber frames and cover it with rough lumber. The plank frame barn has saved farmers a lot of money, and will save them a lot more yet, if built along modern lines as have been laid down in "The Farmer's Advocate" from time to time.

In the present inquiry, the farmer desires to have a circular roof on his barn, and in that case it will alter the construction slightly, as no rafters will be used. The main posts will continue right up and over, being made of plank cut in circular form on the outside edge and bolted together. These are supported by the pur-

lin post and roof support, but no purlin plate is used, and the whole bent, with circle top, is raised at once, and then the 2 x 6 girths are nailed on right up the sides and over the top, while braces and uprights are used at the bottom and a brace rod is put in from the top of the purlin post, down to and through the side post about 12 feet from the floor. These are in at least two places on each side, and should pull in opposite directions. These rods should be about five-eighths of an inch in diameter.

In regard to the wood best to use, I would say that spruce suits me best, but good hemlock or pine does very well.

A. A. G.

BUILDER.

A Satisfactory Cement Tank

Editor "The Farmer's Advocate":

Sir,—In a recent issue of your paper I noticed an enquiry re the building of cement tanks and their usefulness. So for the benefit of your many readers I will undertake to tell how I built one last summer, and how much it cost. Not having got any advice on the subject from others, you may find faults with the methods used, but I wish to say that it is proving very satisfactory.

Knowing the lasting qualities of properly made cement, and realizing my wooden one was just done, I decided to erect a cement structure. A foundation 8 feet 4 inches square, outside measurement, and about 14 inches wide was dug down about 3 feet. This trench was filled with cement and stone until it was level with the ground. Next a set of moulds were set on this foundation. These moulds consisted of 8 pieces made of inch lumber and nailed in sections each 2 feet wide. Thus there were the following sections: Two 8 feet 4 inches long and 2 feet wide with brackets nailed 2 inches from the ends. Two sections 8 feet long and 2 feet wide. Two sections 6 feet 4 inches long and 2 feet wide. Two sections 6 feet 2 inches long and 2 feet wide. Ten-inch blocks were made and put between these moulds i. e., the first four made the outside while the latter four made the inside, leaving a space of 10 inches between. These moulds were set up, the blocks put between and short scantlings used to bind them. They were wired at both top and bottom, as shown in the illustration. This mould was filled with cement made of eight parts gravel to one of cement with two rows of fine stones laid in the centre, and two hoops of tie wire placed a foot apart in the cement. The next day the lower wires were cut, and the moulds moved up and refilled. This was done four times, making a foundation of eight feet for the tank. Then the inside mould was used as part of a mould for the flooring of tank.

Old street railway rails were obtained from a firm in Toronto, and six of these, 7 feet 10 inches long, were spread evenly on the foundation. The outside mould was raised 8 inches. A tight flooring was fastened underneath the rails by means of wiring to them. The piping from the well and stables was put in so that the top of the open pipe was level with the outside moulds. A 2-inch pipe 14 inches long was put in the flooring, to be a waste-water pipe, with the top level with the other pipe. Between the rails was next filled with cement, made of sifted gravel five parts to one of cement, a piece of close-meshed wire-fencing was laid over the rails and imbedded in the cement. After this flooring was dry the moulds were removed and the inside one set up on the flooring of the tank, the outside one being cut down in size so that when adjusted about the smaller there was a space of 5 inches between them; thus leaving an edge about the tank of 5 inches. The moulds were then filled with cement of five parts sifted gravel to one of cement in which was placed wire hoops one foot apart. The moulds were filled three times, making the tank six feet high, where an over-flow pipe was put into the cement.

When the tank was dry the moulds, etc., were removed and a building placed over the tank. The sills, of scantlings, were bolted to the foundation by bolts that had been placed in the green flooring close to the outer edge (so that they were outside the tank wall.)

A scantling frame was put up next, boarded horizontally, building paper tacked on and then boarded with dressed lumber nailed perpendicular to the foundation and painted. The roof was put on of sheeting covered with cedar shingles, a small door made in the gable end and a double door (one outside and one inside) in the foundation. The window of the foundation was like-

wise furnished with two panes of glass. A tap and globe valve were placed in the piping under the tank so that water can be obtained in the foundation, which will be used to store milk during the summer. A wooden box, 1½ feet square, was placed around the pipe and filled with sawdust to prevent freezing. Up to date everything has been satisfactory. The accompanying illustration will explain the working of the moulds, etc., and will show the finished products. Although this size might not suit all, it will be found of sufficient size for any one or two hundred-acre farm.

COST OF TANK.

Material	
11 yards gravel @ 20c.....	\$ 2.20
10½ bbls. of cement.....	16.40
6 girders @ 1c. per lb. and 40c. each for cutting.....	13.21
Freight on girders.....	1.80
Inch pipe, tap, globe valve, union.....	2.25
14 inches of 2-inch pipe.....	.20
8 6-inch bolts.....	.40
Wire.....	.65
15 lbs. of 2½-inch nails.....	1.00
7 lbs. of 5-inch nails.....	
5 lbs. of shingle nails.....	3.80
4 bunches of shingles.....	
Building paper.....	.50
83 feet 2 x 4-inch scantlings.....	1.66
34 feet pine plank (door jamb).....	.68
330 feet rough lumber.....	4.54
314 feet dressed lumber (pine).....	8.16
1 gallon paint \$1.60, 3 pairs hinges 60c.....	2.20
2 door latches 25c., glass 10c.....	.35
Total	\$60.00
Labor.	
3 days hauling gravel @ \$4.00.....	\$12.00
1½ days hauling cement, lumber, girders, etc.....	6.00
20 days labor @ \$1.50.....	30.00
Total	\$48.00
Total	\$108.00

The cost of material is accurate, but as the labor was done at intervals, part days, evenings, etc., when it was most convenient, it is difficult to vouch for its accuracy, however, a good estimate has been given.

Waterloo Co., Ont. James B. Hammond.

Hydraulic Ram Experience.

I notice in Christmas Number of your paper that G. C. R. is having difficulty with his hydraulic ram—the spindle sticks at the top.

I have had twenty years' experience with a ram. His difficulty is that he has too much pressure for the work his ram has to do. A ram works on the same principle as a three-horse whippetree, and if you don't have it adjusted properly, one horse will not be doing its duty. If G. C. R. will raise the foundation of his ram up to its proper place, it will work all right. He can soon find where that place is by raising it a little at a time. The rule is one foot fall for every ten feet you wish to raise the water. I would not advise a weight put on the plunger.

If he is not used to the running of a ram, he will find that about once a month he should open up the air chamber and give it fresh air, as the elasticity in the air seems to give out in that length of time, and he will find that the ram works stronger with fresh air.

I got tired of giving it fresh air in the winter time, so I conceived a plan of my own. I filed a place in the feed-pipe (with a three-cornered file) nearly through the pipe; then I filed a nail to a point and pricked a hole through the pipe about the size of a hair. At every pulsation of the ram it sucked a little fresh air, and I never had any trouble afterwards. This hole was about 16 inches from the ram.

Norfolk Co., Ont. CHAS. A. DUNKIN.

Editor "The Farmer's Advocate":

Having seen in the Christmas Number of "The Farmer's Advocate" a question by G. C. R. about trouble with hydraulic ram, I might say our ram acted the very same and gave us considerable trouble. Our ram is a No. 4, and after working with it from time to time, I discovered the reason why the plunger did not go back when forced up. If G. C. R. will take off the cap above the plunger, he can see the spring if it is vibrating. By placing his thumb on top of cap-screw, it it does not rise up with the force of the plunger, put a pipe-wrench on the screw that the cap screws on, and screw it down until the spring forces the plunger back when it comes up. I think this will overcome his trouble. G. C. R. do's not say how much head or what height he has to force the water, which has considerable to do with the working of the ram. Our plunger-spring had to be screwed down about three-sixteenths of an inch, and is working fine.

A. S. JENKINS.

Regarding the letters from Messrs. Dunkin and Jenkins, I would say that apparently the former does not know that an improvement has recently been invented for the hydraulic ram which can be so adjusted as to make the ram work under different heads without raising or lowering the foundation. This improvement is the spring referred to by Mr. Jenkins, who apparently does not know that rams were ever made without that spring. One has an old-style ram and probably doesn't know about the new; the other a new style and doesn't know about the old.

The spring and the bracket to fasten it on make the "permanent attachment" referred to in my answer to G. C. R.'s query. Judging from the query, I concluded his ram was of the old style, without the spring. Placing a proper-sized weight on the spindle will have the same effect as tightening the spring, and if G. C. R. will try the temporary weight to verify my diagnosis of the case (which is borne out by both Messrs. Dunkin and Jenkins) and then secure the permanent attachment, I think his difficulty will be overcome far more easily than by raising the foundation of the ram.

Regarding Mr. Dunkin's device for overcoming the difficulty with the air, I would say with new-style rams it is unnecessary, as there is a "snifter" valve which admits air at each pulsation. I might further remark that his explanation is hardly correct. The elasticity of the air does not "wear out," but the air in the dome gradually dissolves in the water, and goes up the supply pipe with it, the amount of air thus becoming less and less. When the quantity of air in the dome becomes too small, the elasticity of that small amount is not sufficient to make the ram work satisfactorily.

WM. H. DAY.

POULTRY.

Big Money for Poultry.

The fancy prices are not all obtained for fancy stock. The highest price on record was for a White Wyandotte Cockerel, \$1,000. A few days ago the champion laying hen at the Missouri experiment station egg-laying contest was sold at a Missouri poultry show for \$800. Sooner or later practical producing qualities must be recognized as of prime importance, just as is now the case with the most valuable specimens of other live stock. The difficulty with establishing the value of hens has been the uncertainty regarding the laws of inheritance among poultry and the difficulty that has been met in establishing strains with fixed and permanent laying powers. Recent discoveries suggest that the difficulties may soon be overcome, but apparently the transmission of laying qualities is along the male line, so that the fancy prices will be obtained for the cockerels rather than for the hens. [American Cultivator.]

The Egg-Laying Race at Storrs.

The second North-American egg-laying contest for one year at the Storrs, Conn., Experiment Station is now well under way, the total number of eggs laid by the one hundred pens of five birds each in the eighth week, December 20 to 26, being 688, and the total to that date 4,434. The highest score for the eighth week was 21 by a pen of Buff Leghorns, three other pens scoring 20 each. The highest score to date was the White Leghorn pen of Thos. Barron, England, 170

eggs. Another English pen of the same breed owned by Ed. Cam scoring 160. The next highest pen was one of White Leghorns from Pennsylvania, 132 eggs. The Canadian contestants do not appear to have got seriously into the race yet.

How Results Were Secured.

Editor "The Farmer's Advocate":

Re the article on poultry, in "The Farmer's Advocate", of Nov. 21st, 1912,—can you help me by letting me know:—

(a) What breed you used to get the excellent results you obtained?

(b) What quantities of food, and descriptions, you gave them?

(c) How you housed the birds? Any other information, which you think will help, will be most gratefully received.

Northumberland Co., Ont

C. L.

Replying to enclosed queries beg to say,—We keep exclusively Barred Plymouth Rocks, bred to lay, not for feathers. We were particular to get for our foundation stocks eggs from parties whom we knew were getting lots of winter eggs. This stock, which at first numbered fifteen, were mated to cockerels from laying strains, principally Macdonald College and Guelph birds. Our male birds are sold immediately after the breeding season each year, and new ones of different strain purchased for next season.

The main house is 20 x 30, double-boarded on three sides, the front facing south has three windows and a door; we find this does away with any draft, as drafts are detrimental to winter-egg production.

Our hens are fed mostly wheat, winter and summer, with some oats, corn and bran. We endeavor to keep bran before them in a trough all the time, the wheat and other feed is fed in a heavy litter on a cement floor, our idea being to keep the hens scratching, as this causes good circulation and ensures healthy birds.

Our principal drink during winter is sour milk; water is kept before them at times as well. We are very particular to keep oyster shells and grit constantly before them. We provide them with dust bath, consisting of ashes from the furnace and stove. We feed what we find they will eat up clean. The house we consider large enough for 100 hens. We brood our chickens in colony houses, which are moved around through the alfalfa field. All are brooded with hens, as we find better results from this than when we were brooding artificially.

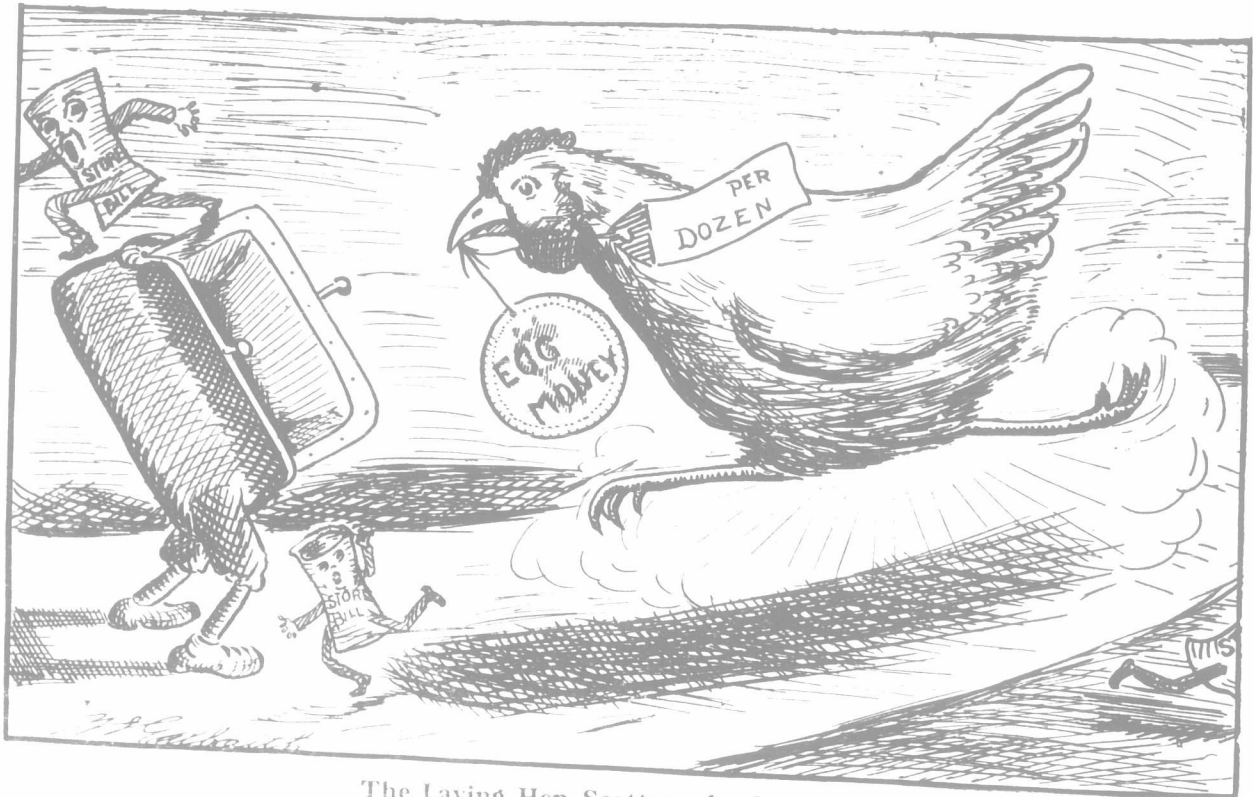
J. C. STEWART.

THE DAIRY.

Dairying in New Jersey.

Editor "The Farmer's Advocate":

I have been over here for a while investigating an offer from a gentleman who owns the Meadow Brook herd of Holsteins. The result is that I am to be managing partner here. With the price of milk and its products so high here and purchased feed no higher than in Ontario, the prospects are inviting. A good deal of the milk and cream from it goes to supply the students at the large academy, at about \$3.00 per cwt. for milk, and cream in proportion. Skim milk from cream gives us an extra chance to raise calves. High price for products enables the dairymen to pay the price to get men. We have ten here and if we want any more men we can



The Laying Hen Scatters the Store Bill.

send to Ontario for them; wages are from \$50 to \$500 a year here greater than in Ontario. Nowhere does faithfulness to work and skill count for more than on a dairy farm with high-class stock. The "Meadow Brook Herd" is a member of the Syracuse Sale Co., so that we have an established outlet for all the products. There are also 1,500 hens kept on the farm. The Western States robbed the Eastern some years ago of men who went out to the Prairie country. Now the East is "getting back" and robbing the West of fertility. The dairy cow is the agent that is restoring men and fertility to the East. Put in the store-house here in the fall, to feed the dairy herd, are over twelve car-loads of grain and meal, oats, oil meal, cotton seed meal, gluten meal, Ajax flake, sugar feed, hominy, etc. The fertility accruing from this feed is no small item. The result is increased crops of corn for silage, alfalfa and other clovers. Oats and peas cut green and made into hay is the method of seeding to clover. No grain is grown or threshed. Everything tends to increase fertility. Milk and meat are at a premium. A cow past her usefulness in the dairy, fattened, sold for \$113.00 wholesale, carcass and hide. New Jersey. GEO. RICE.

the nature of the food that it was to be fed with as to whether it would ever be profitable to pay \$10 per ton for these dry peelings and cores. I know of no analysis of the seeds of the apple. Ontario Agriculture College. R HARCOURT.

Growing Green Goods.

If you are cramped for room start a garden with a few sunflower and other seeds between the ash barrel and the back fence, and the results will surprise you.

From things needing no care you will go to others needing a little, and by and by, working in the garden, feeling the soft ground under your feet, getting the fresh fragrance of the morning air, watching the little green shoots come up and develop, seeing the brilliant colors take the place of the dirty browns and grays of winter, will be more fun than anything you have done since you were a boy or a girl.

There is a greater incentive for gardening now-a-days than ever before. Fresh produce is worth more and home gardens are better than they used to be. There are finer varieties of vegetables and flowers. It is within the memory of some readers that sweet corn and celery and tomatoes came to be generally known; and the flowers of to-day—how they have come into their own! Sweet peas and asters and cosmos, pansies, giant morning glories, California poppies, and all the other poppies, these and many more a generation ago were unknown in their present glory. Think about it. Make your plans now. When ready to plant get seeds that have been proven by some tried seedsman of repute. Experienced gardeners buy only reliable seeds; they do not waste their time on seed of inferior or unknown quality. They depend on some old standby, some firm with ample capital, experience and a reputation to maintain. But do not let another springtime go by without starting a garden in earnest.

Frozen Oranges.

As a result of a three-days frost in Southern California, ending Jan. 8th, the loss sustained by the growers of citrus fruit is estimated at \$25,000,000. One immediate consequence was a rise of 50 cents per box on the Los Angeles wholesale market. Grape fruit also went up 25 cents per box. This will probably have a stimulating effect on what is yet held in storage of the United States and Canadian apple crop of 1912.

Returns to the True Fold.

I have taken "The Farmer's Advocate." I suppose, for fifteen years. A year ago I was persuaded to try another farm paper, and unfortunately stopped "Advocate." Now I have stopped the other paper and want "The Farmer's Advocate" to come again. If you have a Christmas Number to spare, I would very much like to have, one—\$1.50 enclosed. York Co., Ont. JACOB G. WIDEMAN.

GARDEN & ORCHARD.

Feeding Apple Refuse.

Editor "The Farmer's Advocate":

I and many others would like to know the feeding value of apple peelings and cores sulphured and dried in an evaporator. What properties of nutriment do they contain? Would they be good to feed to farm stock that is getting dry feed? How do they compare with bran—would they be worth half as much? It has been often said they are equal to bran to feed to horses when on dry feed. How would they do for milking cows? Some say it would have a tendency to dry them up. A neighbor says by feeding cores and some peelings to his hogs he has lessened the cost of production to quite an extent. Was that not due to seeds in the cores? The other feed they got was shorts; the apple stuff was fresh and green. Now, what do apple seeds contain? There are tons of dried peelings and cores that can be bought for \$10 per ton. Would you advise feeding them to farm stock at that price? If so, what quantity would be safe to feed? I think I have seen it stated in a report from the O. A. C. that apples were worth seven cents per bushel to feed to stock. G. R. B.

We have never analyzed apple peelings and cores sulphured and dried in an evaporator, nor have I been able to find a record of any such analysis. We have analyzed the apple pomace, and there are many records of other analysis of this material. The apple pomace, however, will differ slightly from the apple peelings and cores in that it will contain more of the actual pulp of the apple and a less percentage of the fibrous materials of the cores. The following table gives a fair average composition of the apple pomace, together with a few other foods:

	Water	Ash	Protein	Crude Fibre	Nitrogen Free Extract	Fat
R. I. Greening	82.50	.37	.70	1.07	15.09	.30
Apple pomace	76.70	.50	1.40	3.90	16.20	1.30
Swedes	88.60	1.20	1.20	1.30	7.50	.20
Mangels	90.85	1.05	1.39	.87	5.68	.16
Potatoes	78.89	.95	2.14	.56	17.36	.10
Bran	11.91	5.78	15.42	8.99	53.87	4.03

It is probable that the apple peelings and cores would have somewhat the same beneficial effect when stock are on dry feed as roots have, and that the material would have a value in that way greater than its actual composition shows.

With reference to the comparison of the apple pomace with the bran, if we assume that the peelings and the pomace are the same in comparison, with the exception of the fact that there will be a greater amount of fibre in the peelings than in the pomace, and then assume the evaporated peelings will be as dry as the bran, we can form a rough idea of the composition of the two substances. Approximately, the apple pomace would contain about 5 1/2 per cent. of the protein, about 16 per cent. of fibre, 65 per cent. of nitrogen-free extract, and about 5 per cent. of crude fat. Comparing this with bran, we find that it is very much lower in the protein, about one-third, that it contains nearly twice as much fibre, about the same or a little more of nitrogen-free extract, and about the same of fat. It is probable, however, that the crude fat contains a great deal of extractive matter not true fats. It would appear that a great deal will depend upon

winter. The presence of brood or eggs should be a guide. If there seems to be a failure of the queen, or if she is lost, a new one should be provided immediately, or else the rapidity with which the colony may dwindle will be surprising.

The honey stores, as the colony expands brood rearing, vanish almost mysteriously. Consequently it is imperative that provisions be constantly available. Remember, too, that very little nectar can be gathered in the field, since perhaps maple and skunk cabbage are the only flowers yet open. It is frequently desirable and necessary to feed.

To know what to do with small or weak colonies is often a problem. They had better be united, a queenless one with a queenwright, some advise. To nurse along a weak colony means care, which is not always repaid by a surplus of honey.

E. W. Alexander has given a method of building up weak colonies in the spring. Those who have tried it do not all report it a success, but the writer's experience is favorable. Beekeepers should undertake it with caution, but nevertheless surprising results have been obtained.

According to Alexander, the apiary should be divided into an equal number of strong and weak colonies. Again, mark each of the weak colonies which has brood. Placing queen-excluding zinc over the strong colonies without disturbance, and, preferably, without smoke, set the weak colonies having brood over strong ones. It will be necessary to give a frame of brood to each of the weak colonies having none. These may then be set upon strong colonies, in each case using a perforated zinc between the upper and lower hive, as before.

Alexander's caution is: "In every case where the method is reported a failure it has been from one of two causes—either lack of brood in the weak colony, in order to hold the queen and her few bees in the upper hive, or smoking the strong colony so that, as soon as the weak one was set on top, the bees rush from below and sting every one above. Therefore, avoid using smoke or doing anything to excite the strong colony." The whole should be done so that neither colony realizes that it has been disturbed. In about thirty days each hive will be crowded with bees and maturing brood. Then, when you wish to separate them, set the strongest colony on the new stand.

A further spring duty is to clean up the apiary. On the first day that bees fly examine each hive and determine whether it contains a living colony. Immediately close bee-tight any hive in which the colony has died; furthermore, remove the hives and contents to bee-tight building. This is not only a wholesome practice to prevent robbing, but it is vital in order to check the spread of diseases. For a similar reason beekeepers are warned against exposing any comb, honey or section, so that the "bees may clean it up," as is so thoughtlessly done.

Contraction of the entrance is a matter of judgment. As a general rule, never give more entrance than can be guarded by the bees within, and this is especially applicable in spring and fall. Entrance contraction as is erroneously and frequently thought, is not of so much importance in controlling ventilation as in reducing or preventing robbing.

Weak colonies benefit in the early spring by being outwardly protected. Outside cases of wood or paper coverings, used as winter protection, are of much service in early spring, when a high temperature must be maintained for brood rearing.

THE FARM BULLETIN.

Philosophy re Hired Help.

Editor "The Farmer's Advocate":

Speaking of the hired help problem, I truly believe that I am speaking of one of the most important of all problems which must be solved by the extensive farmer. Not only the extensive farmer, either, but by anyone who controls a business large enough to always, or even generally, require extra help. As farmers, we very often forget how important it is to have reliable help until through carelessness or, perhaps I might say, slothfulness loss occurs. Then when it is too late, we say, "Well, sir, I believe the best is the cheapest, after all."

Experience is a great teacher, so let us be apt scholars. We also very often learn that it is a very expensive teacher. All the more reason why we should not require many lessons.

Now, let us reason, dear reader, on this question. Let us put our question into the form of a debate, and let it be resolved that "The best is the cheapest, after all."

Our opponent may say: Let us consider our poor immigrants—for example, the Englishman. Let us forget their faults and look upon their better qualities. They must live as well as we. Hundreds of these poor boys—yes, I might say

APIARY.

Spring Management of Bees.

The honey harvest, according to Burton N. Gates, Ph. D., Inspector of Apiaries for Massachusetts, depends upon correct management of the colonies in the spring. Spring conditions depend upon success in wintering, and it is said wintering depends upon preparation the previous season. But with the first flight of the bees, when trees are beginning to swell their buds, the beekeeper's season commences.

Each colony should be thoroughly overhauled, provided, of course, that spring has really come. Opening colonies when bees are not flying should be avoided. A great deal of labor for the bees can be saved by scraping from the bottom boards the winter's accumulation of debris. At this season the beekeeper should scrape the top bars of the frames, remove surplus bee glue (propolis), that the parts may handle more freely during the rest of the summer. Also look for the queens, which sometimes fail to survive the hardships of

thousands—are being brought into our country annually by the Salvation Army and by other charity societies, as well as by our Canadian Government itself. Now, I want to ask the question: Are they a credit to our country? I answer yes. They have a perfect right to a livelihood as well as we. This is a free country—a home for all. Thank heaven for that. Then let us try to be helpful to these pilgrims (as they might be termed) as well as our charity clubs.

Now, I am not in any way trying to further the immigration, nor have I in any way expressed my views on this matter before. I am simply going around the corner of immigration to reach the point of my subject.

As an experienced farmer, I thoroughly understand the motive of a great majority of the so-called hired men. It is "Day come, day go, and God send Sunday," but, for all that, I am very much in favor of the hired man in many ways, for I was a hired man once, and I often times found, or at least thought, that the more I did the more I was expected to do.

Since I have started farming for myself I look at things differently.

I have had all kinds of men, from the best—I mean the man in earnest—to the man who didn't care. Often-times we think because we are paying big wages we have the best man—we overlook his faults, and, on the other hand, because we are getting the young man for about fifty dollars a year we have got the call of the bunch.

But let us be generous-minded; let us not be hasty to weigh a man's value. Remember that that boy who is working for you this year for \$50 may work for someone else next year for a hundred. And that man which you are paying \$2.50 per day this week may work for one dollar per day next week, if winter sets in hard enough.

In my travel through Western Canada and British Columbia, to my surprise, I found a greater supply of idle men than I could have found right at home in Ontario. Curiosity causes me to ask "why?" There is surely more work. Yes, there is work for all in any part of Canada, but so often we find men who are looking for a job. Mark you, a job—not work.

Now, these are not the creditable inhabitants of any country. Rather the English boy, by a long shot.

Now, I consider that farmers in Western Ontario are the most lucky of any people in the world. We are certainly independent. Our harvests are generally to be depended upon; our markets are good, and more than that, to our advantage, we can procure good reliable help through the emigration of our English friends to help us to reap the harvest of our farms, to fill our pockets with coins.

Then let us be generous—not grumbling at the experienced hands for asking good wages, neither at the so-called Englishman because he says, "I'll be blow'd if I know 'ow."

J. A. W. KETTLEWELL.

Middlesex Co., Ont.

Hydro-Electric Power Supplies.

According to the annual report of the Ontario Hydro-Electric Commission, recently issued, the earnings of the system show a large increase, the total revenue for 1912 being \$511,801.88; expenditure, \$456,635.43; surplus, \$55,000 after paying operating expenses, cost of maintenance and interest on bonds and sinking fund. All outlays for extensions of the system have been charged to capital account, which now amounts to \$1,158,829.24.

A Contrast in Advertising Results.

Yours of 27th received re advertisement. I wish to continue the same for another year, as I can do more business through your columns than all the other papers combined. I put \$30 into one paper, and the only result was one inquiry and one visitor who would have bought me out on paper and unlimited time.

Elgin Co., Ont. (Signed) JAMES BEGG.

West Lorne, Ont., will be the scene of the Elgin Co., Corn, Seed Grain, and Poultry Exhibition on Jan 22nd, 23rd, 24th. It promises to be a popular event.

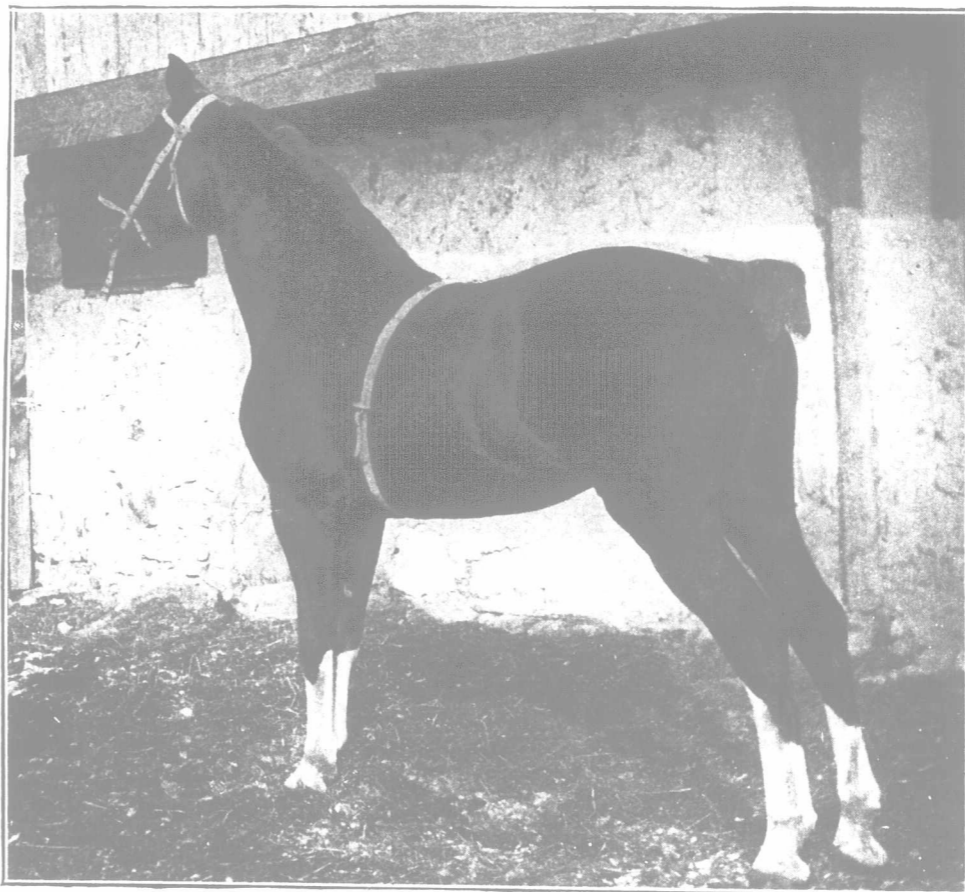
The annual financial statement issued last week of the Canadian National Exhibition, Toronto, shows the gross receipts for 1912 as \$381,708.81; expenditure, \$340,784.98, leaving a net profit of \$43,923.83.

Winter Talk.

By Peter McArthur.

It certainly does not do to be too sure about anything. Last week I told you that you could not see snow-flakes except when they were falling between you and some dark object like the trees or a building. Just after I had mailed that letter a snowstorm came along and I could see the flakes everywhere. I could see them in the sky above and against the white fields. But there was a reason for this. The flakes were of the big fluffy kind, in which there are scores of flakes sticking together—the kind that make the children say that "The old woman is picking her geese." They were so large that shadows formed in them, and it was really the shadows I saw, except when looking towards something dark. I am still of the opinion that ordinary little snow-flakes can be seen only as I said last week, but there are exceptions. This convinces me that there is truth in the epigram, "When you are sure you are right, it is time to suspect you are wrong." There are very few things that we can be absolutely sure about, and it is never safe to make sweeping statements. As a rule, I avoid making such statements, for I have been forced so often to take them back that I am becoming wary, but sometimes in my enthusiasm over what seems to be a discovery I blunder into the same old mistake, as I did last week. I am making this explanation so as to save my friends the trouble of writing and setting me right and giving me the laugh. I am laughing over it, too.

At last I have commenced to see through a little difficulty that has been bothering me. I



De Wilton (11645), Imported and Registered.

Hackney stallion. First in class 15.2 hands and over, and champion at Winter Fair, Guelph, 1912. Owner, John Semple, Milverton, Ont.

felt in my bones that the country is not in as thriving a condition as it was when I was a boy, but everywhere I was confronted by prosperity. There are not nearly so many poor people in this part of the country, and yet there is little of the progress that should go with prosperity. The explanation seems simple, but I am not going to venture on a sweeping statement just after I have had to take one back. The trouble seems to be that we have rich farmers and poor townships. The farmers who have resisted the call of the West have mostly accumulated much land—which they are not working. These farmers are all land rich because they have the land that should be worked by several families. Thirty years ago there was a family on every farm—many of them large families. Now there are many farmers who own two hundred acres or more, and the extra land is under pasture. There are very few large families. Because there are fewer people to be supplied with goods the towns and villages are going back, and yet all the farmers in the surrounding country are rich. This may seem an excellent state of affairs to the rich farmers, but I incline to think that Goldsmith was right when he said:

"Ill fares that land, to hastening ills a prey,
Where wealth accumulates and men decay."
But I am hopeful that the threatened ills are going to be avoided, for many people are be-

coming convinced that this district is one of the future fruit-growing sections of the country. Outsiders are beginning to buy land that will be planted out to orchards, and those who are living in the country are wakening to its possibilities. The planting of orchards will mean the breaking up of big holdings, because the land will become too valuable for pasture, and that will mean the flowing in of a new population. I hope, however, that this work of orcharding will not be left to companies, for that will mean that those who are doing the work will be working for wages instead of building homes of their own. The energy with which the work of organizing fruit growers' associations is being pushed this winter suggests that a change for the better is at hand and that this district will soon be producing good fruit and marketing it to advantage.

This week I got some interesting information about the condition of labor in the big manufacturing concerns of the country. My informant predicted that in a few years the cost of all kinds of manufactured goods will increase because of changes in the methods of production. At the present time there are few men left who have learned trades in the old thorough manner that prevailed before the universal introduction of machinery, and these men are almost all working as foremen or overseers. The actual work is being done by men handling machines, and none of these workmen know how to produce a finished article. Each can do only a little part, with the aid of a machine. The men who know how to do every part can oversee the work and keep down expenses, but most of them are growing

old, and when they die, there will be no skilled men to take their places. Their work will have to be taken by graduates of technical schools, who will demand higher wages, and who will be more skilled in the theories of production than in practical work. Only the man who knows just what it means to do every part of a job can make the work go through to the best advantage. He knows where it is possible to save. But perhaps my informant was taking too gloomy a view of the coming of the College graduates. According to the articles appearing in the magazines interested in such subjects, the technically trained young men are introducing methods that are saving in ways never dreamed of by the practical workmen. Anyway, there is no need worrying. The world has a way of getting along in spite of our fears and forebodings.

The older people had a name for such days as opened the New Year. They called the fine, summer-like days that come during the winter months "Borrowed days," and were of the opinion that, like borrowed dollars, they must be paid for at a grueling price. Anyway, to-day is one of those days, and I am glad of it and willing to pay the price. There has been about an acre of corn-stalks to get in, and to-day made it possible to get them in. I am not nearly so much ashamed of having those corn-stalks out as I should be, for I can't drive in any direction without passing whole fields that are still in the shock and unhusked. The weather is to blame for it all, and if we do get a decent day just now to help us out, we should be able to get it without paying for it in an unusually cold snap or a storm. I notice that the cows seem to relish these corn-stalks wonderfully. They are even willing to leave good hay to get at them, though it looks to me as if an occasional armful of nice juicy fork-handles would be just about as nourishing as the stalks I am feeding.

I wonder if we are going to get electricity on the farms at a price where it will be possible to use it. Apparently it could be made to do away with a lot of the drudgery of farm life,

both outdoor and in. In a recent magazine article a woman told how she found a good electric motor worth more to her than several servants. By its aid she was able to do her own washing, to clean the house with a vacuum cleaner, operate a dish washer, a knife sharpener, meat chopper, coffee grinder, etc. She was also able to heat her house and do her cooking without the usual trouble of looking after stoves and fires, as all she had to do was to push a button when she needed heat. And, best of all, because she was able to manage her work in this way, she was able to preserve the privacy of her home. No matter how good a servant is, she is still a stranger, and her presence in the house adds a certain constraint. According to what I have heard, electricity can be applied to all

kinds of farm work and made to take the place of the elusive and disappearing hired man. If so, something should be done to get it at work. I understand that the whole difficulty at present is one of cost. Inventors have not yet worked out the whole problem of applying electrical energy to the best advantage—especially for heating and cooking. Coal and wood are still cheaper to use even in places where electricity is most available, but it is believed that this difficulty can be overcome. Personally, I am hoping for a time when we will be getting such service from the Hydro-Electric that the alarm-clock can be set so that it will turn on the electricity to heat the house and boil the kettle at the same time that it gives the warning to get up.

An Error in Prescription.

In "Whip's" article on digestive troubles in our January 9th issue, a mistake occurred in the prescription for spasmodic colic. It reads: "1½ oz. each of laudanum and sweet spirits of nitre, and 1½ oz. of fluid extract of belladonna." It should read "and ½ oz. of fluid extract of belladonna." The dose advised would be excessive, though, in all probability, not harmful. The error occurred through an excusable mistake in deciphering manuscript that is usually quite plain, but in this case not perfectly so. We take great pains with our veterinary prescriptions, and in those instances where a slip is made we lose no time in correcting.

Over 5,000 Co-operative Experiments in Agriculture.

The result of 5,027 co-operative experiments in agriculture, conducted under ordinary farm conditions during 1912, were made public at the thirty-fourth anniversary of the Ontario Agricultural and Experimental Union, held last week at the Ontario Agricultural College. It was one of the best-attended meetings ever held by the Union. Interest was keen, and a most excellent program of lectures and discussions occupied the several sessions. The Experimental Union is quite largely an O. A. C. ex-students' association. Organized in 1879, the constitution of the Union contained a provision by which members could receive samples of agricultural seeds annually for experimental purposes. In 1886 a change was made by which others than members might participate in the co-operative work. In that year, as brought out in President Goble's address, under the leadership of Lewis Toole, of Mount Albert, twelve members of the Union started the first co-operative experimental work on their own farms. Since then it has gradually grown until in 1912 the scheme of co-operative tests embraced experiments in agriculture, agricultural chemistry, agricultural botany, apiculture, forestry, and public school work in elementary agriculture, horticulture and forestry.

SCHOOL GARDEN EXPERIMENTS.

Much interest has been created by the co-operative experiments carried on under direction of the Schools Division, and Prof. S. B. McCready, who has charge of it, had quite an inspiring report for the meeting. The work has been conducted along the same lines as those laid down four years ago. Distributions of planting material have been made to schools with instructions for carrying out the practical work in the school or home garden, also instructions for using the children's experiences for class-room lessons. Forest-tree seedlings and packets of barley, alfalfa, lettuce, onion and other crop seeds were distributed free, while for certain other material sent out charge was made. This comprised flower and vegetable seeds, bulbs, vines and shrubbery. In all about 250 schools shared in the distribution. Keen interest has been aroused in various instances by the school-yard plots not only among pupils but, in many cases, among their parents. This nature-study work, observed Prof. McCready, is the only kind that the pupils take home with them in a pleasant and agreeable way.

By way of preface to his address, Prof. McCready recalled that sixty-five years ago when Dr. Egerton Ryerson founded Ontario's System of Education, which called for teacher training, a Normal School was established in Toronto, and the Science Master in this school drew up a plan calling for one hour per day devoted to agriculture with provision for experimental plots. But the theory proved unacceptable to the people, many of whom refused to have these trained teachers. More or less endeavor has ever since been made by the authorities to have agriculture taught in the schools. In recent years we have been coming back at the problem in a new way, through the introduction of nature study.

CO-OPERATIVE FORESTRY.

Forestry is a branch of this many-sided work. In 1912, said E. J. Zavitz, reporting upon this phase, 375,000 plants were sent out into 35 counties, and the total distribution has reached one and a half million. Most of the planting has been done on light waste soil, frequently on patches of blow sand put under trees to prevent the sand drifting across adjoining highways. Even on such places, where neighbors anticipated failure, the results have been satisfactory. Scotch pine doing the best of the different species. There are now 1,500 acres at the forest nursery in Norfolk County, and it is expected soon to have 2,000. On the land there are 100 acres of experimental planting, and one and a half million trees available for future planting.

LEGUME INOCULATION.

Results of co-operative experiments in the

inoculation of legumes were reported by Prof. S. F. Edwards. Of the 4,722 cultures sent out in 1912, 3,898 were for alfalfa, and 570 for red clover. Most of the applications were from Ontario, with a few from Alberta and British Columbia. Out of 771 experimenters reporting, 62.1 per cent. had found benefit from inoculation. During the eight seasons this work has been carried on, the average percentage of favorable

reports has been 60.5. In connection with this statement, however, it is just as well to remember that among those not reporting the percentage of favorable results would likely be much less than among those who do report.

TESTS WITH FIELD CROPS.

Our tabulated abstract of Prof. C. A. Zavitz's report on the co-operative experiments with farm crops contains the pith of this information. It should be understood that the varieties sent out for co-operative test are chiefly such as have acquitted themselves creditably in tests at the College.

Experiments	Varieties	Comparative value	Yield per Acre		
			Straw tons.	Grain bus.	Grain lbs.
Oats (61 tests)	(Siberian)	100	1.68	50.16	1706
	(Re-generated Abundance)	84	1.43	47.08	1601
	(Lincoln)	86	1.44	46.54	1582
Six-rowed Barley (23 tests)	(O. A. C. No. 21)	100	1.26	36.21	1748
	(Emmer)	85	1.43		1646
Two-rowed Barley (3 tests)	(Hanna)	100	1.26	32.78	1574
	(Two-rowed Canadian)	95	1.30	32.22	1546
Hullless Barley (6 tests)	(Guy Mayle)	100	1.92	28.77	1726
	(Black Hullless)	93	1.85	26.23	1574
Spring Wheat (4 tests)	(Wild Goose)	100	1.09	18.00	1080
	(Hungarian)	82	1.05	15.33	920
Buckwheat (5 tests)	(Rye)	100	1.69	37.67	1808
	(Silver Hull)	78	1.69	32.83	1576
Winter Wheat (13 tests)	(Imperial Amber)	100	1.52	24.30	1458
	(American Wonder)	85	1.47	21.77	1306
	(Crimson Red)	60	1.89	21.54	1292
	(B'n't'a)	70	1.43	21.15	1269
	(Tasmania Red)	60	1.80	20.96	1258
Winter Rye (4 tests)	(Mammoth White)	100	1.89	23.93	1340
	(Common)	68	1.88	19.83	1110
Spring Rye (3 tests)	(O. A. C. No. 61)	100	.59	26.79	1530
	(Common)	80	.46	24.47	1370
Field Peas (20 tests)	(Canadian Beauty)	100	1.07	21.60	1296
	(Early Britain)	83	1.03	21.53	1292
Field Beans (12 tests)	(Marrowfat)	100	1.44	31.37	1882
	(Pea Bean)	93	1.19	30.11	1806
Soy Beans (2 tests)	(Early Yellow)	100	1.33	18.13	1088
	(Brown)	76	.84	13.49	810
Corn for Grain (7 tests)	(Genesee Valley)	100	Whole Crop 15.58	57.86	3240
	(Early California)	100	11.06	54.77	3067
	(Wisconsin Little Dent)	77	9.10	42.69	2390

Experiments	Varieties	Comparative value	Yield per acre (tons)
Manure (7 tests)	(Ideal)	100	32.40
	(Yellow Leviathan)	94	31.89
	(Sutton's Mammoth Long Red)	88	31.05
Sugar Beets (3 tests)	(Rennie's Tankard Cream)	100	21.05
	(Steele-Brigg's Royal Giant)	88	19.08
Swede Turnips (8 tests)	(Rennie's Empress)	79	24.51
	(Garton's Keepwell)	79	22.44
	(Steele-Brigg's Good Luck)	100	21.45
Carrots (10 tests)	(Bruce's Mammoth Intermediate Smooth White)	100	22.04
	(Steele-Brigg's Improved Short White)	90	19.78
Fodder Corn (4 tests)	(Hoopengardner's Very Early Yellow Dent)	55	17.29
	(Wisconsin No. 7)	73	17.10
	(White Cap Yellow Dent)	100	17.05

Experiment	Varieties	Comparative value	Number of ears	Number of days until ready for table use	Table Quality	
					Flavor	Juiciness
Sweet Corn (17 tests)	(Golden Bantam)	100	138	96	100	100
	(Mammoth White Cory)	95	136	93	81	89
	(Malakhoff)	67	126	91	75	77

Classes	Varieties	Comparative Value	Per cent. of small tubers	Meal-iness when cooked	Bushels of whole crop per acre
Late Varieties (73 tests)	(Davie's Warrior)	100	10	95	186.43
	(Empire State)	76	13	100	185.28
Medium Varieties (101 tests)	(Burpee's Extra Early)	100	10	100	170.69
	(Rose of the North)	98	10	95	169.36
Early Varieties (263 tests)	(Irish Cobbler)	100	10	100	170.27
	(Extra Early Eureka)	90	10	96	166.89
	(Early Andes)	69	10	85	134.41
	(Early Ohio)	71	12	90	126.23
	(Early Fortune)	69	14	91	123.46

IS TEN ACRES TOO MUCH?

That ten acres of land is too much to work properly was the startling statement made by F. W. Krouse following J. W. Clark, of Brant Co., in a discussion on the possibilities of intensive farming in Ontario. A year ago an interesting feature of the program was G. F. Warren's account of the farm survey or census in New York State, where it was found that, on the average, men with 150 to 200 acres of land were operating more economically and deriving larger net incomes than those with smaller holdings. The executive felt, however, that there were men in this country making a signal success following intensive methods on small areas, securing liberal incomes from such lines as bees, poultry and fruit. Such a man is J. W. Clark, a brother of the Dominion Seed Commissioner, and almost as well known. Mr. Clark's experience is more or less familiar to "Farmer's Advocate" readers. At the convention he estimated, in reply to a question, that his annual net income from 25 acres would be easily \$3,500 a year. He has set out a larger orchard of plums, pears, dessert apples and cherries, and sees no reason why his 25 acres should not eventually produce \$10,000 a year. Having done so well, and being the father of a growing family of seven children, he has added another 25 acres.

He has reduced the labor factor to a minimum. His chickens are reared in the orchard, sheltered in fifteen colony houses made out of piano boxes, 75 to 100 young birds in a house. They are watered with a barrel and fed once a week by replenishing the hoppers. Thus fed they do not bother the fruit much even when ripe. He didn't think one per cent. of his apples were injured. His principal market for poultry is in the United States, and his customers willingly pay big prices. "Price a bird to an American at \$25," said Mr. Clark, "and he thinks it can't be any good; ask \$50, and he concludes it must be worth something." Alas for Yankee shrewdness!

In spraying, he uses a power sprayer with a variable nozzle, and sprayed only twice, except on a new orchard taken over, which was sprayed three times. He thinks two thorough sprayings enough for an orchard that has been sprayed well before, but emphasized thoroughness. He didn't think one per cent. of his apples this year had worms. A few close-planted Greenings had a little scab on the under side of the branches. He believed the ink spot was controlled by thinning. Mr. Clark believes he makes more money out of his bees, with less labor, than from any other branch, and he finds then a great advantage in fertilizing the fruit blossoms, almost every flower having a bee in it. Morley Pettit, Provincial Apiarist, said he had many reports telling of good fruit crops where bees were kept in the orchards and but little fruit in others. Bees are not the only insects that fertilize fruit blossoms, but bees are the only pollinating agency under the fruit-grower's control.

A rugged, stocky man is Mr. Krouse, whose story was the sensation of the convention. When he started out, he was a laborer, and left a good job at the college to go on one acre of land against the opinion of his friends. The first year he took \$125 off this acre, besides keeping his house supplied with the produce of the place. He then added an acre and a half of rough land which had some gravel pits on it, leached to be off, and the next year made over \$1,600 and the following year \$2,750 out of bees, poultry and

small fruit. He paid considerable for fertilizers, but nothing for labor, having done all the work himself. He then bought 7½ acres more land, but hasn't done so well accordingly since. He cannot secure satisfactory results from the hired help and can't work ten acres properly himself so as to get the most possible out of it. During the past year his income was derived as follows:

From 100 colonies of bees he took 11,000 pounds of light honey, which retailed at 15 cents, bringing.....\$1650
And 2,000 pounds dark honey, which brought..... 178
An increase of 80 colonies he valued at..... 240
From his asparagus bed, of which only 3,000 roots were cutting, he realized... 200
Currants and cherries..... 50
Poultry (above feed, etc.)..... 250

Four hundred bags of potatoes remain to be sold, which should bring the total to over \$3,000. Most of that came from the 2½ acres. He has had a boy to do chores, but no experienced help, and is willing to sell half his land and work the rest alone. It means work, though, for his average hours are daylight to dark, and in the honey flow has worked all night. In previous years he has also worked in the winter, dealing in raw furs. So far, he says, he has never been tired. A strenuous life truly, but remarkable as an indication of possibilities from small areas.

G. A. Robertson, of St. Catharines, who owns 70 acres of land not in town, has come to the conclusion, after fifteen years of fruit-growing, that he knows nothing about fruit-growing and less about poultry, but more about real estate than some of the men who are in it. He has, nevertheless, had asparagus net \$300 per acre, and cherries yielding at the rate of \$2,000 to \$3,000 worth of fruit per acre, but he feels that is the wrong way to figure. His ambition is rather to make the poorer trees come near the productiveness of the best ones.

BIG RETURNS FROM ALFALFA.

Not only through bees, poultry and fruit are ample returns possible. Geo. W. Putman, of Lincoln Co., Ont., gave an impressive account of what Niagara Peninsula farmers are doing with alfalfa on hard clay lands. Thirty years ago, or upwards, a couple of small importations of alfalfa seed were made, and the area has gradually increased ever since. Here are some instances of very profitable yields from hard clay land, valued in the neighborhood of \$50 an acre.

Case No. 1.—12-acre field, four years seeded, cut this year, at the first cutting, 25 tons; at the second, seven—making a total of 32 tons. The field is divided by a creek.

Case No. 2.—A nine-acre field, seeded five years, cut in 1910, 12 and 9 loads, and in 1911, 15 and 10 loads at the first and second cuttings respectively. Besides this, 12 head of stock were pastured for six weeks and a good top was left. In 1912 this field produced 38 tons in three cuttings. At \$50 an acre this field would be worth \$150. The 38 loads of alfalfa at the ruling price of \$15 per ton would be worth \$570 or \$120 over the value of the land. It is but fair to add that the owner values this field at \$100 per acre, so he is within the mark.

Case No. 3.—Leon McLean has a 15-acre field, which nine years ago cut 21 and 6 loads in the two cuttings, besides pasturing 8 cows for a season. In 1911 this same field cut 15 loads

of hay, and the second cutting yielded 12 bushels of seed worth \$150. In 1912 the owner plowed about one acre and planted to potatoes and had as good a crop of tubers as he ever grew. The remaining five acres yielded 14 loads of hay last year.

Case No. 4.—A 15-acre field yielded in three cuttings for each of two years an average of 2, 1½ and ¾ tons, or 4½ tons per acre per annum. It received no manure or fertilizer in 15 years, and at the end of that time was producing better than at the beginning.

All through this country, concluded Mr. Putman, are clay belts, which under alfalfa would double and treble in value. "It would surprise you to know what they are doing with alfalfa in the heart of the Niagara district," added Prof. Zavitz. "People there have told me one after another that without alfalfa they would not attempt to farm." A travelled expert told him that in the Niagara Peninsula we had the best alfalfa section in the eastern part of North America.

C. Witz, of Oxford Co., added a word for sweet clover, which he grows in a two-year rotation of beans and wheat, getting a lot of pasture after the wheat, and a foot and-a-half of growth to plow under the next spring.

POTATO CANKER IN CANADA.

Despite all the warnings which have been issued, it seems the dread potato canker has established itself in Canada. There is reason to believe, said Prof. J. E. Howitt, speaking to this subject, that a large quantity of European seed potatoes were planted this past year and that the disease may have gained a foothold. The fear was corroborated by T. G. Raynor, who told of one case where English potatoes had been sold as Manitobas. He saw a field in Russell County where the inspector had been through and discovered the disease.

It seems the potato canker was discovered in Hungary in 1896 and in England in 1901, 244 cases having been reported there in 1908. It was discovered in Newfoundland in 1909 by H. T. Gussow, now Dominion Botanist. It is pretty well spread over Europe, having infested some fields to such an extent that it is practically impossible to grow potatoes.

Badly diseased potatoes show misshapen lumps of warty growth and become wholly inedible. Less seriously infected ones will have slightly protruding rusty-brown eyes, with small aggregations of nodules. It is a fungus disease introduced through planting diseased potatoes. The fungus is easily brushed off infested tubers, and a few may thus infect a whole bag. Once in the soil it will remain there for a period variously set at six to eight years. There are no remedies yet known, though remedial measures consist in:

- (a) Destruction of diseased crops;
- (b) Heavy applications of unslacked lime to infested fields;
- (c) Dropping potatoes out of the rotation. The Dominion Government has now forbidden the importation of European potatoes.

SOME GOOD RESULTS FROM FERTILIZERS.

The possible deception of averages was the great point emphasized in the discussion which took place on results of co-operative experiments with fertilizers on farm crops, vegetables and fruits, reported by Professors Zavitz and Harcourt. In the case of fertilizers particularly so many variations occur in the nature and condition of soil, its previous enrichment and cropping that every farm, year, every field even, becomes a law unto itself, and a system of fertilizing which may prove very profitable under one set of conditions may prove unprofitable under others apparently similar. Averages of a hundred experiments might, and commonly do, conceal the fact that a fertilizer may be applied with large profit in a percentage of the cases, though in others at a small profit, or even at a loss. The economy of fertilizers becomes, therefore, pre-eminently an individual problem, something for each man to study out, experimenting for himself on his own land. This is not to deny the advisability of averaging the results of experiments conducted. It merely warns against the publication of such averages unaccompanied by an idea of the range of results and some explanation of the conditions under which the most profitable returns may have been secured.

For the present, just a word as to the results. For twenty years co-operative tests of fertilizers have been conducted by members of the Union. The tests were conceived with a view to simplicity. While securing this one point, the plan has, however, been criticized as imperfect, and in 1910 a more elaborate ten-day experiment with fertilizers on barley was introduced. Seven plots received commercial fertilizer, one lime, one cow manure, and one was left as a check plot. For the seven plots receiving commercial fertilizer, nitrate of soda, superphosphate, and muriate of potash were used singly and in combinations of two and three. The quantities of nitrate of soda

and muriate of potash were 100 pounds per acre in each case, and of the superphosphate 200 lbs. The freshly slacked lime used in 1910 and the hydrated lime used in 1912 was applied at the rate of 1,400 pounds per acre, and the cow manure at the rate of 20 tons. The nitrate was applied when the plants were three inches in height, and the others at the time of seeding. The average of the five successfully conducted experiments in 1912 and of the twenty-two conducted in the past three years are herewith tabulated:

	Individual Fertilizer per acre	Total Fertilizer per acre	Cost	Yield per Acre			
				Straw (tons)	Grain (bus.)		Average
	Pounds	Pounds		1912	3 yrs	1912	3 yrs
1. Nothing				1.57	1.24	26.67	25.74
2. Nitrate of Soda	100	100	3.00	1.62	1.33	29.33	29.24
3. Muriate of Potash	100	100	2.50	1.74	1.44	33.33	30.92
4. Superphosphate	200	200	2.45	1.79	1.47	33.00	31.45
5. Nitrate of Soda	100						
Muriate of Potash	100	200	5.50	1.92	1.47	33.33	32.57
6. Nitrate of Soda	100						
Superphosphate	200	300	5.45	1.73	1.42	38.27	33.84
7. Muriate of Potash	100						
Superphosphate	200	300	4.95	1.80	1.49	36.85	34.08
8. Nitrate of Soda	100						
Muriate of Potash	100						
Superphosphate	200	400	7.95	1.81	1.49	40.67	36.09
9. Lime	1,400	1,400	4.60	1.66	1.35	35.33	29.76
10. Cow Manure	40,000	40,000	6.00	1.86	1.57	41.00	36.52

The results show that the fertilizers and manure surpassed the unfertilized land in yield of barley from four bushels to ten bushels per acre. The complete fertilizer, at a cost of \$7.95 per acre, produced an increase of 10.35 bushels per acre over the check plot, and within half a bushel as much as the twenty tons of cow manure, nominally valued at \$6.00, but, really quite underestimated at the small price of 50 cents per large load. In neither case was any allowance made for freight or cost of application, but, on the other hand, neither was any credit allowed for the important residual effect. Some idea of which may be formed from the Agricultural Holdings Act of Scotland which assumes that in the case of potash, salts and acid phosphate, one-half the effect is divided the first year and one-quarter of the residue each succeeding year; of bone meal and basic slag one-third the first year, and one-quarter of the residue each year thereafter. Mr. Emslie, who drew attention to this fact also remarked that he would never recommend over 80 pounds muriate of potash for oats, while with potatoes the proportion of potash might well be considerably increased.

A system of co-operative experiments with fertilizers for fruits and vegetables has been worked out by Prof. Harcourt in conjunction with the District Representatives. These experiments are on the five-plot plan, a quarter acre to each plot, comprising a check plot, a plot with complete fertilizers, three plots with two elements paired. The fertilizer is being applied as a supplement to whatever manuring or treatment the plantations may be otherwise receiving. Little data is yet available, but following is the first year's result from one orchard:—

Unfertilized plot	195 bushels per acre.
Complete fertilizer	306 bushels per acre.
Potash omitted	268 bushels per acre.
Phosphoric acid omitted	197 bushels per acre.
Nitrogen omitted	256 bushels per acre.

Our experiment with gooseberries was thus reported:—

Check	798 pounds per acre.
Complete fertilizer	1,103 pounds per acre.
Phosphoric acid omitted	1,044 pounds per acre.
Potash omitted	697 pounds per acre.
Nitrogen omitted	814 pounds per acre.

FARM CONVENIENCES AND WATER SUPPLY.

Reduction of unnecessary fencing was Hon. Nelson Monteith's first suggestion towards farm and farm-home conveniences. Introduction of woven wire has solved the problem of convenient temporary fencing.

For water supply an hydraulic ram gave him good satisfaction for fourteen or fifteen years, but when a second house on the place required him to exceed his former supply, the ram failed to deliver enough water, and he installed a hot-air engine which has given fairly satisfactory results. Rain water from a cement cistern at the barn is on tap in the house.

In implements there is a general breaking-away from the two-horse team. We want as much power per man as can be reasonably utilized. Care is necessary, however, in the use of large machinery. Noticeable, in some districts, is a tendency to slovenliness. Pride in work is a good thing. There is a satisfaction in looking at work properly completed.

The time is coming when the average farm will have a water supply at both house and

barn, said Prof. Wm. H. Day continuing his discussion. With reference to the hydraulic ram, he stated that the smallest size operates on two gallons per minute, the next on four gallons per minute, and the third size on eight gallons per minute. Choosing first of all a ram of suitable size, the following formula may be used as a guide in determining how much water one's ram will deliver. Multiply the flow in gallons by the head in feet; take two-thirds of this (allowing the other third to account for friction and other

other seeds, and thriving on them. He saw no reason why these screenings might not be shipped down into Old Ontario, and fed to sheep in limited areas strictly defined. Prof. Harcourt had found some of these screenings richer in protein than our common grains, and also higher in oil. On motion of T. G. Raynor the committee was retained to watch for further developments.

IMPROVEMENT IN CANADIAN SEED STOCKS

Emphatic evidence of improvement in the quality of seeds purveyed in Canada, was Seed Commissioner Clark's statement, that if we were to apply our present regulations to the 595 samples of clover seeds taken for investigation from lots exposed for sale in the various provinces during 1902 and 1903, forty-six per cent. would be graded, rejected and forbidden for sale, containing, as they did, more than 400 weed seeds per ounce. The timothy then on sale was a little better, but not any too good either, for it was a common practice ten years ago to save timothy seed out of fall-wheat screenings. It was also a by-product of the hay press in the Eastern Provinces. We seldom see seed of that quality now. The present standard allowing not over 100 seeds per ounce of clover seed will in this season of partial failure prevent over five per cent. of our home grown seed grading No. 1.

The Act has not only made for purity, but legislation pertaining to the vitality of seeds has decreased the danger of crop failure through the unwitting use of seeds of low vitality.

SOME DISTRICT REPRESENTATIVES' EXPERIMENTS.

Results of field-plot experiments conducted by several county representatives were communicated by F. C. Hart, of Galt. We condense:

Inoculation of alfalfa, in the State River Valley, Thunder Bay District, produced at the end of July almost double the growth obtained from the uninoculated plots, which turned yellow about the first of July. R. S. Duncan, of Port Hope, had conducted experiments with commercial fertilizers, nearly all showing good results. Canadian-grown alfalfa seed gave best results in his tests with that crop.

In his own work, in Waterloo Co., Mr. Hart had recorded results from fertilizers varying all the way from a loss of \$11.75 per acre up to a profit of \$98.61. In South Waterloo phosphoric manures seemed to be clearly indicated for potatoes. One experiment, to determine the residual effect of fertilizers, was quite marked, especially with phosphates and potash. From other tests, he concluded, it should be possible to employ commercial fertilizers profitably to supplement moderate dressings of farm-yard manure.

Potatoes sprayed with Bordeaux mixture and lead arsenate, yielded at the rate of 252 bushels per acre against 49 bushels from unsprayed areas. Lime sulphur and lead arsenate did not give quite so good results as Bordeaux and arsenate. Arsenate of lead is an excellent poison, though a little slower than Paris green.

Cultivating potatoes every ten days (6 times) gave a profit of \$19.20 per acre above cost of cultivation, as compared with the yield from potatoes cultivated only once.

Potatoes cultivated after every rain (five times) gave a profit of \$24.50, for the extra five cultivations, as compared with those cultivated once. The potatoes were valued at 50 cents a bushel.

In tests of White Cap, Bailey, Wisconsin No. 7, Leaming and several other kinds of flint corn, W. E. J. Edwards, of Essex, found that in every case the corn from Essex-grown seed matured from seven days to two weeks earlier than corn of the same varieties grown in the States.

EXPERIMENTS IN WEED DESTRUCTION.

Prof. J. E. Howitt received some co-operative tests in eradication of wild mustard, twitch grass, bladder campion and perennial sow thistle. For perennial sow thistle, and twitch grass, cultivating thoroughly during the growing season, then manuring heavily and sowing rape in drills at the rate of 1½ pounds per acre, appeared to give excellent results where a heavy growth of rape was secured. The rape seems to do a good deal towards smothering out whatever vitality may be left in the root stocks. Where, for any reason the stand of rape was thin, the results were more or less imperfect. Buckwheat did not seem to be quite so thorough as rape in subduing the twitch.

Spraying with iron sulphate, 80 pounds to the barrel of water, one barrel per acre, gave good results on mustard, killing all but a few tall plants which escaped the spray, this, too, notwithstanding that a couple of light showers occurred within 24 hours. The cost of material was 75 to 80 cents per acre against 63 cents for copper sulphate, but Prof. Howitt preferred the granulated iron sulphate, as being easier to handle and to dissolve.

forms of lost energy) and divide by the height to which the water is to be raised. Thus if the flow is eight gallons per minute with a fall of three feet to the ram, the ram should deliver half a gallon per minute to a height of thirty-two feet.

Where the hydraulic ram is not practicable other systems may be used. Prof. Day estimated that a system of farm waterworks with a tank in the attic and a pump in the basement could be installed for about \$200.00. The defects of the attic tank, however, particularly the danger of springing a leak through bursting of pipes by frost or other means, have been leading to the adoption of the pneumatic tank in the basement, water being pumped into a closed steel tank against air pressure, which forces the water through the taps.

For disposing of sewage either of two systems may be adopted, one being the cess pit 7 to 10 feet in diameter and of the same depth, the other being the septic tank. Except under very favorable conditions of soil and subsoil the septic tank is to be recommended; a two-chamber tank he estimated should cost about forty to fifty dollars to install.

In the course of his address, on farm conveniences, Prof. Day submitted an interesting estimate on the cost for gasoline to produce the power required on a farm for one year. The amount of grinding allowed for is considerably greater than most farmers would have.

Grinding.—2,000-2,500 bushels would take 3 h. p., 20 days at 10 hours each.

Pumping.—Say 1 h. p. ½ hour per day. This would pump 2,500 gallons, or 62½ barrels each ½ hour from a 40 ft. well, or twice this amount from a 20 ft. well.

Cutting.—3 h. p., 3 days at 10 hours each.

Pulping.—½ h. p., 1 hour per day for 6 months.

Washing.—one-sixth h. p., 6 hours per week.

Sawing.—3 h. p. for 1 day.

Separating.—one-sixth h. p., ½ hour per day.

Churning.—one-sixth h. p., 1½ hours per week. The total is equivalent to 3 h. p. 1 hour per day every day in the year, or 1 h. p. 3 hours per day. The gasoline required to furnish the above power would at 20 cents a gallon cost \$27.00, using a 4-cycle engine. Using a two-cycle engine the cost would be about 14% greater, which equals \$3.78.

ELEVATOR SCREENINGS FOR SHEEP FEEDING.

In 1903 the Union appointed a committee to take up the question of commercial feeding stuffs and partly, no doubt, if not primarily, owing to its efforts the Dominion Government passed the Feeding Stuffs Act of 1909. At the 1910 meeting the committee asked to be disbanded, but was retained to take up the question of prohibiting the selling of weed seeds in various millstuffs. The definitions of bran, shorts and cheap stuffs have now been further amended to restrict the sale of vital weed seeds in these feeds. Following Prof. Harcourt's report for the foregoing committee, Geo. H. Clark, Dominion Seed Commissioner, drew attention to the fact that over one and a half million bushels of dockage are removed from the elevators at Fort William and Port Arthur each year. These screenings are exported to the States against duty and fed to sheep, producing mutton, some of which restores the balance of trade by shipment into Canada. Mr. Clark had watched sheep eating these screenings at Port Arthur consuming mustard and

The effect of mustard on grain crops has been a subject of contention. Mr. Edwards told of having staked out a series of plots two years ago, spraying three and leaving three unsprayed. In every case the yield was slightly better from the sprayed plot. The spraying did not injure the crop.

HOW LONG WILL MUSTARD SEED LIVE?

G. H. Clark contributed a few important facts regarding the longevity of weed seeds. As the results of tests made, he would challenge anyone to produce a mustard seed that had been kept over 15 years, under any conditions of storage, that would produce a crop. As an explanation of the opinion that they will last longer than this, he told of having walked over a creek flat, on his old home farm, which had been once bad with mustard, but had been seeded down for thirty or forty years. Close examination revealed various small weak mustard plants, some of them with but a single leaf growing hidden among the grass, but producing a small amount of seed.

At the Wednesday evening meeting Hon. Wm. H. Hearst spoke on Ontario while W. Bert Roadhouse, Deputy Minister of Agriculture, dealt with Ontario's part in federal agricultural co-operation, for shadowing the probability of an increase in the federal agricultural grant.

NEW OFFICERS.

The slate of incoming officers elected is as follows: President, Lewis Toole, Mount Albert, Ont.; Vice-President, T. H. Mason, Aylmer, Ont.; Directors, Dr. G. C. Creelman, O. A. C., Guelph; Hon. Nelson Monteith, Stratford, Ont.; F. C. Hart, Galt, Ont.; Jas. I. Dennis, Weston, Ont.; H. Groh, Preston, Ont.; J. H. Winslow, O. A. C., Guelph.

Quebec Province, it seems, is to have a separate Department of Provincial Government to look after good roads. J. O. Mousseau, M. P. P., for Soulanges, is appointed as the Minister in charge.

1912 Harvest Below 1911.

Final estimates of the yield and value of the principal field crops of Canada for the season of 1912 were issued on January 10th by the Census and Statistics Office of the Department of Trade and Commerce. Upon a total area under field crops of 32,474,000 acres a harvest has been reaped, the value of which, calculated at average local market prices, makes a total of \$509,437,000. The area under wheat last year was 9,758,400 acres, of which 781,000 acres represents the harvested area of fall wheat grown principally in Ontario and Alberta, but also to a limited extent in Manitoba, Saskatchewan and British Columbia. The total production of wheat was 199,236,000 bushels of the value of \$123,522,000. Fall wheat produced 16,396,000 bushels of the value of \$13,735,000. Oats upon 9,216,000 acres yielded 361,733,000 bushels of the value of \$116,996,000, barley upon 1,415,200 acres yielded 44,014,000 bushels of the value of \$20,475,000 and flax upon 1,677,800 acres, yielded 21,681,500 bushels of the value of \$19,626,000.

By comparison with 1911 the results of last year's harvest, both as regards yield and value, are, upon the whole, inferior. The average prices realized for most of the crops were somewhat less, whilst the yields from wheat, rye, peas, beans and corn for husking were also lower. On the other hand oats yielded about 13½ million bushels more than in 1911, and the following crops show more or less an excess yield: barley, buckwheat, mixed grains, flax, potatoes, turnips, etc., fodder corn, sugar beet and alfalfa. The average yields per acre for the year 1912 compared with 1911 are as follows: Wheat, 20.42 bushels as against 20.87; oats, 39.25 against 37.76; barley, 31.10 against 28.94; rye, 17.44

against 18.89; peas, 14.98 against 15.80; buckwheat, 26.34 against 22.69; mixed grains, 33.67 against 18.89; peas, 14.98 against 15.80; bush beans, 17.40 against 19.06; corn for husking, 56.58 against 59.59; potatoes, 172 against 144; turnips, etc., 402 against 374; hay and clover, 1.44 ton against 1.61; fodder corn, 10.26 tons against 9.92; sugar beets, 10.74 tons against 8.66, and alfalfa, 2.79 tons against 2.24.

The quality of the grains of cereals, as shown by average weight per measured bushel, is somewhat inferior to that of last year in the case of wheat, rye, peas, mixed grains and flax, but is superior in the case of oats, barley, buckwheat, beans and corn for husking.

In the three Northwest Provinces of Manitoba, Saskatchewan and Alberta, the production of wheat is placed at 183,322,000 bushels compared with 194,083,000 bushels in 1911, of oats at 221,758,000 bushels compared with 212,819,000 of barley at 26,671,000 bushels compared with 24,013,000 bushels. The wheat production of 1912 in Manitoba was 58,899,000 bushels from 2,653,100 acres; in Saskatchewan, 93,849,000 bushels from 4,891,500 acres, and in Alberta, 30,574,000 bushels from 1,417,200 acres.

Conditions as affecting live-stock are reported to have been much the same as those of 1911. Mild weather through the fall and up to Christmas enabled farmers to economize their feeding supplies, and live-stock have entered winter quarters in excellent condition.

ARCHIBALD BLUE, Chief Officer.

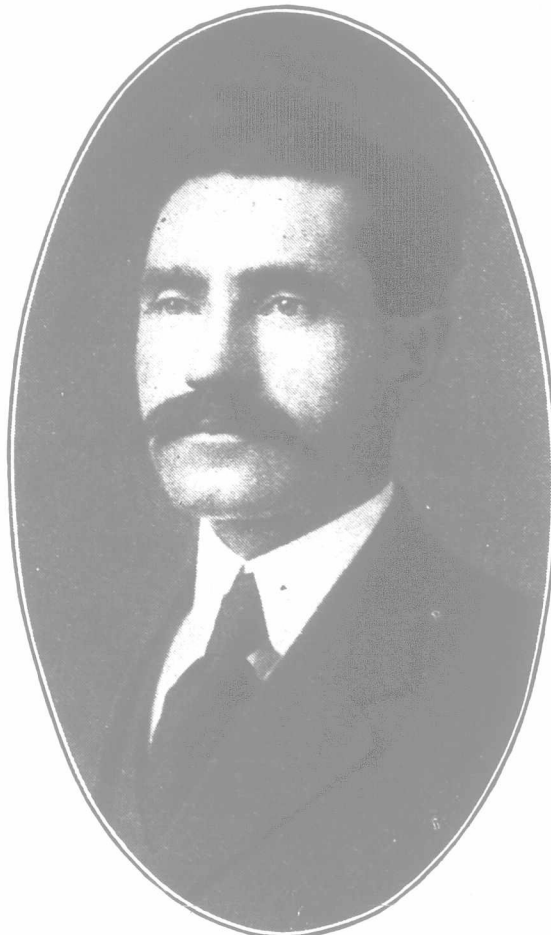
Dr. Rutherford, Superintendent of Animal Husbandry, in the C. P. R. Department of Natural Resources, announces that \$3,400 in cash prizes and two silver cups for sweepstakes will be offered for open competition at the Spring Show, to be held in Calgary in April. Leading packers have co-operated extensively in contributing funds. This is the first of a number of such competitions which the new C. P. R. Department proposes to conduct in the Canadian West.

Eastern Ontario Dairymen's Convention.

For thirty-six consecutive years the dairymen of Eastern Ontario have been meeting in annual convention to discuss the problems of the producers and the makers of cheese and butter. As was pointed out at the convention held in Kingston, January 8th to 10th inclusive, dairying is the main agricultural industry of Eastern Ontario, and it was no unusual occurrence that there was a large attendance and every meeting was marked with that enthusiasm which only successful dairymen can manifest. The city hall in the historic limestone city was an ideal place to hold the convention, and was well filled throughout the entire sessions. Some of the old problems are still vital and are still unsolved to the satisfaction of all and, as is always the case with a progressive association or a live business, new problems are ever confronting the members of the Dairymen's Association and makers and producers generally.

G. A. Gillespie, Peterboro, Ont., acting president, referred in fitting terms to the great loss the association had sustained during the past year through the death of its president, J. H. Singleton, Smith's Falls, and also that of Edward Kidd, North Gower, and M. K. Everetts, each being a past president of the association. He reviewed the changes which have taken place during recent years, particularly during 1912, in the dairy business, showing how cities have developed such a trade for milk as to take much of it from cheese factory and creamery. Regulations with regard to factories have tended to eliminate poor cheese and poor butter by the elimination of the inferior class of makers. Cow testing he believed to be of greatest benefit, and had no hesitation in stating that if all producers of milk practiced systematic testing, the returns for butter and cheese could be increased by twenty-five per cent. Another step in advancement is the increased interest in the breeding of pure-bred dairy cattle.

The output of cheese last year was greater than that of 1911, although exports showed a falling off due to the greatly increased shipments to the Canadian North West and to British Columbia. The exports from Montreal in 1912 were 1,723,000 as against 1,810,000 in 1911. The price in 1912 was the highest in the history of the trade since 1876, and the quality the best since the beginning. Only 70 packages of butter were exported last year, and those went to South Africa, but the shipments to the West increased fully fifty per cent. in 1912. The outlook Mr. Gillespie considered as brighter than ever before, and urged his hearers to produce more milk from the cows at less cost by more intelligent feeding



G. A. Gillespie.

President Eastern Ontario Dairymen's Association.

and better care, and to produce a higher quality of output by more up-to-date methods of handling the products. Carelessness should not be permitted at the farm or at the factory, and a fair margin should be allowed on cheese for shrinkage.

The report of the secretary, J. A. Thompson, of Madoc, showed 1912 to be financially the banner year of the association. Climatic conditions had been so favorable that the output was heavy, and owing to the good work of the dairy schools, the Dairymen's Association and instructors, in encouraging more liberal and scientific feeding and the best methods of testery and farm dairying is making substantial and healthy progress in Eastern Ontario. He strongly eulogized the work of G. G. Pulow and Henry Glendinning in connection with the district meetings.

CROP PRODUCTION FOR DAIRY FARMERS.

The dairy farmer, to make a success of his business, must be prepared to supply his cows in milk with as large quantities of the right kind of feed as they can be induced to consume, said J. H. Grisdale, Director of Experimental Farms. This, of course, refers to the treatment he should give his cattle in summer as well as in winter; and in spring, and in autumn, the same general rule will apply.

To induce cattle to consume liberal quantities of feed necessitates catering to their tastes or likes, that is to say, the first consideration in producing crops for dairy cattle should be the insuring of a high degree of palatability in the resultant forage. As aids to palatability, succulence, variety and quality in the ration take first rank.

Succulence, can, as we all know, be imparted in some degree to dry forage by sprinkling it with water, either pure or flavored as with feed molasses, and allowing it to lie softening for some time before feeding. The only really satisfactory method of insuring succulence in the ration, however, is the growing of succulent feeds and storing them as such. In any case succulence is the almost absolute condition of success in feeding dairy cattle.

Variety, like succulence, is undoubtedly a material aid to palatability, hence it is important that the dairy farmer do all he can to provide some variety in the feeds he stores for his cows. Cattle have a somewhat different idea of what constitutes variety in food than have men. Men as a rule like their rations to vary day by day, cattle, however, like the same ration continuously, but like it to include as many different kinds of food as are available and to have them all in the same proportion each day. To illustrate, a ration including both red clover and alfalfa hay is likely to give better results than either the one or the other fed alone. A ration including both corn ensilage and manure will usually prove more satisfactory than the ration whose chief constituent is exclusively one or the other of these two probably equally valuable succulent feeds.

Quality is another peculiarity of the feeds going to make up a ration likely to add greatly to its palatability, which is the same as to say to add to its effectiveness. Quality means that peculiar condition of a forage or a feed which is observable when the crop from which it has been prepared has been cut at the right time, cured in the best way, housed under the most favorable conditions and preserved in the best shape possible. Quality in the ration is a feature too frequently lost sight

of, a feature quite frequently entirely ingored by the average dairy farmer, but nevertheless a feature of exceeding great importance and of very high value where it is desired to get the best out of the individual or the herd.

Palatability is undoubtedly the most important characteristic to be provided for in producing crops for dairy cattle, but a feature not to be overlooked and, in fact the feature which has most commonly been dwelt upon by men dealing with this subject, is the suitability of the feed for the end in view. Suitability in this connection has been considered to mean that quality in the ration which makes it fill up and satisfy the craving of the appetite for something to distend the digestive organs, and, besides this, suitability in the way of composition for the attaining of the end in view, namely milk production. Producing large quantities of milk means, as everyone knows, the utilization of large quantities of protein, that is the flesh forming part of the foods. Fortunately, our chemists and experience have shown us what foods possess this peculiarity, and which of them are likely to please the dairy cow and enable her to give good results at the pail.

Among the feeds that we find most suitable for milk production in Eastern Ontario and that come the nearest to complying with the conditions of success in feeding as indicated above are corn ensilage, mangels, turnips, alfalfa, red clover, alsike, pea and oat hay, brome grass hay, blue grass hay and mixed hay, while for concentrates a mixture of oats, peas and barley, oats and peas or of peas alone or oats alone, barley in small quantities, corn, oil cake meal, cotton seed meal, gluten meal, wheat bran, wheat shorts or middlings are about the best that can be fed.

To the concentrates we need pay little attention since, with the exception of the by-products and mill feeds mentioned, they are grown and grown fairly cheaply on every farm. The question of the economical production of the roughage or coarse part of the forage is, however, an exceedingly important one, and a few ideas on the methods of production best suited to Eastern Ontario conditions are submitted.

To begin with "Abundance" should be the watchword. Any shortage in the supply of roughage is very much more serious than a similar condition where concentrates are considered, hence in making arrangements for forage production, a margin of at least one-quarter and better still one-third more than is likely to be necessary should be allowed.

To get the best results and to be sure of a sufficient supply year by year, some regular cropping system of rotation should be followed. Where part of the arable land has to be used for pasture each year, a four-year rotation is probably the best. Where sufficient rough land is included in the farm to permit all necessary pasturing being done thereon, then a three-year rotation is likely to give best returns.

On that part of the farm devoted to crop production a good four-year rotation is:—
1st. year.—Hoed crop. 2nd. year.—Grain seeded down as follows:—Timothy, 6 lbs.; alsike, 2 lbs.; red clover, 10 lbs., and if the land is well drained, alfalfa, 6 or 8 lbs. per acre. 3rd. year.—Hay, 2 cuttings. 4th. year.—Pasture or hay as necessary.

Corn for ensilage should be the staple crop on every dairy farm. It is a safe crop, that is, it practically never fails and provides a safe feed. Corn ensilage is of uniform quality from beginning to end of the feeding period, that is, during the whole twelve months of the year.

Mangels, sugar mangels, sugar beets and turnips are all excellent feeds for dairy cattle and can be grown profitably in Eastern Ontario, but require considerable hand work and are, as a rule, more expensive crops to produce than corn along with which, of course, they must be classed.

In the production of hay the proper points to be considered are the seeding down and the making of the hay next season. The generous seeding indicated, while apparently expensive and in the opinion of some people extravagant, is really cheap and certainly most profitable. Liberal seeding, as indicated, means greatly increased chance of getting a good "catch," a much more rapid growth when in hay, and the crop ready to cut somewhat earlier than where thinner seeding is practiced, and at the same time a growth of such character as to insure a very much better quality of hay than from thin seeding. The superior quality is due in this case to the thickness of the growth which makes finer stems and taller crops, which means considerably improved quality in flavor and digestibility of the cured hay.

The grain areas or field of the rotation might be devoted to oats, peas, and barley. It is usually well not to sow the grain too thickly, and to do everything else possible to the end of insuring a good catch of grain and clover. Thorough tilling or harrowing until the seedbed is in perfect condition for firmness and fineness, then rolling, seeding, rolling and lightly harrowing after the second rolling is the treatment likely

to give the best results under average weather conditions in this province.

Protecting the catch from cattle in the fall and spring is about the only thing that can be done by the farmer to insure a good crop of hay the next year.

To show what is possible Mr. Grisdale referred to the fact that in November, 1912, over \$1,000 worth of dairy products were sold from the herd at C. E. F., Ottawa, besides hogs and other stock, and all this from a 200-acre farm.

REPORT OF THE CHIEF INSPECTOR.

G. G. Publow, Chief Dairy Instructor for Eastern Ontario, in his annual report said that 895 cheese factories were in operation (which is 18 less than last season). This reduction is due to the fact that 6 were burned and 18 closed. Four of the factories burned down were re-built. Two were operated as creameries and two were purchased by the Dominion Government, and a model combined cheese factory and creamery built in their place (for which the government is to be commended).

1,404 full-day visits and 4,958 call visits were made by the instructors. In addition fifty-two factories made improvements in buildings or plant, the estimated expenditure, including new buildings, being \$95,044. Ten factories were equipped with cool-curing rooms. Eighty factories pay for milk according to quality. Fifty-two pay by straight fat, and twenty-eight add 2 to the reading. One hundred and six factories pasteurized the whey, the average acidity of the pasteurized whey being .36% as compared with 1.04% in the unpasteurized. One hundred and twenty-one factories manufactured whey butter, and the total pounds of butter made by same from May 1st. to November 1st. were 385, 854 lbs., which is 26,999 lbs. more than for the same period last season.

The number of patrons delivering milk to the cheese factories was 34,425, which is 682 less than last season. The milk was delivered to the cheese factories in better condition than in any previous year. Some 30,895 samples of milk were tested for adulteration. Of this number 78 were found to be deteriorated. After an investigation had been made, 60 cases were handed over to the Official Prosecutor to be dealt with. 57 of these were convicted, and fines ranging from \$5.00 to \$50.00 were imposed, amounting in all to \$1,333. Deteriorations are becoming less from year to year, the number this year being the smallest in Mr. Publow's experience.

The amount of milk delivered to the cheese factories, from May 1st to Nov. 1st, was 1,011,725,699 lbs., and the amount of cheese manufactured from same was 94,696,819 lbs., which is 1,062,251 lbs. more than for the same period last year, or allowing 85 lbs. as the average weight of a cheese, this would show an increase of 12,497 cheese.

The average lbs. of milk required to make a lb. of cheese, was 10.68 as compared with 10.74 last season. This does not seem to be very much of a difference, but when figured out from the 94,696,819 lbs. of cheese manufactured, it amounts to 495,171 lbs. At 13 cents per lb. (which was the average selling price of the cheese for the six months) this would mean a gain to the producers of \$64,372.23.

A special effort was made to improve the texture of the cheese, also to reduce the pounds of milk required to make a pound of cheese. To do this, instructions were given to set the milk in a sweeter condition, and to salt the curds lighter than had been the general practice, and the results have been very gratifying, as the average is lower this year than for several years.

The quality of May and June cheese was exceptionally fine. Very few complaints were made regarding acid or off-flavored cheese, but as soon as the weather became warm, came the old story of over-ripe and gassy milk, and before the makers realized it, a considerable quantity of more or less open cheese had been placed on the market. Notwithstanding this, he considered that taken on the whole, the quality was superior to that of former years, although there is still much room for improvement.

Twenty-seven creameries were in operation this season, receiving in all 33 full day visits and 19 call visits, and 3,898 patrons supplied milk to these creameries.

The average per cent. of fat in the cream was 29% as compared with 27.5% last year, and cream was reported as being delivered in a much better condition.

The amount of butter manufactured from May 1st to Nov. 1st, was 2,301,219 lbs., which is about 10,000 less than last season, for the same period. The average selling price of the butter being 26 1/2 cents per lb., which is about 3 cents per lb. higher than in 1911. The quality was reported as being much superior to that of last year, particularly in flavor.

None of the butter was exported, as it was all required for home consumption, the supply not being equal to the demand. 61 samples were

tested for moisture, the results ranging from 17.4% down to 11%, with an average of 14.56%.

A new feature of the work this year was the carrying on of a salt test by Mr. Singleton. 31 samples of butter were tested for salt, the results ranging from 4.25% to .88%, with an average of 2.28%.

During the season 31 samples of water from cheese factory and creamery wells, were expressed to Dr. Connell, for a bacteriological examination, and of this number 13 were found to be entirely unfitted for factory use, and were condemned. The managers of the factories from which these samples of water were obtained were asked to provide a new water supply.

The matter of cheese boxes was a very difficult problem for some of the factorymen this season. The quantity was very limited, and in some cases they had to pay as high as 20 cents per box. Several factories were forced to close before the end of the season, not being able to get them, even at that price. Owing to the extremely wet weather experienced this season, a large number of the boxes arrived at the factories in a very wet condition, and it is expected that complaints will be received from the Old Country, regarding excessive mould, and defective rinds, as a result of the cheese having been shipped in damp boxes.

With the exception of a few cases there was a marked improvement in the sanitary condition of the cheese factories.

The weakest points in connection with the manufacture of our cheese are: 1, lack of facilities for the proper control of the temperature of the curing rooms; 2, over-ripe and tainted condition of some of the milk during the warm weather; 3, lack of competent and sufficient help to enable the makers to manage their factories successfully at all times.

The greatest needs of the creamery business are: 1, greater production of milk and butter per cow; 2, improved quality of raw material to obtain which we need more frequent washing of the separators, and more efficient cooling of the cream; 3, more care and skill on the part of some of the makers, and better refrigerators in some of the creameries.

DAIRY RECORD CENTRES.

OTTAWA.

Chas. F. Whitley, of the Dairy Division, Ottawa, discussed the work of the dairy record centers. It is beginning to be recognized more generally that a cow is kept not simply to consume roughage and concentrates, but to produce milk and fat in abundance. Not only is a large production necessary from each, but a good profit must be made. That is the essence of modern business-like dairying. The profit made depends largely on the cow's inherent ability to convert feed into those products economically. It is evident that if the production is sixty dollars' worth of milk or fat a feed cost of fifty-five dollars, the net profit is only a bare five-dollar bill, and is not a good return for her year's work. But fifty dollars' worth of product at a feed cost of thirty dollars makes another cow, with her twenty dollars profit, just four times as profitable. Such study of dairy economics is only possible when dairy records are kept, and it is to this laudable end—a large profit from each cow—that the Dairy Division at Ottawa works through the recommendation of systematic cow testing, the bed-rock principle of dairy herd improvement.

Unless the figures are actually before one, the variations in production found in the same herd seem almost incredible. For instance, in three Ontario herds, the difference in yield between the best and the poorest cow runs actually at 8,100, 9,100 and 10,900 pounds of milk; the two extremes are 3,690 and 17,615 pounds. This proves immediately that neither an occasional sample tested or pailful weighed, nor a hasty figuring of the herd's average yield can possibly give any measure of justice either to the abundant or to the economical producer, so that the knowledge requisite to building up a good herd has still to be sought. That knowledge can be found in dairy records.

The more the question of net profit per cow is looked into, the more singular are the discoveries. A common showing in many districts is that one-third of the total net profit in a herd of eight or ten cows is made by only one, the best cow. That one good cow, earning \$43 profit over a feed cost of \$37, sometimes makes as much profit as to combine the profit and loss of the six poorest cows. Such a heavy burden is not fair play to her.

A cow giving \$41 dollars' worth of milk at a feed cost of \$37 makes only \$4 profit; the cow with \$43 profit noted above makes as much profit as ten cows of that kind. Such comparisons abundantly prove the necessity of studying each individual. Let us cease this unsatisfactory, unenlightening talking of the herd "average."

The accompanying chart illustrates the startling difference between average and individual profit and loss.

Herd No.	No. of cows.	Average lbs. milk	Yield lbs. fat	Feed cost	Average Profit
1	10	6,298	231	\$40	\$22.98
2	6	3,665	129	\$33	\$ 3.65
3	8	10,123	361	\$50	\$51.23

Lbs. milk	Lbs. fat	Profit	Lbs. milk	Lbs. fat	Profit.
4,345	167	\$ 3.45	7,665	275	\$ 36.65
2,176	78	\$11.24 (Loss)	5,360	191	\$ 20.60
7,672	232	\$23.72	17,615	619	\$126.15

The yield of milk in Herd 3 is almost three times that of Herd 2, but the average profit is fourteen times as great. This is despite the feed costing \$17 per cow more.

Note the difference in the average yields of milk from thirty-six hundred to ten thousand pounds per cow. It would be just as sensible, perhaps more so, to say that the three herds average 6,700 pounds of milk, as to say that your own herd averages so and so. We must study individual performance. It is just a suicidal policy to average good and poor cows, blinding ourselves to the deadening influence of low yields and invisible profits.

The average profit in Herd 2 is just one cent for each day in the year, but the individual returns vary between \$11.24 loss and \$20.60 profit. A consideration of averages without selection on records simply means stagnation.

The poorest cow in Herd 2 is a four-year-old, type of a cow we ought to be without. The searchlight of record-keeping reveals them as dangerous to dairy navigation.

The poorest cow in Herd 1 is a long way below par, or the average profit of the herd. How frightfully unfair it is, therefore, to the best cow in this herd with \$36.65 profit to have the poor one hauled up to the same level in a grossly misleading "average."

Among the best cows note the excellent record of 17,615 pounds of milk from this seven-year-old grade. Even at a feed cost of \$50, her profit is \$126.15; or, compared with the \$3.45 profit from the poorest in Herd 1, actually 36 times as much. The great economy of the really good cow is here manifest.

Investigation at five Centres last year showed 3,188 cows giving an average profit of only \$13.28—no princely return for twelve months' work. It is such figures as these that the work of the Dairy Record Centres aims to thrust upon the attention of our dairymen, so that intelligent and rapid herd improvement may result. The recorders, these consulting dairy specialists, are within the dairy beck and call of the inquiring dairyman in their respective districts, despite distance or weather, and absolutely free of charge. Not much wonder, surely, that there were 14 such recorders last year in place of six the year before, and that more are being appointed. They bring to the farm in their capacity of dairy advisers a wealth of real encouragement, useful suggestion and practical help; each recorder proves the value of adding figuring to farming so that a simple record may assist materially in the dairyman's main endeavor to make each cow pay. That is the keynote of cow testing.

Hence, it is dawning on the indifferent patron and the sceptic that his is the responsibility more than the cow's—his brain must make deductions from his record of figures, his intellect must plan and guide the building and development of the profitable dairy herd. That natural right since the beasts of the field were assigned to his control at creation's dawn should be both his pleasure and strenuous aim to-day.

Record sheets and sample bottles are giving each cow a square deal where before simply reigned mere guess work, palpably unjust to the aristocratic producer as well as to the habitual loafer. Fresh energy and determination are manifest as the benefits of a simple business proposition are taken to heart. Out of chaos and confusion of ideas evolve order, system, satisfaction and profit.

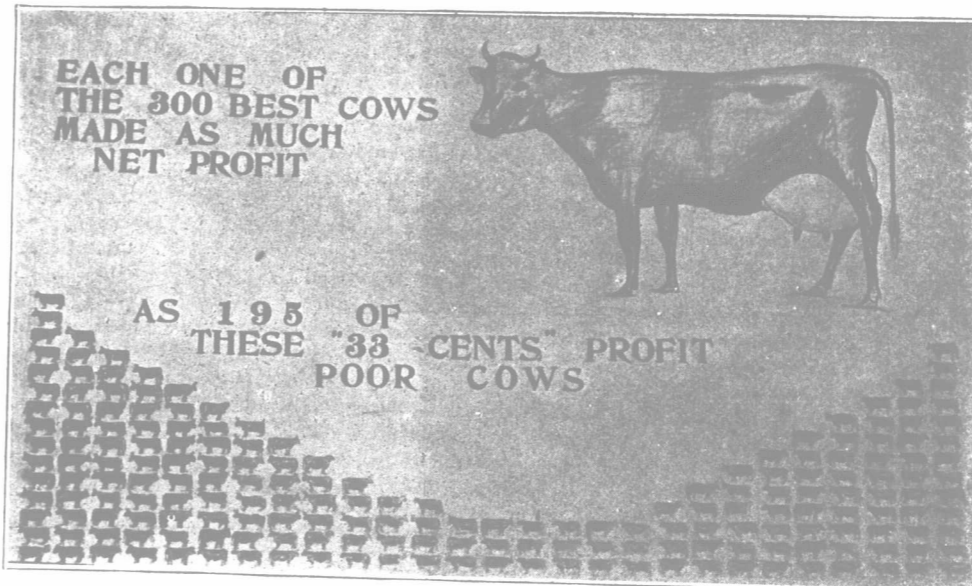
The unmasking of some poor cows, shirkers of their responsibility, does not condemn dairying as a business; it has not led to gnawing misgivings of a dairyman as to his chosen vocation; but, on the contrary, such knowledge has fired a spirit of hopefulness and determination to improve. Really good cows, somewhere least suspected, have been found, and their discovery has proved an incentive to even bigger things accomplished. Here we have real, valuable educational intimate first-hand analysis of immediate surrounding conditions with the drawing out of the owner's best ideas of progress and attainment.

Our recorders found an average of nine cows kept per hundred acres of land. How many acres on your farm does it take to feed one cow? The profit might be increased immensely if the productive capacity of the land were so improved as to support more cows. On some farms visited only 150 pounds of milk were being produced per

acre; while on others the production was as high as 1,750 pounds per acre. The average cost of feed per hundred pounds of milk was found in some cases to be as low as 54 cents for the average of the herd, while in others the average cost from unselected herds was as high as \$1.37 per hundred. If individual cows were considered, of course, these prices would vary still more. No stronger proof could be possibly wanted for the absolute necessity of weeding out, after consulting their records, those cows whose milk costs too much to produce. In probably no other manufacturing industry would cost prices vary in such extraordinary degree. Nothing else but simple record keeping will detect these drones in the hive of dairy industry. Records thus prove themselves a valuable "first aid" to farmers injured by keeping poor cows; they assist to eradicate from the blood of the average man the poison of loose, indifferent ideas of dairying. They inoculate with the microbe of progress, and become serviceable dairy cultures, improvement "starters."

Glancing at all our records in Ontario for last year, the average yield of 3,387 cows was found to be 6,132 pounds of milk, 3.4 test, and 211 pounds of fat. To illuminate the difference in profit per cow, even in bulk like this, I separated carefully the yields of the 300 poorest cows and the 300 best cows. These actual dairy records given us by the men who milk and feed the contrasted cows are indicative of the severe handicap of the average farmer with only average cows, and prove what a perfect food, as well as tonic, records may be to the average man whose ideas on cow testing remain half-starved and undeveloped.

The 300 best cows gave more milk than the 300 poorest by 2,130,900 pounds, and yielded an average profit of \$64.33 per cow, as against a profit of 33 cents per cow from the 300 poorest cows.



It took scarcely one-third of the 3,387 cows to give one-half of the total yield of milk. The feed cost of the poor cows was placed at only \$33, though our lowest average cost at a Record Centre was \$33.21, which would cut even this small profit of 33 cents still lower.

Then look at this fact: That even charging the good cows with feed at \$40, they made a profit of \$61.33, or, compared with their poorer sisters, 195 times as much.

If these 300 poorest cows had given as much milk as the 300 best cows, there would have been an additional income from them of \$21,309. Cow testing must commend itself to the thinking man; it is no fad, but has itself been tested and tried out in the hard crucible of actual farm experience.

SOME ONTARIO INCREASES AFTER THREE YEARS TESTING.

Herd at	No. of cows	Present yield		Increase per cow	
		lbs. milk	lbs. fat	per cent.	per cent.
Winchester	14	8,314	1,207	14	14
Bonards	18	7,380	1,041	16	16
Brenner	11	7,306	1,719	30	30
Wooler	10	7,610	2,313	43	43
Kerwood	10	6,770	2,580	60	60
Bertie	61	6,326	2,560	68	68

An average increase easily obtained is 1,100 pounds of milk, 40 pounds of fat per cow.

Ontario has 1,044,000 cows; at only \$10 each the increase might be over 10 millions.

These are herds that records are building. Meditation on the benefits of cow testing has crystallized into action. Cents are sown and dollars reaped.

If all our dairy cows in Canada could be educated to yield only ten dollars' worth of milk more than they do now, the extra revenue would be about thirty millions of dollars.

Taking the Kerwood herd, for instance, the original yield of milk was 4,390 pounds; at a

feed cost of \$40 the profit was \$3.90. Even allowing \$45 worth of feed now to produce the present yield of 6,770 pounds of milk, the net profit is \$22.70. Thus, while the increase in milk yield is 60 per cent., the increase in profit is 482 per cent. Such figures would not be indifferently received by any mercantile firm, and should appeal forcibly to every philanthropic dairyman who is at present boarding the "33-cent" cow referred to above.

RAPID CASEIN TEST.

Perhaps the uppermost question in the minds of cheesemakers to-day is that of the fairest method of paying for milk received for cheese-making purposes, said Prof. W. D. Walker, of Queen's University, in explaining his new rapid method of estimating casein in milk.

We are all pretty well acquainted with the various methods employed in the past, and know that none of these is directly dependent on, nor bears any direct relation to, the amount of casein in the milk, and yet the casein is the principal constituent of cheese. Almost every dairyman agrees that were it possible for the cheesemaker to determine the casein content of milk without involving too great an expense of time, and without introducing any large complication in computing values, then most assuredly we should pay for the milk according to both its fat and casein contents.

The Walker method, in short, consists in estimating by means of standard one ninth normal alkali, in general use in our cheese factories, the acid liberated from casein by the action of the commercial solution of formaldehyde used so generally as a disinfectant and germicide.

This is done by taking a 16.3 c.c. sample of the milk and placing it in the test cup. The existing acid of the milk is now neutralized by adding the alkali exactly as in the case of the "acid test," after having first added 1 c.c. of the

indicator. We bring the color to a good deep pink. And an excess of commercial formaldehyde solution which has been rendered neutral with alkali, using, of course, a few drops of indicator to show the neutral point. We advise using about 2 c.c. of the formaldehyde solution. The pink color of the milk now disappears at once since the acid of the casein has been set free, or, rather, since the basic function of the casein has been fixed or bound.

We now add the alkali again until we get the same shade of color as we had before we added the formaldehyde. The amount of alkali used in this last titration represents the percentage of casein in the milk. This is obtained, of course, by subtracting the first reading on the burette from the second reading. To eliminate the trouble of this subtraction, a new form of acidimeter has been devised, which is a so-called automatic zero point acidimeter, by means of which the alkali is brought to the zero point in a moment after the first titration, and thus the trouble of subtraction is eliminated. This acidimeter will be placed on the market in a short time, when it will be available, not only as a casein test, but as a general acidimeter for the acid test.

The time required for the complete test, of course, varies with the skill of the operator, but should not occupy more than two minutes. When a large number of tests are made consecutively, the time may be cut down appreciably by taking a number of samples in succession, without laying down and taking up again the pipette between each sample.

The test makes use of only those substances in common use in cheese factories—namely, the standard alkali, the ordinary indicator, and the pipette and acidimeter, with the exception of the formaldehyde, which is a very cheap substance and readily obtained at any drug store.

It is no more difficult to carry out than the ordinary acid test, and therefore can be operated by any cheesemaker.

At the time the details of the test were worked out some months ago, no preservative was in common use which permitted its use with composite preserved samples. During the last few weeks, Prof. Walker has been carrying on a series of experiments to discover a preservative which will preserve milk for a month, and will not interfere with either the test for fat or the casein

test. As yet the experiments are not complete, but he has hopes of obtaining satisfactory results in the near future.

FEEDING DAIRY COWS.

J. G. Taggart, B.S.A., district representative of the Ontario Department of Agriculture for Frontenac County, dealt with this important branch of the business from a producer's viewpoint. He showed how milk was produced and the necessity for feeding the cow up to her capacity to produce milk at a profit. The cow must be capable of heavy production, and this is reached by good breeding. The feeder must calculate carefully the amount of feed necessary to maintain the animal and the composition of milk, and the amount produced should guide him in feeding for production. A large amount of protein-rich feed is necessary. Foods were discussed from the standpoint of the constituents—protein, starch and sugar, and fat. For a cow weighing 1,000 lbs. one pound of protein is necessary for maintenance, and also from 8 to 10 lbs. of digestible carbohydrates. For a cow producing 50 lbs. of milk per day, 2½ lbs. of protein is necessary over and above the 1 lb. for maintenance. He recommended buying a little oil-cake or cotton-seed meal to supplement the crops grown on the farm, of which he thought clover, alfalfa, ensilage corn, oats, and perhaps peas, most profitable for the dairyman. With a good ration of these, supply all the water the cow will drink, and if she is a producer, good returns should be obtained.

GREEN CHEESE AND GREEN BOXES.

Considerable trouble was experienced during the past summer with the cheese being shipped too green, and also shipped in green boxes, due to a certain extent to the extremely wet weather of the latter portion of the season. Many of the speakers urged the makers to cure their cheese before shipping out.

SCALES AND WEIGHTS.

For years there has been a difference between makers and buyers as to the weights received at Montreal. A Royal Commission has been appointed to investigate this matter, and the three men forming the commission were present at the meeting. R. A. Pringle, K.C., chairman, discussed the work of the commission at great length, and laid a good deal of the trouble to poor scales at the factory. Where the scales at the factory were correct, the weights at Montreal corresponded with them very closely. He referred to New Zealand, where all cheese are officially graded and officially weighed. He favored the appointment of an official referee at Montreal, and that of another competent man to certify to the quality of the cheese.

Two other matters were looked into by the commission. One-quarter of a pound per box is allowed for greases, dirt, etc., and often the cheese weighs more than required by a fraction of a pound, the cheese going at the even weight, allowance being made for under-weight and not for overweight. What is wanted is that overweight. He considered, as well as underweight. One other point was that cheese buyers should be bonded. He showed clearly that the price of bonding the buyer must come out of the cheese. These are the three bones of contention with which the commission are dealing.

Mr. Hodgson, a merchant of Montreal, also discussed this matter, urging the appointment of a referee and also imploring the cheesemakers and producers to get into closer touch with the buyers. He considered that makers and merchants were each to blame for marketing green cheese and emphasized quality very strongly. The longer distance cheese comes to Montreal, the better the quality. From Kingston West 1575 cheese lost only 104 lbs., while from North and Eastern Quebec 3052 cheese lost 715 lbs., and from Ontario, east of Kingston and Quebec west and south, 5154 cheese lost 4638 lbs. The latter cheese were shipped greener.

In connection with bad weights, Mr. Wiggins gave a very interesting scale demonstration showing how easy it was for a poor scale to give wrong weights. He urged users to keep their scales clean, and recommended for factories a standard galvanized scale. On a poor scale, or one which is rusty, it often takes from one to one and a half pounds to put the beam down. He showed how a poor scale makes a difference of over 1½ lbs. in the weight when placed on each corner as against the weight placed in the center of the platform, and urged the makers to use nothing but a good standard scale.

All the speakers favored a much more frequent inspection of scales than every two years, which is now in vogue, many advocating yearly or bi-yearly tests.

Geo. H. Barr, chief of the Dairy Division, outlined the work carried on at the two combined creameries and cheeseries established this year, giving details as to the construction of the factories and the work accomplished.

EVENING MEETINGS.

Two largely attended evening meetings were held at which some very noted speakers took part, Mayor Hoag, in a few well chosen words, welcomed the convention to Kingston.

Geo. A. Putnam, Superintendent of Farmers' Institutes for Ontario, thought something should be done to lessen the margin between the price for milk which the producer gets and that paid by the consumer. He urged more intensive methods, saying that comparatively few farmers are making the success possible, citing the case of a man who cleared \$3,500 in one year, all practically coming off five acres of apple orchard, in which he also kept bees and poultry. He believed a combination of dairying, fruit and poultry, or dairy, fruit and apiculture, properly looked after would be most profitable. Dairy-men still have plenty room to improve, as shown by a census recently taken of 272 farms in a township in Middlesex Co. Seventy per cent. of the farmers cool their milk in a tank, and only ten per cent. had ice. Fifteen and one-half per cent. made no attempt to cool the milk whatever. Of the fifty most successful men 49 are growing corn and 29 have silos. Those with silos have on an average 17 cows each, and those without silos, 13 cows each on 100 acres. If the silo increases the capacity of the 100-acre farm by four cows, even where corn is grown it surely pays.

A significant point was brought out by Arch. Rankin, M. P. P., when he said there were 30,000 acres of arable land on Wolfe Island and only one silo. We have opportunities near at hand for great improvements in methods.

C. F. Bailey, Assistant Deputy Minister of Agriculture, gave a brief resume of the work as it is being carried on by the Department, paying special attention to what the District Representatives are doing in underdrainage, school fairs, short courses, orchard demonstrations, poultry demonstrations and all other phases of scientific and practical agriculture.

Dr. W. T. Connell, Bacteriologist at Queen's University, by a short lantern-slide talk showed the right and wrong way to take care of the water supply, as received from wells, springs or streams.

W. F. Nickle, M. P., Dr. A. E. Ross, M. P. P., Dr. Edwards, M. P., and others addressed the meetings.

Dr. Torrance, the Veterinary Director General, spoke on tuberculosis in the dairy cow. He reviewed the immense losses which countries sustain from it and showed that tubercular cattle and hogs were increasing in Canada, and urged that co-operative efforts be made to stamp it out.

A NATIONAL SURVEY OF THE DAIRY INDUSTRY.

Exports of butter from Canada, during 1912, were the smallest since 1850, said Dairy Commissioner J. A. Ruddick. Those to Great Britain have become practically nil. Our butter imports have, indeed, greatly exceeded our exports. Exports of cheese also showed a marked decrease, twenty-eight million pounds, which is double the decrease of 1911 as compared with 1910; exports of cream and casein showed a large decrease attributed to the satisfactory condition of our markets for butter and cheese.

In the face of these declining exports, Mr. Ruddick confidently asserts that there has been as much increase in milk production, taking Canada as a whole, during the past decade as there was during any other similar period in the history of the industry. Our estimate of the situation is often wrong because we fail to realize how much it takes to provide an increased population of say two and a half million people with milk and milk products, nor have we taken into account some new demands which have lately arisen. In one way and another Canadians are consuming between thirty and forty million dollars worth a year more dairy produce than ten years ago. The West, though producing much more butter, is now drawing heavily from Quebec and Ontario. Population in the East has also increased, entailing similar increase of home consumption.

There has been an enormous increase in sweet cream consumption in the towns and cities, and great development of the ice-cream business during the past six or eight years. In 24 cities, throughout Canada, the quantity of cream used during 1912 in the manufacture of ice cream was equivalent to nearly 2,000,000 pounds of butter, and a further large quantity is used in the smaller towns. The managers of establishments from which returns were obtained, say their trade in 1912 showed an increase of 15 to 20 per cent. notwithstanding the cool season. Adding to the increased consumption of butter and cream, the enormous increase in milk for home use, to say nothing of the condensed milk business, Mr. Ruddick was satisfied that our home consumption

of dairy products was easily up to the hundred-million-dollar mark.

Cheese and butter producers in Canada have so far had every reason to congratulate themselves on the low cost of distributing their products, the producer's and consumer's price being less than for almost any other article produced on the farm. This, however, applies more particularly to cheese and butter retailed in Britain than to that portion retailed in Canada. Best "Brockvilles" were being sold in the retail shops in London, a few weeks ago, at 15½ to 16 cents per pound, while consumers in Ontario were paying 18 to 20 cents and even more. Differences in retail circumstances explain the disparity only in part, and Canadian dairymen will do well to watch the disposal of their products in the home markets, to see that the cost of production does not become still more excessive. It is decidedly in the interest of the producer that the cheese which he sells at say, 12 cents per pound, should retail at 16 cents rather than at 20 cents.

Surveying world markets Mr. Ruddick found no ground for pessimism as to price prospects. The statistical position would, on the whole, appear to be rather better than last year. The announcement that the whole of the New Zealand output for 1912-1913 is to be shipped on open consignment may have had a bearish effect upon the market, but this weak feature will probably have disappeared by the time our new season begins. It is a fair assumption that there has been an increase in the annual yield of milk per cow, some credit being reasonably attributable to the cow-testing movement.

Quite a large number of milking machines have been installed in Canada, and Mr. Ruddick is of opinion that the time has come when a more general use of milking machines in herds of 20 cows and over would be of advantage to the dairy industry.

Resolutions of sympathy with the families of the late J. H. Singleton, the late Edward Kidd, and the late M. K. Everetts were passed, also one favoring the establishing of a National Dairy Show in Canada.

OFFICERS ELECTED.

The following are the officers for the ensuing year: Hon. Presidents, Hon. Senator Derbyshire, Brockville, and John R. Dargavel, M. P. P., Elgin; President, G. A. Gillespie, Peterboro; 1st Vice-President, J. A. Sanderson, Oxford Station; 2nd Vice-President, Nelson Stone, Norham; Treasurer, James R. Anderson, Mountain View; Secretary, T. A. Thompson, Almonte; Directors, Henry Glendinning, Manilla; Geo. Gillespie, Peterboro; Nelson Stone, Norham; T. J. Wright, Picton; Willet Farley, Cannifton; Thos. Thompson, Madoc; Jos. McGrath, Mount Chesney; J. V. Walsh, Albert; Geo. Legatt, Newboro; Wesley Willows, Carleton Place; J. Campbell, Finch; Capt. John Gillies, Glen Norman; Neil Fraser, Van'leek Hill; J. B. Ferguson, Renfrew; Fred Dillworth, North Gower; W. H. Olmstead, Vars; Jas. A. Sanderson, Oxford Station. Auditors: John Hyatt, Picton, and M. Bird, Sterling.

Henry Glendinning, James Sanderson, Nelson Stone, G. Legatt, Jos. McGrath, N. Fraser and T. H. Thompson, form the executive committee. Senator Derbyshire, of Brockville, in a few well-chosen remarks closed one of the most successful meetings in the history of this convention. Prof. Dean's and Mr. Zufelt's addresses will appear next week.

Ice Storage.

In storing ice, avoid, if possible, the use of fresh green sawdust. This heats and tends to melt the ice; or, rather, it fails to preserve it so well as older sawdust would do. We used fresh sawdust at Weldwood last winter because we could get no other, and experienced in some degree the difficulty mentioned, although other conditions of storage were reasonably favorable. When green sawdust must be utilized, it is just as well to avoid having too great a thickness of it, since a mass eighteen inches or two feet thick is likely to generate much more heat than a smaller quantity. Two leading, experienced ice firms in London do not use sawdust about the ice at all. They rely on a well-insulated building, with sawdust between the two thicknesses of wall boards. The ice is packed closely together in blocks and well covered with several feet of wheat or other straw on top. Between the mass of ice and the board walls a space of about three inches unfilled is left.

Please find enclosed order for \$1.50 for renewal subscription for "The Farmer's Advocate, etc." (I find it very instructive and elevating.) Wentworth Co., Ont. ALEX. CHRISTIE.

MARKETS.

Toronto.

REVIEW OF LAST WEEK'S MARKETS

At West Toronto, on Monday, January 13th, receipts of live stock numbered 56 cars, comprising 1,029 cattle, 629 hogs, 282 sheep and lambs, and 13 calves; no business transacted. Packers quote hogs at \$8.50 fed and watered, and \$8.15 f. o. b. cars.

The total receipts of live stock at the City and Union Stock-yards last week were as follows:

Table with 3 columns: City, Union, Total. Rows include Cattle, Hogs, Sheep, Calves, Horses.

The total receipts of live stock at the two yards for the corresponding week of 1912 were as follows:

Table with 3 columns: City, Union, Total. Rows include Cattle, Hogs, Sheep, Calves, Horses.

The combined receipts of live stock at the two yards for the past week, show an increase of 51 cars, 4,993 hogs, 127 calves, and 12 horses; but a decrease of 458 cattle and 1,432 sheep and lambs, compared with the corresponding week of 1912.

Receipts of live stock last week were fairly large, but not greater than the demand, all offerings being readily taken at steady to firm prices, for cattle, compared with our last report. Prices for sheep, lambs, and hogs, were higher.

Exporters.—There were no cattle bought for export, but a few lots of steers of export weight and quality, sold from \$6.65 to \$6.90.

Butchers.—Choice butchers' sold at \$6.25 to \$6.50; loads of good, \$5.90 to \$6.20; medium, \$5.40 to \$5.75; common, \$4.75 to \$5.25; inferior, light cattle, \$4.50 to \$4.75; choice, heavy cows, \$5 to \$5.50; medium to good cows, \$4 to \$4.75; canners and cutters, \$2.50 to \$3.50; bulls, \$3.50 to \$5.50.

Stockers and Feeders.—Steers, 900 to 1,000 lbs., sold at \$5 to \$5.25, and a few choice cattle were reported at \$5.50; stockers, \$4.25 to \$4.75.

Milkers and Springers.—Trade was not as active as usual, and prices for the general run of medium to good cows, sold at \$5.5 to \$7.0, but there were two extra quality, weighty animals, reported at \$90 each.

Veal Calves.—Receipts of calves were liberal, and prices remained firm. Choice quality calves sold at \$8 to \$9 per cwt.; medium to good, \$6 to \$7.50; inferior and common, \$4 to \$5.50.

Sheep and Lambs.—Prices were higher for both sheep and lambs, as follows: Sheep, \$1.50 to \$5.25; rams, \$3.75 to \$4; ewes, \$7.75 to \$8.50.

Hogs.—Receipts were moderate, and prices higher. Selects, fed and watered, sold as high as \$8.70, and \$8.40 f. o. b. cars at country points.

Horses.—There is very little doing at any of the sale stables in Toronto. One of the most reliable dealers informs us that prices are too high, and only a few are being sold to the local trade. Buyers from the West will not touch them at present prices. Drafters, 1,600 to 1,700 lbs., \$275 to \$300; drafters, 1,300 to 1,400 lbs., \$200 to \$250; general-purpose horses, \$200 to \$225; wagon horses, \$175 to \$200; drivers, \$100 to \$150; serviceably sound, \$30 to \$90.

BREADSTUFFS

Wheat.—Ontario, No. 2 red, white or mixed, 90c. to 91c., outside. Manitoba, No. 1 northern, 94c.; No. 2 northern, 91c.; track, lake ports: feed wheat, 65c., lake ports. Oats Ontario, No. 2, 33c. to 34c., outside, 38c.; track, Toronto. Manitoba, No. 2, 41c.; No. 3, 39c.; lake ports. Rye—No. 2, 70c. to 76c., outside, nominal. Peas—No. 2, \$1 to \$1.10, nominal, outside. Buckwheat—17c. to 18c., outside, nominal. Barley—For malting, 60c. to 65c.; for feed,

40c. to 50c. Corn—No. 3 yellow, 54c., track, Toronto, all-rail shipment. Flour—Ontario ninety-percent, winter-wheat flour, \$4.05 to \$4.15, delivered. Manitoba flour—Prices at Toronto are: First patents, \$5.30; second patents, \$4.80; in cotton, 10c. more; strong bakers', \$4.60, in jute.

HAY AND MILLFEED.

Hay.—Baled, in car lots, track, Toronto, No. 1, \$13.50 to \$14; No. 2, \$11 to \$12.

Straw.—Baled, in car lots, track, Toronto, \$10 to \$10.50 per ton.

Bran.—Manitoba, \$19 to \$20 in bags, track, Toronto; shorts, \$22 to \$23; Ontario bran, \$20 in bags, track, Toronto; shorts, \$22 to \$23.

COUNTRY PRODUCE.

Butter.—Choice creameries a little firmer. Creamery pound rolls, 32c. to 34c.; creamery solids, 30c.; separator dairy, 28c. to 30c.; store lots, 24c. to 26c.

Eggs.—Market easier. New-laid, 40c.; cold-storage, 26c. to 27c.

Cheese.—Twins, 14c.; large, 15c.

Honey.—Extracted, No. 1 clover honey, 12c.; combs, per dozen, \$2.75 to \$3.

Beans.—Broken lots of primes sold at \$2.70 to \$2.75; and \$2.80 to \$2.85 for hand-picked.

Potatoes.—Market easier. Car lots of Potatoes, 80c. to 85c., and New Brunswick Delawares, 85c. to 90c. per bag, track, Toronto.

Poultry.—Receipts were moderate last week, and prices remained firm, as follows: Turkeys, 23c. to 25c.; geese, 16c.; ducks, 22c.; chickens, 20c., and hens, 14c. to 15c. per lb.

HIDES AND SKINS.

No. 1 inspected steers and cows, 14c.; No. 2 inspected steers and cows, 13c.; city hides, flat 13c.; country hides, cured, 13c.; country hides, green 11c.; calf skins, per lb., 15c.; lamb skins, \$1 to \$1.25; horse hides, No. 1, \$3.50 each; horse hair, per lb., 37c.; tallow, No. 1, per lb., 5c. to 6c.

TORONTO SEED MARKET.

Alsike No. 1, per bushel, \$11.50 to \$12; alsike No. 2, per bushel, \$10.50 to \$11; alsike No. 3, per bushel, \$9.50 to \$10; timothy No. 1, per bushel, \$1.90 to \$2.25; timothy No. 2, per bushel, \$1.25 to \$1.60.

FRUITS AND VEGETABLES.

Apples.—Spies, \$3 to \$3.75 per barrel; Greenings, \$2.75 to \$3.25; Baldwins, \$2.50 to \$3; other varieties, \$1.75 to \$2; Snows are about done for this season; cabbage, 25c. to 40c. per dozen; beets, per bag, 75c. to 80c.; carrots, 75c. to 80c.; turnips, 40c. to 50c.; celery, 35c. to 75c. per dozen, as to quality.

Buffalo.

Cattle.—Prime steers, \$9 to \$9.25; butchers', \$6 to \$8.65; bulls, \$4 to \$5.75; stock heifers, \$4 to \$4.50; shipping, \$7.50 to \$8.75; heifers, \$4.75 to \$8; cows, \$3.25 to \$7; stockers and feeders, \$4.50 to \$6.75; fresh cows and springers, \$35 to \$75.

Veals.—\$4 to \$12.

Hogs.—Heavy, mixed, Yorkers and pigs, \$7.70 to \$7.75; roughs, \$6.80 to \$6.90; stags, \$5.50 to \$6.25; dairies, \$7.60 to \$7.75.

Sheep and Lambs.—Lambs, \$6 to \$9.65; yearlings, \$5 to \$8.50; wethers, \$6 to \$6.50; ewes, \$3.50 to \$6; sheep, mixed, \$4.50 to \$6.25.

Chicago.

Cattle.—Beeves, \$5.80 to \$9.30; Texas steers, \$4.75 to \$5.85; Western steers, \$5.60 to \$7.30; stockers and feeders, \$4.60 to \$7.65; cows and heifers, \$2.85 to \$7.80; calves, \$7 to \$10.75.

Hogs.—Light, \$7.45 to \$7.37; mixed, \$7.15 to \$7.40; heavy, \$7 to \$7.10; rough, \$7 to \$7.15; pigs, \$5.75 to \$7.40.

Sheep and Lambs.—Cash, native, \$4.75 to \$6.25; Western, \$4.85 to \$6.25; yearlings, \$5.00 to \$8.50; ewes, native, \$3.50 to \$7.25; Western, \$4 to \$8.25.

British Cattle Market.

Large, heavy, & medium, British steers, market, 100 to 120 lbs., 10 to 12

Montreal.

Live Stock.—At the cattle markets here last week, choicest cattle sold at 7c. to 7c. per lb., fine being about 6c. to 7c.; good, 6c. to 6c.; medium ranged all the way from 5c. to 6c., and common at 4c. Canners' cattle sold as low as 2c. per lb., and up to 3c. Sales of lambs took place at 7c. per lb., up to 7c. for choicest, while sheep ranged from 5c. to 5c. per lb., and calves sold all the way from \$3 to \$10 each, and up to \$12 for the best. There was a good demand for hogs, and prices ranged from 9c. to 9c. per lb., weighed off cars.

Horses.—Lumber camps have not been contributing much to the demand lately, owing to the absence of snow. Prices held steady, as follows: Heavy draft horses, weighing 1,500 to 1,700 lbs., \$300 to \$400; light draft, 1,400 to 1,500 lbs., \$225 to \$300; light horses, 1,000 to 1,100 lbs., \$125 to \$200, and broken-down animals, \$75 to \$125 each. Choice saddle and carriage animals sold at \$350 to \$500 each.

Poultry.—The supply of poultry was fair, and prices continued practically unchanged. Turkeys sold at 22c. to 23c. per lb. for choicest; ducks at 15c. to 17c.; geese at 13c. to 14c.; chickens at 14c. to 16c., and fowls at 11c. to 13c. per lb.

Dressed Hogs.—The demand for dressed hogs was active, and prices were well maintained. Fresh-killed, abattoir stock sold at 13c. to 13c. per lb., while country-dressed was 12c. to 12c. per lb. for light, and 11c. to 12c. for heavy.

Potatoes.—The market continued firm, and prices were unchanged. Green Mountains sold at 85c. to 90c. per 90 lbs., for car lots, track, Quebec grades being 75c. to 80c., and jobbing lots about 20c. more than these figures.

Eggs.—Notwithstanding the talk of lower and higher prices, quotations continued about unchanged. New-laid stock sold at around 60c., retail, while select eggs were 32c. per dozen in single cases, and No. 1 were 28c., seconds being 22c. per dozen.

Syrup and Honey.—The market for these products held steady. White-clover comb honey, 16c. to 17c. per lb.; extracted, 11c. to 12c.; dark comb, 11c. to 11c.; strained, 8c. to 9c. Maple syrup ranged around 8c. to 8c., in tins, and 6c. to 7c., in wood. Maple sugar was 8c. to 9c. per lb.

Butter.—Consumption is very large, notwithstanding the high price. The market for finest quality ranged from about 30c. to 31c. per lb. for choicest makes, fine butter being obtainable at 29c. to 30c., and undergrades at 26c. to 27c. Dairies were quoted around 25c. to 26c. per lb.

Grain.—Canadian Western oats were still quoted in car lots, at around 43c. to 45c. per bushel, ex store, for No. 2. No. 1 extra feed oats were 42c. to 42c. per bushel.

Flour.—The market for flour showed no change. Manitoba patents, firsts, \$5.40 per barrel, in bags; seconds, \$4.90, and strong bakers', \$4.70. Ontario patents sold at \$5.35; straight rollers, \$4.85 to \$5, in wood, wood being 30c. more than jute, per barrel.

Millfeed.—The market was generally easier. Bran was \$1 per ton less in bags, at \$20 per ton, while shorts sold at \$21 to \$22, and middlings about \$27.

Hay.—Quotations as follows, for pressed hay, carloads, track, Montreal: No. 1 \$14 to \$14.50 per ton; No. 2 extra hay, \$13 to \$13.50 per ton; and No. 2 ordinary, \$12 to \$12.50; No. 3 hay and clover mixture, \$10 to \$11 per ton.

Hides.—Dealers appear to be maintaining prices here, although they allow that the market is very weak, and prices may later be marked down. They were 12c. to 15c. per lb. for Nos. 3, 2 and 1, and 17c. for Nos. 2 and 1, and 18c. for horse hides; 6c. to 8c. for cow and calf hides, and 12c. to 14c. for sheep and pig hides.

GOSSIP.

E. F. Osler, Bronte, Ont., who has a large herd of high-class Holsteins, writes that he has for sale a few richly-bred young bulls, several of which are ready for service, sired by Count Hengerveld, Fayne De Kol, or out of his daughters, by Dutchland Colantha Sir Mona, and all their dams are in the Record of Merit. For immediate sale, the prices will be greatly reduced, as his stables are full. A post card will bring extended pedigrees by return of mail.

G. M. Forsyth, North Claremont, Ont., C. P. R., breeder of Shorthorns and Clydesdales, writes that he has for sale several excellent young bulls ready for service, of the low-down, thick-fleshed type, also a few heifers of the same sort, and out of good-milking dams, as well as fleshing qualities. Sires used have been such as Uppermill Omega (imp.), Superb Sultan (imp.), Dorothy's King (imp.), Brilliant Star, Archer's King, etc.

SALE DATES CLAIMED.

Jan. 17th.—Eastern Ontario Sales Association, Ottawa; pure-bred horses and cattle.

Feb. 5th.—Annual Consignment Sale, Toronto; Shorthorns.

Feb. 7th.—Graham-Renfrew Co., Bedford Park, Ont., at Burns & Shepherd's Repository, Toronto; Clydes and Hackneys.

Feb. 12th.—Fred Bogart, Kettleby, Ont.; Shorthorns.

Feb. 25th and 26th.—Union Stock-yards Co., Ltd., Toronto; Clydesdales and Percherons.

March 5th.—Annual Contribution Sale of pure-bred cattle, at Guelph, Ont.

March 6th.—James Cowan, Seaforth, Ont.; Shorthorns.

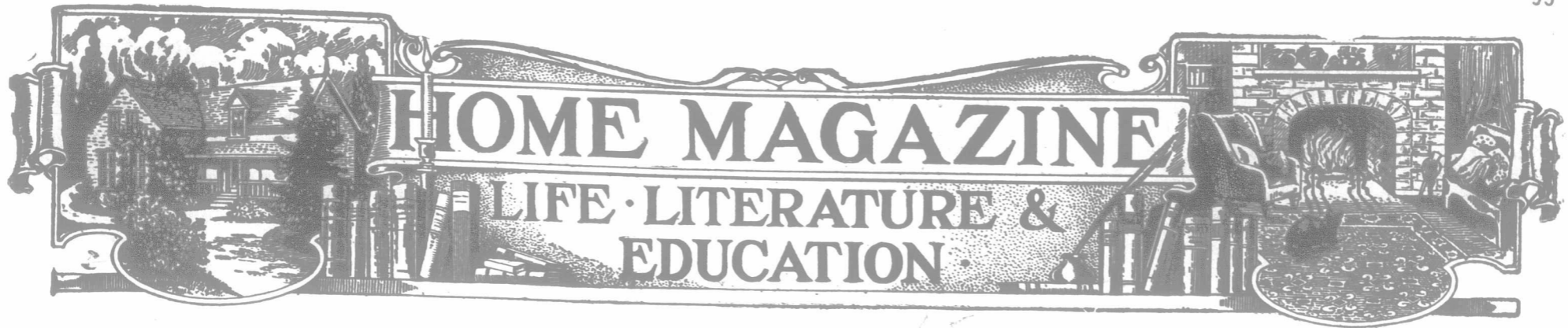
TRADE TOPICS.

Western Ontario readers of 'The Farmer's Advocate' will be particularly interested in the unique exhibition under the auspices of the Elgin Co., Ont., Corn-growers' Association, at West Lorne, on Jan. 22, 23 and 24, with the object of promoting the production of more and better crops of the giant cereal, corn. Other grains are not neglected. An additional attraction will be the poultry exhibition, in which the awards will be placed by Wm. McNeil, of London, while the presence of Prof. C. A. Zavitz, Experimentalist of the Ontario Agricultural College, will be an education in judging the corn and other exhibits. Competition is open to the world. Prize lists may be secured from Thos. W. Sims, Secretary. A. D. McGugan is President. Read the announcement elsewhere, and plan to be there.

Patrick, lately over, was working in the yards of a railroad. One day he happened to be in the yard office when the force was out. The telephone rang vigorously several times, and he at last decided it ought to be answered. He walked over to the instrument, took down the receiver, and put his mouth to the transmitter, just as he had seen others do.

"Hello," he called. "Hello," answered the voice at the other end of the line. "Is this eight-six-one-five-nine?" "Aw, g'wan! Phawt d' ye t'ink Oi am—a box car?"

He met her in the meadow As the sun was sinking low; They walked along together In the twilight afterglow; She waited until gallantly He lowered all the bars, Her soft eyes bent upon him, As red as the stars; Her pretty smile not thanked him, As truth she knew not how, To see her lover's farmer's lad, As she was a dove's form.



The Panama Canal.
A TRIUMPH OF ENGINEERING.

(Continued from issue of January 9th.)

A paragraph taken from the Independent (N. Y.), for December 12th, runs as follows: "Secretary Stimson returned from Panama last week. He saw the great gates of the Gatun locks, which are like the sides of a ten-story office building, swung open for the first time. It was done in a little less than two minutes, by machinery set in motion when Miss Helen Taft pressed an electric button."

This rather graphic bit of description will give some idea of the magnitude of these great gates of the Gatun locks.

As was remarked in the first of this series, some day in July next will witness the pouring of the water through the great channel, almost sixteen months before the time estimated when the plans were first drawn out for the Panama Canal. And now the question is becoming pertinent: How will the opening of the waterway affect the fortunes and the relations of the nations?

To Britain, as may be surmised, the event is one of some importance. She has, it will be remembered, possessions within a short distance of the Canal, among them Jamaica, which, situated upon one of the chief highways leading to the Isthmus, will in future occupy a position of first-class importance. Moreover, the Panama Canal will open a route, more direct than any she has previously had, between Britain and her over-seas possessions, Australia and New Zealand.

To the United States, eventually, the canal is expected to be a veritable goldmine. She is to establish coaling and food-supply stations there, thus killing the proverbial two birds with one stone,—the securing of a large market for her coal and produce, and the effectual prevention of other nations from establishing coaling and other stations with a possible danger of infringement of the Monroe doctrine. Repair stations will also be established by the United States at the canal, while work on the fortifications has been going on for over a year, on Flamenco Island, near the Pacific entrance, and on Toro Point on the Atlantic side. The estimated cost of these fortifications is \$12,475,328. . . Incidentally, the opening of the canal is expected to give a very appreciable impetus to American sea-traffic and ship-building.

Already one question of difference, which, it is to be hoped, will be amicably settled, has arisen between Great Britain and the United States in regard to the canal. On the 24th of August, 1912, President Taft signed a bill for permanent government and operation, following almost to the letter, the suggestions of Col. Goethals, the Chief Engineer, in regard to the matter. By this bill, it was decided that the canal zone shall be open to only such persons as the Governor may admit; that American coastwise vessels shall be exempted from paying tolls; that foreign-built ships owned by Americans may register under the American flag; and that ships owned by railroads shall not be permitted to pass through the canal.

To the clause exempting American coastwise vessels from paying tolls, Great Britain has taken exception, regarding that provision as a direct violation of the Hay-Pauncefote treaty, and, on the 9th of December last, she addressed a formal protest to the United States Government, pointing out this view of the case, and proposing that, in case the difference cannot be adjusted by mutual agreement, it be submitted for settlement by arbitration.

In regard to this matter, it may be interesting to read the words of Mr. Scott, himself an unprejudiced subject of the United States, given in the conclusion of his book, "The Americans in Panama." "Suez," he says, "may be expected to fight for its business by reduced rates. This will not be so formidable as our own (i. e., the United States) short-sighted management. Congress, by exempting American coastwise ships from tolls, deliberately affronted England, the largest prospective patron of the canal, because the greatest maritime nation; and England, it should be remembered, controls Suez. Misguided patriotism alone dictated the exemption of our coastwise ships. They already have a natural monopoly of coastwise trade. If the nation desires to give a special industry a gratuity, it should be done without antagonizing the best customer we are likely to have at Panama—

without reparation for the loss of what now, thanks to United States energy, promises to be a rich Province.

The solving of these problems will be watched with interest.

The Roundabout Club

Study III.

Some time ago there appeared, in a very popular English magazine, a spirited discussion on the subject, "If you were compelled to spend a year alone on an island, and permitted but one book (exclusive of the Bible), what book would you choose, and why?"

The interest with which the various opinions on this subject were followed, has recommended it as a topic for con-

silent, intimate friends that have shared our childhood's joys and sorrows, under whose friendly branches we played, whose gnarled boughs, foliage, and lacy network of twigs endeared themselves through the changing seasons as the familiar lineaments of one beloved. Who has not indignantly protested against the strokes of the woodman's axe, or shed tears at sight of a windstorm's havoc?

It is not idle, the attribution of almost personal characteristics to trees. The splendid elms have a majesty all their own. Oak is only another word for strength, and the tall and stately maples are typical of a sturdy young nation. One has known old apple trees (with very little aid of the imagination) to resemble persons in their gnarled conformity of shape, while in semi-darkness, blackened stubs and stumps will assume all the startling likenesses of a menagerie of animals.

But possibly in this northern land of ours it is more particularly the evergreens that hold the larger share of affection. The cold were harder to endure without their friendly warmth or shelter, and the white snow expanse more monotonous without that relieving touch of dark green.

Only to-day I climbed to the summit of a wind-blown hill where, from the shelter of a giant fir that stretches knotted, brawny arms and upturned palms to the buffeting elements, I admired, for the hundredth time, the great timbered valley lying within the white, encircling mountain peaks.

This—within the precincts of the Rocky Mountain Reserve, that great area of timberland along the eastern slope of the Rockies, comprising some eleven millions of acres that by special Act of Parliament has been set aside as a natural reserve.

The progress of the forestry movement, the attention given it by the press, and, best of all, the awakening interest of the people, is a cause of great joy to the tree-lover. What is the aim of forestry, one asks? At the annual convention of the Canadian Forestry Association, held at Ottawa, that was ably explained by Dr. Gifford Pinchot, President of the American Conservation Association, when he said: "Forestry tries to make the best use of what we have, both for the present and for the future, taking the nation as a whole, and dealing with it, not merely for the present, but throughout its continuance, handling one of its greatest resources as belonging primarily to all the people, and to be used for their benefit." Or, in other words, according to the gifted speaker, the aim is—"the greatest good to the greatest number for the longest time."

Hitherto, man has been at enmity with the forests. Now, he has come to realize the necessity of making overtures of peace, or, a step better, to make amends for past mistakes by planting, where formerly he hewed. Once he thought the forests were inexhaustible, almost; now he realizes the necessity of their preservation, the greatness of the national asset they represent. Hitherto, our stress has been laid largely on agriculture, and true it is that one thousand acres under tillage will support a larger population than the same area covered with trees. But the question is: Will the agricultural land continue to be so productive if the forests are eliminated?

Take, for instance, the great prairie country that stretches away from the Rocky Mountain foothills—what would happen if by any possibility this great timber area were destroyed? A fabulous source of wealth would be wrested from a nation of today and tomorrow.



Portrait of Mr. D. R. Wilkie, Esq.

President of the Imperial Bank, Honorary President of the Canadian Art Club. [From a painting by Mr. Wily Grier, exhibited at Royal Canadian Academy Exhibition, Ottawa.]

England. The American people show an inconsistency in sanctioning this treaty violation, inasmuch as the whole cry for the last ten years has been against special interests and private monopolies fostered by the Government. To deliberately subsidize the shipping business, as much a private industry as Standard Oil, not only violates the spirit of the times, but inevitably will result in a great economic loss at Panama if the present method is continued.

There, at present, the matter stands—a magnificent work, of incalculable value, if well managed, to the shipping of the world, almost completed—England awaiting, on behalf of all nations, the verdict in regard to the tolls question; Colombia

consideration in connection with our F. A. and H. M. Literary Society, hence it has been selected for Study III.

Kindly send your essays so that they may arrive at this office not later than February 7th.

Prize Essays, Study I.

(Prizes Equal.)

"OUR FRIENDS—THE TREES."

By "Honor Bright," Alberta.

It was a happy thought that presented the first subject of our series of studies in a form so unusual—and happy the obvious text-word.

Trees! How we love them! Dear,

a great commercial and industrial principal stolen, a wonderful forest paradise and stock-grazing area destroyed, and the great natural reservoir that is the life of the thirsty prairie, removed. Think you the splendid agricultural prospects of the Westland would remain unaffected—unaltered?

We realize now that a part of this great Dominion of ours was designed and intended by nature to remain in forest. And a good work has already been accomplished by the setting aside of reserves, only, in time, these will be known, not as reserves, but by the less-forbidding name of national forests. The settler, railway, prospector, lumberman, shall no longer be known as "enemies" of the forests, but enlisted as its friends.

Great strides have been made in the advancement of forestry in the United States, while we find that Europe, from long experience, is able to teach us much. From a statement made by our Forestry Branch at Ottawa, in reference to the great crops produced by European forests, we learn that, "the same principle holds true for forestry as for agriculture, the more carefully and intensively the land is handled, the more profitable are the returns." Thus, we see, that forestry is not the leaving of these lands in a state of nature, but it is working hand-in-hand with nature, to guard and care for the forests, to provide means for its future development.

And in the not far-distant future, we Canadians, than's largely to the good work being done by the Forestry Association, will have a permanent forest policy, when all reserves shall have a complete survey, the cost of their maintenance derived from the developments within the reserves.

In conclusion, one might just make mention of another line of work carried on in the Prairie Provinces, by the Forestry Branch. It is the encouragement given to farmers to plant trees even where natural conditions are not favorable. From the nursery station at Indian Head, trees are sent out free to farmers who will plant them, under certain conditions. From statistics, one learns that trees, at the rate of two and a half million per year, for the past two or three years, have been sent out, and altogether about twenty millions have been distributed among the farmers. All possible care was, of course, exercised, to give the trees a fair chance, but it was approximated that, under average conditions, eighty-five per cent. of the trees survived.

Think what this means—a farmer planting trees, not for ornamentation or shelter alone, but (in time it may be actually proved) for fuel purposes, when traffic on the railways is congested, or for sale as railway ties and fence-posts! Truly, the forestry and conservation idea gains ground!

It would be interesting to consider the different varieties at length, or one might even comment upon the proposed scheme for the establishing of a Canadian forest-products laboratory for test purposes or preservative treatment against decay, or experiments with pulp and paper—but the subject is broad and deep.

If one who has gleaned somewhat of knowledge and much of pleasure during a summer's sojourn in the lumberlands of the Rocky Mountains, may express a wish, it is that this rather desultory article may interest someone for further, deeper study, in the fair field of forestry.

CANADIAN NATIVE TREES.

By F. P. Moore, Bruce Co., Ont.

The subject of trees may be dealt with in many different ways, and the amount of license given us makes it a little difficult to know how to treat such a broad subject, so I will limit my observations principally to Canada's native trees which I have seen.

Trees are the longest-lived organisms of the vegetable kingdom, and attain a great and indefinite age, far exceeding that of animals. Trees of which the whole foliage falls off periodically, leaving them bare in winter, are called deciduous; those of which the foliage falls only partially, a fresh crop of leaves being always supplied before the mature leaves are exhausted, are called evergreen. The latter type predominates among Canada's forests.

Forests proper are of great importance

in the general economy of the globe. They greatly affect climate; and their beneficial influence in a physical, economical and hygienic aspect is now receiving marked attention.

Every land has trees indigenous to itself, fitted by its climate and soil to thrive there better than anywhere else. To most Canadians, the tree is a familiar object. Probably to some children of the prairies it may yet be an unknown quantity, but the majority of us are so accustomed to seeing it in its many forms, that we do not always appreciate it as it deserves.

Some one has said: "A tree is a nobler object than a prince in coronation robes." To be very practical, so comparatively few of us have seen a prince in his kingly attire that we can scarcely judge the accuracy of the assertion, but most nature-lovers would be willing to give the tree the benefit of the doubt. Whether standing majestically erect—"towering" is the word so often used, and slightly—life and vigor in every limb; or describing the perfect grace of motion, from the gentle movement of its smallest twig, to the tempest-tossed swaying of its mighty branches and pole, surely it is a thing of beauty! Even in its least attractive garb of winter—speaking now of the deciduous varieties—its delicate tracery against the sky is very pleasing; its spring and summer loveliness casts a spell over even the dullard; while, after it has donned its coronation robes, resplendent in color, and laden with the year's bounty, it, without doubt, is an object of admiration.

In my native county, good old Bruce pine, cedar, hemlock, balsam, oak, elm, basswood, maple, beech, birch, ash, and tamarack, flourished luxuriantly, and the quality of each for building purposes was unexcelled. Wherever any of these were left for shade, or planted for ornamental purposes, their symmetry and general attractiveness was something to be proud of.

It is pitiable that so much of old Ontario's magnificent timber was destroyed in the early days for the sole purpose of getting it out of the way. Regarding conservation of our forests, no part of our Dominion is more worth while than old Ontario, as a greater variety of valuable trees thrive there than in any other place.

I have been privileged to visit the wooded districts of each of the Provinces, and I was struck by the similarity between the timber of New Ontario and that of the Maritime Provinces. The quality of our familiar types in some cases was disappointing. For instance, the maple was small, unhealthy, ill-thriven, and quite often hollow, and usually bird-eye, due, I understood, to the colder climate. One would rarely ever see oak, beech, rock-elm, or basswood; but pine, cedar, balsam, birch, and spruce, were there in their element. With the exception of the pulp industry, the lumber trade in the lower Provinces has depleted to a large extent the marketable timber, and the product now depends largely upon the growth of what was formerly the cull stock, while in New Ontario comparatively little of its first-grade material has been marketed.

As to the Prairie Provinces, the southern portions have but little timber other than scrub-oak, poplar, balsam of Gilead, and Manitoba maple; but the northern parts are timbered similarly to New Ontario, with the exception of an occasional pine and black birch, and the entire absence of maple other than the Manitoba variety. Where used for ornamental purposes, the prairie trees present a somewhat shrivelled appearance, lacking in the vigor and expansiveness of the Western Ontario trees.

But British Columbia apparently tries nobly to bring up Canada's average in forestry, for its growth is phenomenal, the length of many of her trees being double that of those in any of the sister Provinces. The most important varieties are: fir, cedar and pine, and these of a quality far-famed for their strength, durability, and beauty. The extremely fertile valleys, and the long warm season of growth, account for the loppiness of the trees. Among the lesser varieties is to be found the maple, which, in the towns and cities of the coast, is used as an ornament. It is very similar to the Ontario maple, but the leaves are broader, some being measured being thirteen inches across. As

other ornamental tree of British Columbia is the jack-pine of the dry belts.

While one may be impressed by the gigantic monarchs of the valleys, there are vast quantities of shrivelled and diminutive trees upon what is known as the timber line of the mountains, their less vigorous growth due to their battle for existence with the eternal snows.

The fact that our forests are becoming rapidly depleted by the ravages of fire alone, to say nothing of an annual twenty-million-dollar output through the timber industry, is a cause of alarm to those at all interested in our country's assets. The recent introduction of oil-burning locomotives, on some of the British Columbia railway divisions, should certainly prevent a repetition of the enormous losses by fire of past years.

Would not this change be worthy of adoption throughout all the timbered regions of the other Provinces—as one of the chief devastating elements is the coal-burning locomotive?

PROBLEMS IN TREES.

By "Dundee," Perth Co., Ont.

Habitual and daily contact with anything is destructive of the interest with which it may have been originally invested. Unless the point of view of the first encounters be changed, the mind can afterwards find nothing novel to rouse its waning interest. In this way, habits of mind are built up, which imperceptibly exert their influence over us, and may be very difficult to break. These habits are accentuated by the unappreciative neglect of most great writers, for the problems existing in unassuming commonplaces.

So it comes that the stones by the wayside, the grass, the trees, have for us only a superficial or a pecuniary interest. Wonders must be spectacular—great new machines, uncommon and grotesque animals, terrible storming, thundering cataclysms. The common, everyday things, for no other reason than that they are common, are never regarded as world-wonders; yet very often they are no less.

While for the first time looking at the tree in the picture, how many of us saw anything extraordinary about it? And, to be sure, there are doubtless myriads of trees very like it. Perhaps we thought it rather a symmetrical tree, possessed of considerable beauty of form. Perhaps we guessed at the name of its species, made a vague estimate of its size, and, it may be, thought it a magnificent shade tree for the lawn, or to shelter perspiring animals. But as for calling it a universal wonder—preposterous!

In this age of invention we hear much of the marvels of man's works. Wireless telegraphy, the telephone, the phonograph, the aeroplane, and countless other products of human ingenuity, are indeed wonderful, but comparatively simple in construction. On the other hand, the humblest plant or animal of microscopic size, and composed of but a single cell, presents structural problems which have never been solved. How much more marvellous must be the structure of a tree, which consists of many organs with special adaptations and functions!

The complex structure of a tree is partially accounted for when we consider the millions upon millions of natural selections which it has undergone, until, from out the hazy obscurity of past ages, it has arrived at its present state of perfection. Examination of rock formations tells us that very simple forms of life existed in the early stages of the world's history. Gradually, one or another form became more highly adapted to its environment, and so more successful in the battle for existence. Thus, from the gigantic tree forms of the coal period, arose the more highly organized flowering trees of our forests. The latter finally crowded out their weaker progenitors or forced them to adapt themselves to new conditions. So we see that a tree is not an isolated creation, but the product of perhaps millions of years of improvement. And he it noted that this process of improvement, though slow, is certain, since it is carried on according to natural laws.

It is mentioned above that a tree is a creature of the body with many highly specialized organs. Division of labor between these organs is recognized in human societies (see page 163).

Every To-morrow an Opportunity.

The fair, white pages of our New Year lie open before us, and what their record shall be depends very largely upon ourselves. This is a mere truism, one which we surely all know and recognize as a general proposition, but which we too often fail to apply individually.

We are all builders, and not only we ourselves will suffer if our work is defective or left undone, but coming generations may share in the penalty which always follows upon poor workmanship or a weak foundation. In a practical paper on "Jerry-Building," as applied, not only to the houses we live in, but to the characters which we are unconsciously forming for ourselves, the writer says: "We can neither sell nor live on lease our lives; we have to live in structures of our own building, so to speak, therefore it pays best to be thorough, especially in the foundation."

There are three very special departments in our life-work—education, character, and religion—all more or less interdependent upon one another, and Jerry-building in either of these, especially in the case of the children of our country, would end in bitter disappointment to ourselves, and in sad disaster to our best and highest ideals. But,

"Hew by the line, brave workman,
Nor heed complaint, or doubt;
The line was drawn by the Master,
'Tis yours to follow it out.

"Strike by the line and plummet,
Be strong and faithful thy blows;
The shape of the work completed,
The Perfect Builder knows."

And for our comfort and encouragement let us remember that whilst it is for us to work out the details, taking each duty as each day brings it to us, there is a Master Builder who has designed the plan, placed us where we are, and will give us, if we only ask it, all the strength and intelligence needed for our task. Each day, each week, each month, each year, is a new chance given us by God, the unspeakable gift which each day brings us, the gift of Opportunity. Perhaps there never before was an age of such opportunities for service; of doors open for progress; of marvellous developments, as in this year of grace, 1913.

"Wider, and wider yet,
The gates of the nations swing;
Clearer, and clearer still,
The wonderful prophecies ring.
Go forth ye host of the Living God
And conquer the earth for your King."

Be strong, all ye people of the land,
and work, for I am with you, saith the Lord of Hosts.—Haggai ii.: 4.

I have entered upon the first pages of my memorandum book for this year, two messages which have come my way, and which seem to me to be appropriate, not only to a New Year, but to every day of every year, so let me pass them on to you. My first is:

LIFE MEANS LIVING.

"It is a false belief that life necessarily wears itself out as the years go by. Life means living, and so long as we live with our eyes open towards the future, with our ears attuned to catch the melody of the present day, with our hands eager for the new task, with our feet impatient for the unexplored path before us, we shall grow old, but we shall remain young in heart and mind and spirit, which, after all, are our real selves."

My second entry came from an old friend, who mentioned that while visiting in the County of Worcestershire, England, she had seen upon the window of an old, ruined court, in the neighborhood, the motto, "Do, and Dally Not," which had evidently been scratched upon the pane some centuries ago. She enclosed in her letter a little poem in which the incident is recorded with the view to give emphasis to the lesson which it aims to teach us.

Facing, as we are about to do, another year of growing opportunities for service, might not the motto help us to remember that we dare not put off the cares and duties of to-day for a to-morrow which may never be ours?

"DO AND DALLY NOT."

In an old and dusty chamber,
Sheltering from the storm and rain,
Once I saw, in ancient letters,
Graven on the window-pane,
Words in fairest letters written,
Words which ne'er should be forgot,
Life is short, its hours are fleeting,
"Do, and dally not."

Far remote from noise and bustle
Was that chamber, dark and small,
With the scent of dust of ages
Lying thickly over all;
But at length through clinging ivy,
Shone the sun upon the spot,
Where upon the pane was written,
"Do, and dally not."

And it seemed me that the sunshine,
Lighting up those words with gold,
Was the spirit of the writer,
Though the hand was dead and cold.
Dead the hand for many ages,
But the message nought could blot,
Life is short, its hours are fleeting,
"Do, and dally not."

H. A. B.

The Windrow.

CANADA'S PROGRESS.

That the year which has just closed has been one of unexpected prosperity is shown by figures of Canadian trade for that period. The aggregate will be a billion dollars' worth, which creates a record.

In January, the total was \$63,680,443. February saw an increase of one million, while by March it had jumped by \$23,000,000. The increase throughout the summer was steady, and October reached the total of \$101,277,469. November figures now being compiled will go three million ahead of this.

The grand total to November first was \$821,723,347, and, as stated, the total of the calendar year will be a billion.—Selected.

CROMWELL'S REAL NAME.

A masterly little volume, by Mr. Hilaire Belloc, upon the principles of strategy, traceable in all the wars of which England has been the theater, contains the following footnote upon that "really great cavalry commander," Cromwell. "I would not fall into the pedantry of calling him 'Williams,' though this was, of course, his real name, and it was as Oliver Williams that he signed that financial document to which he attached most importance. The name Cromwell had been affected by his family for some years, as adding social distinction to the gigantic wealth which gave the Williams their position in the Eastern counties. It was as the cadet of this huge fortune, accumulated from the spoils of the church, that Oliver Cromwell was introduced to his great career in which we must never forget that he made another fortune by combining military with commercial enterprises."—The Australasian.

A QUESTION OF EUGENICS.

The most ignorant farmer knows enough to breed from the best cows in his herd, or raise chickens from pure-bred hens. The dog fancier understands that it would be the height of folly to breed puppies from some diseased mongrel, and yet the good public sits patiently and allows degenerates, defectives, and deliberate criminals to propagate their kind ad libitum, with the knowledge that individuals of that particular class multiply from two to five times as rapidly as the normal, and that a large percentage will become charges to the State or city institutions, and at public expense. Then, after all the money is expended on food and clothing and to educate them, they will be no good to themselves or those with whom they come in contact, and many will curse the day they were born.—Dr. G. L. Orson, Physician of the New Jersey Reformatory.

SMOKERS AS STUDENTS.

In The Popular Science Monthly, Dr. Frederick J. Pack has been studying the statistics of smoking in college. He finds that in college examinations 70 per cent. of those who receive the highest marks are non-smokers, while of those who receive the lowest marks, 70 per cent. are smokers. Taking athletes as another homogeneous class, he finds that

in the football trials only half as many smokers as non-smokers are successful, and in the case of able-bodied men, smoking was associated with a diminution of lung power by 10 per cent. In every case the evidence was against smoking. And yet college men meet in "smokers."

EDUCATION BY CINEMA.

The advent of the cinema will make education must faster and fuller and broader. The child will see in an hour what often a whole year of teaching might not impart, and the picture of things as they are will be absolutely imprinted on the young and susceptible mind. The idea that the impression will pass because fleeting is without foundation in my opinion, an impression never passes, it is hung in the picture gallery of the mind ready for use when wanted. The dull child who cannot be reached in the ordinary class of 40, 60, or 70 pupils, is immediately arrested by picture teaching; his attention is riveted without any effort on his part, and without tired horsewhipping from the teacher, which leaves him unmoved. Thousands of backward children in the schools will be benefited by the cinema. To the deaf and dumb, and to the mentally defective, education by picture means the removal of one of life's heaviest handicaps.—Walter Reynolds, in the Daily Mail.

THE PUTUMAYO RUBBER-DISTRICT ATROCITIES.

Stuart Fuller, the American consul at Iquitos, who has been making an investigation in the Putumayo rubber district, arrived in New York recently. His report has been forwarded to Washington. His inquiries, it is understood, confirmed the charges made by Sir Roger Casement. He saw and questioned many witnesses or victims of the barbarous conduct of the rubber company's officers. There is abundant proof that natives were burned alive for petty offences. Many were decapitated, and their bodies given to swine as food. Ingenious and horrible tortures were devised for the punishment of natives whose work was unsatisfactory.—The Independent.

A State Factory Investigating Commission, which has been working of late in New York State, makes some astonishing revelations in regard to the age of children employed at such work as snipping beans or sorting peas. Miss Mary Chamberlain, one of the investigators, who worked as an employee in various canneries to get first-hand information, states that some of the canneries employ children of from four years up, many of these working regularly, during the rush season, from 4 a. m. until 10 p. m.

A new hotel in Philadelphia is to have a landing platform for aerial vessels on the roof.

It is a delight to recall that, amid the horrors of the Balkan war, an Englishwoman, Miss Alt, has been working in the cholera camp. She is over sixty years of age, and might have been resting quietly at home, for she has influential friends. Many years ago she was sent out by Lady Dufferin as a trained nurse to found an institute for Turkish mothers. Owing to local conditions this did not succeed. So Miss Alt remained as a governess in Turkish families.

She was with a family living at San Stefano when the cholera camp was established there. The distress touched her, and she plunged into the work, unaided by any other foreign assistance. She is spending her own money, earned by her own efforts, and is nursing the victims with her own hands.

That is the last word in noble service.

Various specimens of "Babu" English are quoted by Mr. G. Cecil in the "Academy," not new in style, but vouched for as authentic. The communication of an ailing ledgerkeeper who craved leave of absence to consult a doctor, has, we fancy, been quoted before: "Sir,—I most respectfully solicit your esteemed permission to absent myself this morning from your place of business

because I have boils as per margin.—Your faithful ledger clerk."

Within a carefully-ruled margin the ingenious sufferer had laboriously inscribed six circles of varying sizes, thus illustrating the painful malady which had overtaken him.

The following application for employment would be difficult to beat as regards mixed metaphor and ornate language:

"Civil Lines Lucknow, May, '09.

"Magnificent Sir

"I entrust to your nobleness of character this my most miserable petition. It has come to this crawling worm's knowledge that your greatness has a vacancy for a merely fundamental post as dispatching clerk in order department of your old-established wine business which I am credibly informed maketh glad the heart of man. O enlightened and pitying Sir if you gifted with some bowel of compassion kindly be merciful to me a sinner, for which act of clemency I will never cease to pray unless prevented by cholera or plague. Fill my cup of sparkling happiness by giving me the job, and by hook or by crook I will make thee glorious by my pen. N. B. Of quite catholic religious tastes I can become Christian if desired. P. S. All my relations being non est I need no leave of absence for attending to obsequies of the defunct ones.

"Your grateful (an advance)."—The Australasian.

Hope's Quiet Hour.

Where is Your Faith.

He said unto them, Where is your faith?—St. Luke viii: 25.

"Some bandy back and forth eternal verities: They say this thing and that, and look about

And prate their faith off pat, while other groping souls Reach up through yearning doubt.

"What is the faith that burns within the heart of man? Can it be summed and stated, spoke out quick Upon demand, as this, and this, and this, as we Might state arithmetic?

"Or is it some far deeper, sweet, diviner thing That will not lend itself to words—a cry,

A broken sob, a hand-clasp in the dark, a glimpse Of JESUS passing by?

The day before Christmas I saw two boys with a hand-sleigh, who were very earnestly discussing an important question, and took no notice of me as I passed them. The eldest boy said: "Do you believe in Santa Claus? I don't."

The other answered, rather apologetically: "Well, in a way I do. In a way I don't, but in a way I do."

I passed on, thinking how the childish half-belief in Santa Claus was very like the half-relief of their elders in God. The boy who asserted his unbelief was evidently not quite sure—possibly he might be mistaken, and Santa Claus might be a real person, after all. So the man who is daring enough to say: "I don't believe in God!" has some uneasy doubts about his unproved and unprovable creed. In the depths of his heart and conscience he knows that God may be a Reality.

Then there are others who believe in God "in a way." They dare not deny His existence, but they are by no means sure of Him. "In a way they believe, and in a way they don't." Such half-hearted faith is soothing to the conscience, but it is not enough to carry a soul victoriously through the hard battle of life. It is not enough to satisfy Him Who says: "I know thy works, that thou art neither cold nor hot. I would thou wert cold or hot. So then because thou art lukewarm, and neither cold nor hot, I will spue thee out of My mouth."—Rev. iii: 15, 16.

But our Lord will never quench the smoking flax of our weak faith. He knows that a faith which is tiny as a grain of mustard seed may grow into a

mighty reliance in God, able to remove mountains. Very tender was His gentle rebuke to the terrified disciples, which I have chosen as a text to-day. They were crossing the lake in a little boat when a sudden tempest lashed the calm waters into raging waves "which beat into the ship, so that it was now full." JESUS was asleep, and He was their only hope, so the disciples woke Him. St. Luke records the hopeless cry of some: "Master, Master, we perish!" St. Mark tells of the despairing appeal to His sympathy: "Master, carest Thou not that we perish?" St. Matthew notes the faith which cried: "Lord, save us: we perish." In the three accounts given us, our Lord's answer varies. To the cry: "Lord, save us: we perish!" He answers with the loving and gentle rebuke: "Why are ye fearful, O ye of little faith?" The despairing appeal for sympathy: "Master, carest Thou not that we perish?" calls forth, first the deliverance from outward danger, and then the surprised question: "Why are ye so fearful? how is it that ye have no faith?" The hopeless cry of absolute despair: "Master, Master, we perish!" is also answered by the sudden calming of wind and water, followed by the question: "Where is your faith?"

They had some faith—their very turning to Him in their distress proved it—but it was not the tower of strength and safety that it should have been.

Perhaps—while nothing troubled them—they thought that they had perfect confidence in their Master. While He was with them no danger could make them afraid. Possibly that was the very reason they were called upon to face the unexpected storm, so that they might find out the weakness of their own faith and bring it to God that it might be strengthened.

Storms of pain, sorrow, or anxiety, sweep over us sometimes. Perhaps we believe in God, "in a way," but make little daily use of the shield of faith. When we say to our Master: "Carest Thou not? Is our pain nothing to Thee?" or sink down in hopeless depression under the heavy cross, instead of taking it up with cheery, resolute goodwill, He still asks in wondering tenderness: "Where is your faith?"

The road looks dark ahead, perhaps, and we see no way out of our overwhelming difficulties. Is there any need for us to indulge in the nerve-destroying, faithless habit of worry? Our Master may seem to be asleep, may seem quite indifferent to our troubles, but it is only seeming: "He that keepeth thee will not slumber."

Perhaps the troubles may seem to spring from faith itself. A mother or wife may almost be ready to despair because her child or husband scorns the faith which is all the world to her. If she did not believe in God herself she would not be broken-hearted about the unbelief of one she loves. But it is the weakness, not the strength, of her faith that causes her despair. God loves His prodigal son far more than she can do, and is all-mighty to save. Sometimes a soul strays so very far from holiness and the Father's home, that the resulting misery sweeps away all barriers with a rush. When sin is an open disease, making the sinner to be abhorred by his fellows and himself, and when only One Saviour in all the universe can be found offering to cleanse from the hateful impurity, the instinct of self-defence may draw forth the cry our Father is so ready to answer: "God be merciful to me a sinner." Men and women who are working among their "submerged" brothers and sisters have their faith in Christ's power to save the lost constantly strengthened by marvellous rescues.

The other day I read an account of "The Inasmuch Mission," which was started about two years ago—in February, 1911. Its avowed object is to minister, for Christ's sake, to all who are needy in soul or body. It was started in the very worst district of a big American city. Who began this work, which has already ministered to the souls and bodies of many thousands of despairing people? Strange to say, it was started by four men who had lived for years in open contempt for the laws of God and man. Three of them had been given a good start, but drink and other vices had dragged them down to the level of the lowest tramp and

vagrant. The fourth had grown up from babyhood in the midst of the foulest vice, and had for years been the helpless victim of cocaine and morphine. They—like the prodigal in the great parable—came to themselves at last, saw their own misery and shame, appealed to Christ to save them, and at once (with a capital of twenty-seven cents between them) started to help others out of the misery they knew so well.

Christ never fails to restore anyone who really turns to Him and stays close beside Him. At my elbow lies Harold Begbie's wonderful book, "Broken Earthenware," which tells the story of many broken lives re-cast by the Heavenly Potter, and enthusiastically dedicated to the service of God and humanity. When we read of hardened criminals, who have been in jail dozens of times, of men and women sunk in the lowest depths of drunkenness and vice, of men who indulged in fits of fury like the fury of a madman, sitting clothed, and in their right mind, we learn that Christ has still His ancient power. When we read how they devote their short hours of leisure to the work of seeking and saving the lost enduring quietly the ridicule of their former "mates," and never despairing of anyone, we have good reason to feel ashamed of our careless indifference and of our faithlessness.

"Where is your faith?" says our Lord. Is it in daily, hourly use? We never say, like the boy about Santa Claus, "In a way I believe, and in a way I don't"; for we base all our hope and joy on our faith. But are we using it? Some of our brothers and sisters are overworked and underpaid. Some of them are herded together so that they can hardly fail to lose all modesty—whole families are in one room. Do we care? In "the least of these" is our faith strong enough to see Christ? Are we looking for Christ and finding Him in every person we come in contact with? Do we realize that any word of discourtesy or unkindness, any neglect of His brethren, hurts Him? Faith is not like a Sunday suit, which will get shabby if used on week-days. The more constantly it is used, the stronger and more helpful it will become. If we act on our faith to-day, it will be easier to trust in God to-morrow. If we are afraid to-day—afraid because we doubt His mighty Presence in our midst—then we shall be more likely to fail in power and courage to-morrow. But Faith is like the manna in the wilderness—it cannot be stored up for to-morrow, but must come fresh from God to-day. We cannot lean to-day on the faith we had yesterday.

Our Master—the Master we profess to believe in—is with us, and can bring us safely through the worst storm. How glad He always is when we trust Him, without a trace of fear, though we can see no way of escape. We can add to the joy of God by being glad in the darkness and storm—glad because we trust Him. If such an opportunity is now before you, don't let it slip past unused. Don't "believe, in a way," but trust God with all your strength.

I wish to thank all who sent me kind Christmas greetings, and especially those who pray for God's blessing on this Quiet Hour. If I fail in delivering His weekly message to our readers, perhaps it is partly because you have forgotten to pray about it.

DORA FARNCOMB.

The Beaver Circle.

OUR SENIOR BEAVERS.

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

A Child Artist.

Dear Beavers,—Before the Christmas atmosphere has quite faded away, I want to call your attention to the picture shown in this Department. It represents, as you may see, angels and Mary, bowing in adoration before the infant Jesus, and you may have seen some representation remotely like this before.

The remarkable thing about the picture is that it was drawn, from pure imagination, by a little girl twelve years of age. Daphne Allen is her name, and

she lives in England, where artists and others who have seen her work, are watching her efforts with great interest.

We often hear of "exhibits" given by artists, grown men and women, and see reproductions of their beautiful paintings in the magazines, but it is a wonderful thing to hear of an exhibit of a child's art work. Last year an exhibit of Daphne Allen's paintings was shown in one of the large galleries in England, and people crowded to see the wonderful productions of her pen and brush, yet Daphne has been by no means spoiled by her fame. She is said to be a thorough child, fond of play, and not a bit conceited or priggish. She never draws or paints on purpose for exhibits, but simply to amuse herself because she loves the work. Any public notice of her art is always brought about by friends.

The picture shown above has been taken from a charming magazine, "The British Bookman." It was but one of a number, all drawn from imagination, with the same gracefulness of line and vividness of fancy. Do you understand what these mean, Beavers? I think some of you do.

If Daphne Allen keeps on as she has

she may write. Have you room for another? My sister is older than I; she is in Grade VIII, and was the only one in school that received honors at our Christmas examinations, having received more marks than scholars who tried Entrance last June.

We had a little entertainment at our school the last day of school. Some children from High School were present, and we had recitations, songs, and readings. Some of the readings were very good, being comical and interesting.

Dear Puck, couldn't you just give our Beaver boys who defend dumb animals a good bear-hug? I could with pleasure. And now with congratulations to those who received prizes in the garden competition, which I watched with pleasure, I will say bye-bye.

NELLIE WYATT (age 10).
Bailymote, Ont.

Dear Puck and Beavers,—I, too, intend to become one of the citizens of Beavertown, and I am sure there is a welcome from you all.

I read your letter in the issue of December 19, Miss Lena Hall, and as you are just about my age, and passed your

are going to mark sharply, to keep up the standard, and make the Beavers do their very best, you know.

Dear Puck and Beavers,—I wrote quite a while ago and did not see it in print, so I thought maybe Puck was angry, but, "no, sir," he is the best man on the go. How many Beavers love poultry? I know I do, for I intend to make my business poultry-raising. I take care of all our fowls. We have three geese, four ducks, and about twenty-five hens of the Barred Rock breed, but I think I will get a better-laying strain, like the White Leghorns, for I think hens of the laying strain are the best layers, and not so much trouble. In winter, the hens should be fed some green-cut alfalfa or clover hay. I think I will stop and give the others a chance, so good-bye.

ALLDON PATTERSON (age 13).
R. R. No. 3, Rockwood, Ont.

Dear Puck and Beavers,—A very happy New Year to you all, and I hope you had a very merry Christmas, and that Santa Claus remembered every one. How would you like to hear about our annual school concert, which was held on Friday evening, December 20th? We did not have a chairman, but the people were given programmes.

First on the programme were two choruses by the pupils. Maybe some of the readers know the songs, "Canada, My Home," and "Canada, My Star." We all were well trained, which was a great help. Next came Semaphore Signaling. This is the signal system that Scouts use. First they did the Alphabet; next, "Williamstown H. S."; then "Welcome." Now came a violin solo, by a gold medalist of the school. This girl is a beautiful player, by note, and her music is much liked. A Handkerchief Drill, by twelve girls dressed in pink-and-green crepe paper came next. Now came a part from Julius Caesar; this part was Act IV., Scene III. Mr. Cooke, our principal, gave a short synopsis of the preceding parts, so that those who had never read the book might know the story. Now came a piano duet, by two of the best pianists in the school. Just before the intermission was the presentation of medals for 1911, the medals for our field-day sports, and prizes for the readers at the Entrance.

After a short intermission there came a chorus, "Sailors' Glee," by some of the pupils. Now came something which was much enjoyed by all—a living statuary, with music. The first scene was the "March of the Men of Harlech," representing war; next, "Faith is the Victory," representing victory, and lastly, "Hymn of Peace," representing peace. The next, "King of the Forest am I," by boys, was much liked. "A Wand Song" came next. In this there were twelve girls dressed in long, cheesecloth dresses, and red-and-blue sashes. We acted according to the words we sang. The boys' chorus which followed was splendid. About fifteen boys dressed in soldier-like costume, sang lively songs, which greatly pleased the audience. A valedictory on her four years in High School followed, by a girl who has just graduated. A solo by a favorite singer came next. Last, but not least, was the song of the Nations. England came on the platform first. There were four girls dressed according to the country they represented, and carrying the country's flag in each part. England sang "Ben Bolt," then Ireland came on and sang "The Minsirel Boy," then Scotland, singing "Annie Laurie," and lastly, Canada, singing "The Maple Leaf." At the sound of "Rule Britannia," we unfurled our Union Jacks (which we had concealed), and after that sang "God Save the King."

MARGERY FRASER (age 14, Form I).
Williamstown P. O., Ont.

Beaver Circle Notes.

A number of letters which arrived before some of those that are published today, are still held over, because those that are held over are especially in season. It would scarcely do to keep them, as your letters waiting until April, would the Beavers?



Pen Drawing by Daphne Allen.

begun, she is sure to be a very great artist some day, and then you will be glad to remember that you knew something of her as a child.

Senior Beavers' Letter Box.

[We are not going to publish any more of the garden competition letters until nearer planting-time, but I want to tell you, just here, that Dorothy Newton has written us that she is going to use part of her prize-money to get seeds and bulbs for her next summer's garden. Viola Campbell also writes that she is delighted with her prize book, and says that she will try for a better prize next year. I wonder how many more of you have begun to make plans.—P.]

Dear Beavers and All,—It is a long time since I visited you last, and Puck so good to me, too, when I do come. He has never put a letter in the basket yet, and I have received two nice prizes, for which I am very thankful.

I suppose you all had a merry Christmas, and merrier New Year. I, too, had enjoyable holidays. I was away for a few days, but spent most of my time at home. My last business came for Christmas, but we were glad to see New Year. I have a few more letters to write, but I will stop for this time. I will write again soon. I am very glad to hear from you all. I will stop for this time. I will write again soon. I am very glad to hear from you all.

Entrance examinations the same time as I did, I wish you to correspond with me.

Don't you think Ivan Grob has great pluck, Puck? You will make quite a poulticer some day, Ivan.

I, like May Taylor and Lloyd Johnson, am a bookworm. I am very fond of Ralph Connor's books, and also of these new books of Robert Service's. What thrilling tales they are! Puck, why don't you start the literature topic with the Senior Beavers? I think it is a grand topic, don't you, Beavers?

Beavers, don't you think a "Beaver Circle" is just the "idea" for young people like us? Puck is a great "thinker" to give it such a good name. I know Puck feels as if we are like Beavers, with all these letters coming in one after another, just like Beavers moving into another settlement. I do pity you, Puck, but do tell us how you keep up? I know I would be nearly wild if I had so much to do (although I do write myself).

Beavers, I wonder how we can find out what kind of a mortal this jolly old Puck is? If any Beavers can solve the problem, do let the rest of us know, for I know I'm not the only one who would like to find out.

You know, Puck, you're not to pay strict attention to all these little personal remarks. Now, I must close, so I will see the Beaver Circle every Sunday.

DON HERON (age 14).

YOL have started the Beaver Circle. It is a very good idea. I hope you will all join in it. I will stop for this time. I will write again soon. I am very glad to hear from you all.

OUR JUNIOR BEAVERS.

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

Junior Beavers' Letter Box

Dear Puck and Beavers,—I am going to make up a story.

Once there was a little boy named Harold who lived with his grandma and grandpa, for his mother and father were dead. Now, it was creeping up near Christmas, and his grandpa was very poor and didn't know what to get for the little boy. His grandpa hadn't any money. On Christmas night Harold hung up his stockings near the stove. In the morning Harold woke up, and his grandma dressed him. He went to his stockings and found nothing in them but a little bird, which had fallen out of the chimney, and had crept into one of them. Harold was very glad. He put the bird in a cage and fed it. After a while the bird began to sing. It got so tame that he let it out to play with him, and it would eat out of his hand, and Harold and it lived many happy years after.

Well, I guess that's all, wishing you a happy New Year.

ELSIE McDERMITT, (Age 9, Class III.)

Fordwich, Ont.

Dear Puck and Beavers,—This is my first letter to the Beaver Circle. My father has taken "The Farmer's Advocate" for a number of years, and would not be without it.

I had a garden, with carrots, cucumbers, and watermelons in it. For pets, I have a dog named Gyp, and my brother has a cat which he calls Tiger. My father and one of my brothers spent part of last summer in the mining region of Porcupine. There they saw a good use for dogs, where the roads were so bad that horses could not be used, and the hauling was done by dog teams. The harness used on the dogs fits so perfectly that any ordinary dog could draw a heavy load. My brother thought that harness of that kind would be both a nice and useful present to bring home to me. They ordered harness and brought it home with them, and many a pleasant hour I have spent with my dog. She seemed to be as proud of her harness as I. She goes through the snow in great leaps with me on the sled, barking as she goes along. As this is my first letter, I will not make it too long. I will close with a riddle.

What is the best way to make a coat last? Ans.—Make the trousers and vest first.

ROSS RIDDELL, (Age 10, Jr. II.)

Douglas, Ont.

Dear Puck and Beavers,—This is the first time I have written to the Beaver Circle. My father takes "The Farmer's Advocate" and likes it fine. I have two sisters and one brother. My brother and sister and I go to school. My teacher's name is Miss Dodds.

Winter is here, and Jack Frost has come and spoilt the beauty of my garden. I have a pet cow; she is red. I can sit on her back, and when I go in front of her she will stick out her nose for me to pet her; her name is Jemima. I can milk her a little bit.

My father has been busy building a stable, barn, and silo; he has the stanchions in the stable. We had lots of fun the first night we put the cows in. We have a litter-carrier, too, and we used to ride around in it before they used it, but we can't now, for it is all dirt from cleaning the stables out.

ADA CALHAM, (Age 8, Book Jr. III.)

Summerville, Ont.

Dear Puck and Beavers,—My father has taken "The Farmer's Advocate" ever since I can remember. I enjoy reading the Beaver Circle very much, and I thought I would like to join. We have a little colt, and it is a dear little thing; we call it Louie. I have a pet goose; she laid seventeen eggs in October. My teacher's name is Miss Baker. I like her very much. My brother Wilbert likes to read about horses. I hope my letter will be published in your paper. My father thinks it is the best paper he gets. We have two little bot-

tailed kittens; they are very sweet. Well, I must close my letter, as it is getting rather long. Good-bye.

ELLA COOK (age 10, Jr. III.), Littlewood, Ont.

"The Farmer's Advocate" Fashions.

HOW TO ORDER PATTERNS.

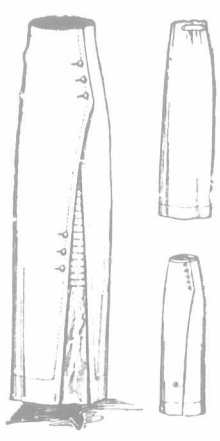
Order by number, giving age or measurement, as required, and allowing at least ten days to receive pattern. Price ten cents PER NUMBER. If two numbers appear for the one suit, one for coat, the other for skirt, twenty cents must be sent. Address Fashion Department, "The Farmer's Advocate and Home Magazine," London, Ont.



DESIGN BY MAY MANTON. 7091 House Gown or Wrapper, 34 to 44 bust.



DESIGN BY MAY MANTON. 7583 Shirt Waist in Mannish Style, 34 to 42 bust. 7582 Six Gored Plaited Skirt, 22 to 30 waist.



7554 Three-Piece Skirt, 22 to 30 waist.



7611 Child's Dress, 2 to 6 years.



7662 Girl's Apron, 4 to 8 years.



7661 Child's Coat, 1, 2 and 4 years.



7669 Fancy Collars, One Size.



7663 Fancy Belted Blouse, 34 to 40 bust.



7673 Fancy Blouse with Vest, 34 to 42 bust.

The Ingle Nook.

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

Dear Friends of the Ingle Nook,—Now that winter is really upon us, do you keep remembering to open doors and windows at frequent intervals?—Not one lone door or window, you understand, but two or more, on opposite sides, so that every cubic inch of air in the house may be changed, the "bad" air being driven out before the "good, fresh air, from out of doors.

It seems much cozier to keep doors and windows shut all the time, but really, after replacing the air in a room, one really feels warmer and the fire burns better than before. The reason for this is that oxygen is required for heat-production, whether in the body or in a stove. When the oxygen in the air of a room has been breathed up or burned up, it must be replaced, or fires will not burn well, nor blood heat as it should. All high-school students know that if a lighted candle be plunged into a jar of carbonic-acid gas (carbon dioxide), it will immediately go out. The same thing happens, to some extent, in a room, because carbon dioxide is the gas thrown out by breathing. If the room were completely filled with this gas, out the fire would go, quick as wink, while every person in the room would die. Carbonic-acid gas is a poison that will support neither life nor combustion. Since, however, the opening of doors, etc., casually, usually introduces a certain amount of good air, even into a badly-ventilated room, this dire catastrophe seldom happens, and fires simply burn badly, while the people who live in such places feel chilly, and, in time, become unhealthy. Colds, pneumonia, pleurisy, and tuberculosis, are the crops plentifully produced by ignorance in regard to the ventilation of rooms.

One of the teachers in the Normal School here gave his class a fairly-good rule for knowing how long the doors should be left open in order that the air may be completely changed. "You know how long it requires to drive every trace of smoke out of a smoke-filled room," he said, "it requires just as long to replace impure air."

Just one more reminder: If you have little children creeping about the floor, remember that they are in especial danger. Carbonic-acid gas is heavier than air, therefore it settles downward, lying in a noxious layer right where the little ones are playing. The longer the room is kept closed the deeper this layer becomes. It isn't much trouble to close the children in another room several times a day while their play-room is being aired, and, if it were, what matter?—The health of the children, as well as of the adults, depends upon the constant breathing of pure air.

Chrysanthemums.

People are sometimes puzzled to know what to do with chrysanthemum plants after they have flowered. By this time, it will be noted, many young shoots have appeared above the soil around the stem of the plant. Bailey, in his Cyclopaedia of Horticulture, recommends making cuttings of these. To ensure success, he says, with a sharp knife take off cuttings from one to two and a half inches long, remove the lower leaves, also the tips of the broad leaves, then plant the slips at once in shallow boxes of clean sand, which must be kept continually wet until the cuttings have rooted. The softer the stems of the slips, the sooner the roots will appear.

When well rooted, transplant to small pots from two to two and a half inches in diameter, which have had drainage material placed on the bottom and been filled with good, mellow soil, pounded in until it is firm. Less water will now be required, but the pots must be kept in an airy, well-ventilated place. When necessary, i.e., as soon as root-

lets appear about the outside of the soil when it is turned out in a ball, transplant to larger pots.

Flower Shows.

Why is it that flower shows are not more general throughout the country? This question is prompted by a clipping from an English paper recently given me by Mr. Charles Fox, an enthusiastic flower-lover of this city. The clipping tells of a Chrysanthemum Show recently held at Dorchester, in the County of Dorset, and, judging from the description given, one must conclude that flower shows in England are regarded, as they should be, as affairs of importance.

The show in question was opened by Mrs. A. T. Brinsley Sheridan. To quote from the report:

"Mrs. Sheridan, instead of contenting herself with saying the 'few words' too usual on such an occasion, made an apt and eloquent speech, worthy of the daughter of the eminent John Lothrop Motley. In the course of it she said:

"When, ladies and gentlemen, your Honorary Secretary having invited me to open this exhibition, I happened to be in London a short time ago, I asked my friend, the Colonial Secretary, who is passionately devoted to gardening, and whose plants and flowers rival those at Kew, what I had better say on such an occasion. His answer was: 'Say that flowers mellow the homes of the people.' (Applause.) That is a sentiment on which we are all agreed, for surely nothing so mellow, beautifies, and humanizes our homes as flowers. (Hear, hear.) The cult of flowers has of late increased enormously, and many of our old favorites have assumed proportions such as we should never have believed possible. Flowers have become with us, I will not say the fashion, because I hate the word, but such a part of our lives that we have learnt to appreciate more fully than ever their manifold beauties in shape, color, and construction. (Hear, hear.) We, the happy possessors of gardens, know what a constant and daily pleasure and comfort flowers are to us. We greet their advent in the spring, and bemoan bitterly their departure in the autumn, when, as the American poet, Bryant, says:

"The melancholy days have come
The saddest of the year,"

which sweep away so many beautiful flowers, except those that we have been able to cultivate and preserve under glass. Let me say, to those who have gardens, that the more flowers they can grow, the more there will be to give away, the more the shops and market-places will be stocked at reasonable prices, and the more the homes of those less highly favored than we are will also be mellowed and beautified. (Applause.) Here we have fine collections of that marvellous floral creation from which this show takes its name. Every year new varieties appear, new beauties, new harmonizing shades and colors; and all these are due to the gardeners who, with so much intelligence, care, and patience, have produced such splendid results. (Applause.) We are also grateful to those who have been willing to send us their cherished possessions, to excite our admiration and to gladden our eyes. Last, but not least, our thanks are due to the working committee, who have spared neither time nor thought in bringing this show up to a high level of perfection. (Hear, hear.) The Dorchester Chrysanthemum Show hereafter will become famous, not only throughout the length and breadth of Dorset, but also in other parts of England. I congratulate the committee on their well-deserved success, and have great pleasure in declaring this exhibition open. (Loud applause.)

"Captain Dymond presented to Mrs. Sheridan a beautiful bouquet of yellow and amber chrysanthemums, and expressed to her the hearty thanks of the committee, both for so kindly coming to open the bazaar, and for her extraordinarily good speech. (Applause.)

.....
The seed catalogues will soon be coming in, with all their inspirations. We should not one inspiration be given to a flower show, or a series of them in your locality this year? The



This Double-Breasted Suit in Fancy Tweed or Fine Serge, made to your measure, delivered anywhere in Canada - UP \$16.50

The same suit made in Canada would cost \$30 to \$35.

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—and there is no string attached to the offer.

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That's one good reason why hundreds of shrewd Canadians send to Catesby, in London, for their suits and overcoats. They know they will get their suit or overcoat made up in the best London or Canadian style (as they prefer) from the finest of English wools, at a price about one-half what they would pay for the same quality suit in Canada.

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With these patterns will come a booklet telling you all about the remarkably successful Catesby "made-to-measure" clothing system.

Read it, and you'll understand why hundreds of shrewd, well dressed Canadians buy their clothes direct from London, and save one-half of what they would otherwise have to pay their local tailor. What's more—the suit is guaranteed to give absolute satisfaction. That's fair, isn't it?

Remember, your suit or overcoat comes right to your door, all the carriage and duty charges paid by us, and it is shipped five days after your order reaches London.

Don't put this matter off—you'll soon be needing a suit. So send now, while the thought is in your mind.

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Dept. Coronation Building, Montreal
C. 160 Princess Street, Winnipeg

Or write direct to CATESBYS Limited, Tottenham Court Road, London, England

HERE'S A GREAT TEST—When you get your patterns, take one to your local tailor. Ask him what he will charge to make a suit of such imported cloth. Then compare his price with that asked by Catesby.

house might very well be utilized for such a purpose, with one department reserved for children's exhibits. A fee of five or ten cents could provide funds for awards, if awards be given. Really, the idea seems not at all difficult.

This is the season for all such planning, so what do you think about it?

.....

By the way, if you have never, hitherto, received a seed catalogue, watch for the advertisements of any of the seedsmen who advertise in "The Farmer's Advocate and Home Magazine," and write to those seedsmen for copies. When you have a seed catalogue, you simply cannot resist having a garden also.

CROCHET MITTENS.

Dear Ingle Nook Friends.—For a number of years past I have been a reader of "The Farmer's Advocate," and I enjoy its pages very much, especially Hope's Quiet Hour, which is certainly a very comforting sermon for anyone to read. Now, my dear friends, I hope you will pardon me for any mistakes I may make, as this is my first letter to the paper. I have read it for the past twelve years, but when you know I am a farmer's wife, and also the mother of eight children, you will understand how it is I have not written oftener. I noticed in December 19th issue, a request for crochet-mitten pattern, and as I have a very good pattern, I thought I would send it in. I have also another pattern for lady's mittens which is very nice, but will not send it just now.

Crocheted Mittens.—Materials, three-thread "Starlight Saxony" and steel crochet hook. Make a chain of 52 stitches. This will fit a lady who wears a 6½ glove. Join the ends of the chain. Crochet 2 rows around in single crochet. On the third row, exactly opposite the starting point, widen by crocheting two stitches in one, then one 11 in, then widen again. Rest of row plain, single crochet. Fourth row—Plain, single crochet. Fifth row—Widen opposite the first widening in the third row, or else, if you wish, widen the rest of the row. Sixth row—Plain, single crochet. Seventh row—Widen opposite the first widening in the third row, or else, if you wish, widen the rest of the row. Eighth row—Plain, single crochet. Ninth row—Widen opposite the first widening in the third row, or else, if you wish, widen the rest of the row. Tenth row—Plain, single crochet. Eleventh row—Widen opposite the first widening in the third row, or else, if you wish, widen the rest of the row. Twelfth row—Plain, single crochet. Thirteenth row—Widen opposite the first widening in the third row, or else, if you wish, widen the rest of the row. Fourteenth row—Plain, single crochet. Fifteenth row—Widen opposite the first widening in the third row, or else, if you wish, widen the rest of the row. Sixteenth row—Plain, single crochet. Seventeenth row—Widen opposite the first widening in the third row, or else, if you wish, widen the rest of the row. Eighteenth row—Plain, single crochet. Nineteenth row—Widen opposite the first widening in the third row, or else, if you wish, widen the rest of the row. Twentieth row—Plain, single crochet. Twenty-first row—Widen opposite the first widening in the third row, or else, if you wish, widen the rest of the row. Twenty-second row—Plain, single crochet. Twenty-third row—Widen opposite the first widening in the third row, or else, if you wish, widen the rest of the row. Twenty-fourth row—Plain, single crochet. Twenty-fifth row—Widen opposite the first widening in the third row, or else, if you wish, widen the rest of the row. Twenty-sixth row—Plain, single crochet. Twenty-seventh row—Widen opposite the first widening in the third row, or else, if you wish, widen the rest of the row. Twenty-eighth row—Plain, single crochet. Twenty-ninth row—Widen opposite the first widening in the third row, or else, if you wish, widen the rest of the row. Thirtieth row—Plain, single crochet. Thirty-first row—Widen opposite the first widening in the third row, or else, if you wish, widen the rest of the row. Thirty-second row—Plain, single crochet. Thirty-third row—Widen opposite the first widening in the third row, or else, if you wish, widen the rest of the row. Thirty-fourth row—Plain, single crochet. Thirty-fifth row—Widen opposite the first widening in the third row, or else, if you wish, widen the rest of the row. Thirty-sixth row—Plain, single crochet. 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Forty-ninth row—Widen opposite the first widening in the third row, or else, if you wish, widen the rest of the row. Fiftieth row—Plain, single crochet. Fifty-first row—Widen opposite the first widening in the third row, or else, if you wish, widen the rest of the row. Fifty-second row—Plain, single crochet. Fifty-third row—Widen opposite the first widening in the third row, or else, if you wish, widen the rest of the row. Fifty-fourth row—Plain, single crochet. Fifty-fifth row—Widen opposite the first widening in the third row, or else, if you wish, widen the rest of the row. Fifty-sixth row—Plain, single crochet. Fifty-seventh row—Widen opposite the first widening in the third row, or else, if you wish, widen the rest of the row. Fifty-eighth row—Plain, single crochet. Fifty-ninth row—Widen opposite the first widening in the third row, or else, if you wish, widen the rest of the row. Sixtieth row—Plain, single crochet. 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Ninety-seventh row—Widen opposite the first widening in the third row, or else, if you wish, widen the rest of the row. Ninety-eighth row—Plain, single crochet. Ninety-ninth row—Widen opposite the first widening in the third row, or else, if you wish, widen the rest of the row. One hundredth row—Plain, single crochet.

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Gentlemen: I enclose \$..... for which send me one box of Holeproof Hose for (state whether for men, women or children). Weight..... (medium or light). Size..... Color (check the color on list below). Any six colors in a box, but only one weight and size.
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Superior Hair Rejuvenator, etc. permanently destroyed with... Princess Rejuvenator is most satisfactory where the hair is not more than half gray and restores light or dark hair to its natural beauty. It is entirely harmless and neither greasy nor sticky; does not rub off or soil the hair. Price 50¢; Six Bottles For \$5.

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The secret of the success of the Sharples Mechanical Milk Separator lies in the construction of the patented... It is the one feature that marks the difference between the success and failure of milking machines—the feature that insures complete satisfaction to the owner and makes the Mechanical Milk Separator the most practical and profitable part of your dairy equipment.

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SAMUEL WIEHL, Sisters, Oregon.

between the widenings twenty-three. Join the mitten where the last two widenings occur by drawing the wool once through on the hook. Crochet the rest of the mitten plain—single crochet until it reaches the end of the little finger. Narrow at each side by skipping one stitch, and draw the wool tightly so as to leave a hole. Narrow only twice in the first row, then one row plain; narrow twice in next row, and after that shape it to the hand by narrowing more frequently in a row until it is almost completed, then narrow every time. When reduced to an opening not larger than the end of the finger, take a large needle, turn the mitten, and finish off neatly by drawing up the remaining stitches, and fasten firmly. Join on the wool again at the opening left for the thumb, and shape it to the size of the thumb, fastening it as before.

WILL'S WIFE. Simcoe Co., Ont.

POSSIBILITIES OF A BEEF SHANK.

(Very kindly contributed by "Stickatit," Lambton Co., Ont.) Now that the high cost of living is agitating the public, the dearest cuts of beef are out of reach of many who wish to economize. The so-called cheap and inferior pieces are fully as nourishing as the more expensive ones, but there are those who judge an article by the price of it—not the quality.

Wipe a beef shank clean; cut off as much of the meat as will cut off easily, put through the meat-chopper, season with pepper and salt, make into cakes, and fry in butter, or dripping, if preferred. Serve hot, with gravy.

Put the remaining shank to boil in a pot, with cold water enough to nearly cover; cook until tender; take out and put liquor through colander and set away to cool. When cool, skim off fat, which makes good shortening for pastry or cake. Take cooked meat off bones, put through the chopper, with onion, if used at once, salt and pepper to taste, mix with beaten eggs or sauce made by bringing some milk to a boil and stirring in some flour blended in cold milk, and cook a few minutes. Some cold porridge left over from breakfast will do instead of the sauce, or two or three tablespoonfuls of thick sweet cream. The bones and gristle will not come amiss in the poultry-house after being ground or burnt in the fire.

Another way of doing a beef shank is to boil until tender, take meat off bones, put in a crock with liquor, season with pepper and salt, and slice cold.

SIGNING BUSINESS LETTERS.

Dear Junia,—In writing a business letter, or endorsing a cheque, how should I sign my name, husband living. "Mrs. Wm. J. Smith," or "(Mrs.) Mary Smith"? Thanking you in advance.

"SIMPLE POLLY." Ontario Co., Ont. When writing a business letter, etc., a married woman should sign her name as she would sign it to any other letter, viz., "Mary Smith," then beneath, a little to the left, "Mrs. Wm. J. Smith."

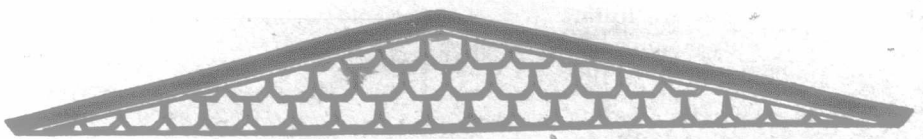
Did you ever hear of the young woman who was asked to endorse a cheque in a bank one day, and was completely at sea as to what was meant? "Across the back, there," the clerk prompted. The little lady, however, was not much more enlightened. She rubbed the end of her pen-handle a moment, then the light of intelligence appeared upon her countenance. Seizing the cheque she, delightedly, wrote across it, "To Fanny, from Fred."

A "GOLDEN WEDDING."

Dear Junia,—I am in difficulty; can you help me out? We intend celebrating our golden wedding, and do not know what to do regarding refreshments. We will have a few in for dinner, and expect several callers in the afternoon.

What would be nice for dinner, and what should be served to callers? It will not be an elaborate affair at all, as we expect to do the work ourselves. Will you also give a few suggestions regarding decorations? Thanking you in advance. AVILIER.

See reply to "Constant Reader," Dec. 19th issue. As the wedding anniversary is the "golden wedding," the decorations



"Eastlake" Steel Shingles will save you money



Just ask yourself this question Mr. Farmer, "Is my barn roof lightning proof—is it fireproof?" It's not a cheerful sight to see your barn—full to overflowing with the season's crop—wiped out by lightning or a spark from the threshing engine. All because of faulty roofing.

A fireproof roof is the only sure protection for your crops, your livestock and implements.

"Eastlake" Steel Shingles are absolutely lightning-proof, fire-proof, storm-proof and vermin-proof—the best and safest roofing for all buildings.

"Eastlake" Metallic Shingles are made of the finest galvanized steel—are easiest and quickest to lay—save labor and expense.

"Eastlake" Shingles cost less than a wooden roof equipped with lightning rods.

"Eastlake" Shingles make the best roofing for you, Mr. Farmer.

Roofs covered with "Eastlakes" a quarter of a century ago are in perfect condition to-day. This is the best guarantee for you.

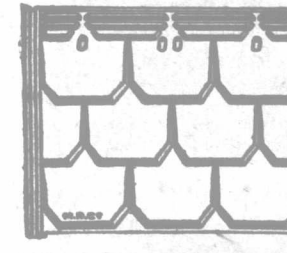
Send for our illustrated booklet, "Eastlake Metallic Shingles." Write to-day—just your name and address.

We also manufacture Corrugated Iron, House and Barn Siding, Metallic Ceilings, Cornices, Eavestrough, Conductor Pipe, Ventilators, etc.

SAFETY

By The Philosopher of Metallic Town

THE "EASTLAKE" STEEL SHINGLE

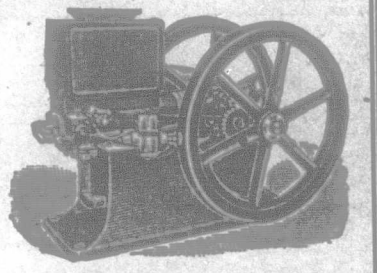


THE METALLIC ROOFING CO. Limited

MANUFACTURERS TORONTO and WINNIPEG

Get a "Monarch" for 1913. It Pays.

STOP hard farm work. This little engine will do it for you. It is made from best materials by experts on each part. Wear is prevented by special big bearings. Breakages almost impossible. Has timer, starting lever, priming cup, fuel sight gauge, iron fuel tank, speed regulator and other high-class features. Made in 1 1/4 to 35 h.p. sizes. Sold so any man may own one.



Write for catalogue, prices, terms and our Red-Circle Folder.

Canadian Engines, Limited, Dunnville, Ont. Sole Selling Agents Eastern Ontario, Quebec and Maritime Provinces: THE FROST & WOOD CO., LIMITED Montreal Smith's Falls St. John, N. B.

A Unique Exhibition

THE ELGIN COUNTY CORN, SEED GRAIN AND POULTRY EXHIBITION The only show of the kind in Canada, will be held at West Lorne, Ont., January 22, 23 and 24, 1913

One thousand dollars offered in prizes for corn, wheat, oats, barley, peas, beans and all kinds of seeds. Also a great array of silver cups, trophies and shields offered for the best exhibits of the various grains and seeds. Every facility afforded for the sale of seed, corn and grain. Prof. C. A. Zavitz, of the Ontario Agriculture College, will place the awards on grain, and Wm. McNeil, of London, will judge the poultry. The show will be held in the large building of the West Lorne Wagon Works. Hot meals and lunches served. Single fare on all railways. The fair is under Government patronage, and the classes open to the world.

THOS. W. SIMS, Secretary West Lorne, Ont. A. D. MCGUGAN, President Rodney, Ont.

BEST RESULTS ARE OBTAINED FROM ADS. IN "ADVOCATE."

Power vs. Bulk.

A pound of dynamite will "raise" more than ten pounds of gunpowder. A White Swan Yeast cake will "raise" more bread than any other yeast cake. It is strength, not size, that counts. Send for free sample. White Swan Spices & Cereal Co., Ltd., Toronto.

BULKLEY TRAINING SCHOOL FOR NURSES of the N.Y.S. & C. HOSPITAL. This school is prepared to receive a limited number of pupils for training in general Medical, Surgical, Obstetrical and Dermatological Nursing. Course two and one-half years; remuneration \$854. Applicants must be between the ages of twenty and thirty-five years, and must have eight years' grammar grade instruction and one year's high school or its equivalent. Apply to Superintendent at 301 East 10th Street, New York City.

HEADACHE

INSTANTLY RELIEVED BY THE OLD
**DR. MARSHALL'S
CATARRH SNUFF**
25¢ AT ALL DRUG STORES OR SENT FREE
PAID BY C. H. NEITHAMER, CLEVELAND, OHIO



ALL kinds of Farms—Fruit Farms a specialty.
W. B. Calder, Grimsby.

CREAM WANTED—We guarantee highest prices, correct weights, accurate tests, prompt returns. Write for free cans and try a few shipments. Toronto Creamery Co., Limited, Toronto.

EXPERIENCED men, married couples, require positions. Send full particulars. Farm Employment, 140 Victoria Street, Toronto.

FARM for Sale—100 acres first-class farm land inside corporation of Village of Exeter, Huron Co. Well drained and fenced, 2-storey brick house, full cellar, 8 rooms, heated, ideal coal furnace, one barn on wall, 48x50; one barn adjoining on wall, 36x60; hog-pen, brick, 30x20; drive shed, 30x20; never-failing well, windmill attic ed; hard and soft water in house and well water all through barns. Ideal location for dairy farm. Good opening for selling milk in the town. Address G. J. Dow, Exeter, or Gladman Stanbury, Exeter.

FARM Wanted—Wanted to rent, 150 to 200 acres for mixed farming, west of Toronto. Farmer, care of Review, Paris, Ont.

VANCOUVER ISLAND, BRITISH COLUMBIA, offers sunshine, mild climate; good profits for men with small capital in fruit-growing, poultry, mixed farming, timber, manufacturing, fisheries, new towns. Good chances for the boys. Investments safe at 6 per cent. For reliable information, free booklets, write Vancouver Island Development League, Room A, 23 Broughton St., Victoria, British Columbia.

WANTED—Cash paid for Military Land Grants in Northern Ontario. Please state price and location. Box 88, Brantford.

WANTED—First-class farm hand; single; must be good milker, and good with horses. Good wages and steady work to a good man. Apply, Henry Stead, Wilton Grove, R. R. 2.

WANTED—Farmer and wife to assist in management of farm. He must be thoroughly experienced in all farm work and have knowledge of good stock. She must be good housekeeper and understand care of milk. Both must be willing to do the practical work on the place. Engagement for April 1st. Apply to Frank Cockshutt, Brantford, Ont.

WANTED to Rent—About 100 acres, good land, good buildings; in County of Middlesex or Perth, with option of buying. Address: Farmer, Farmer's Advocate, London.

WANTED—CUSTOM TANNING—Send me your cattle and horse hides, and have them tanned and made into robes and coats. Deerskins tanned for buckskin, also made into mitts and gloves. We tan all kinds of hides, skins and furs. Send them to me and have them dressed right. B. F. BELL, DELHI, ONT.

Girls Wanted

for Biscuit Departments. Wages to start five dollars per week and over. When experienced can make big wages. We can give a large number of girls employment. This is a good opportunity for girls from the country to start work, and by spring will be making from eight to twelve dollars per week. Apply

The McCORMICK MFG. CO., London, Ont

Young Men

FOR ONTARIO FARMS
Arriving February, March, April. Apply:

BOYS' FARMER LEAGUE,
Drawar 126. Winona, Ont.

OWING to his heifers coming of breeding age, will sell or exchange my stock bull, Newton Ideal (imp.). Sure, quiet and active.
J. A. CALDWELL, Box 10, Shanty Bay, Ont.

I can supply
BEECH AND MAPLE SAWN TIMBER
up to 37 feet long, suitable for barns, etc. Send for prices. Also hemlock lumber. Chatsworth, Ont.
Saw, Shingle and Mangol Roller Mill.

should be, of course, in yellow as far as possible. Yellow flowers are scarce just now, since the chrysanthemums have gone, but masses of greenery, with yellow ribbon, may be substituted; fruit salad may be served in orange-skins, and cakes may be covered with yellow icing. To the callers in the afternoon, serve cake and tea.

When Eggs Are Scarce.

Apple Sauce Cake.—One-quarter cup lard, $\frac{1}{2}$ cup butter, 1 cup raisins, 1 cup currants, 1 cup brown sugar. To this add 1 cup apple sauce in which has been stirred 1 teaspoon soda, then add 2 cups flour, $\frac{1}{2}$ teaspoon cloves 1 teaspoon cinnamon, $\frac{1}{2}$ teaspoon salt, and peel and nuts if desired.

Another.—Cream together 1 cup sugar and $\frac{1}{2}$ cup butter. Add 1 cup sweetened apple sauce in which has been stirred 1 teaspoon soda. With $1\frac{1}{2}$ cups flour; sift 1 teaspoon of mixed nutmeg, cloves, and cinnamon. Beat this with other ingredients and add lemon peel, chopped nuts, or raisins, or a mixture of all three. Bake in a moderate oven.

Eagle Cake.—One cup sugar creamed with one-third cup butter; 1 cup sour milk, 1 teaspoon cinnamon, $\frac{1}{2}$ teaspoon cloves, $\frac{1}{2}$ nutmeg, 1 teaspoon soda, 1 cup chopped raisins, 2 cups flour.

A Light Cake.—One cup sugar, 1 cup milk, beaten to a batter with 2 cups flour sifted with 2 teaspoons baking powder. Add 1 teaspoon lemon or vanilla, and beat well, then beat in 5 tablespoons melted butter.

Eggless Fruit Cake.—Two cups buttermilk, 2 cups brown sugar, 2 cups raisins, 2 cups currants, $\frac{1}{2}$ cup butter, $1\frac{1}{2}$ teaspoons soda, $4\frac{1}{2}$ cups flour, spice to taste.

News of the Week.**CANADIAN.**

The Duchess of Connaught was again, last week, taken to the Royal Victoria Hospital, Montreal, for treatment. She is improving.

As a result of the voting last week, there are now 488 "dry" municipalities in Ontario, leaving 340 with licenses.

The Hydro-electric by-law carried in Owen Sound, North Bay, Beaverton, Elmira, Goderich, Markham, Sarnia, Stayner, Uxbridge, Winchester, and Waterford.

A new railway, to be called the Canadian Central and Labrador, has been planned to run from Cochrane to Cape St. Lewis.

BRITISH AND FOREIGN.

The three great States of Spanish-America, Argentina, Brazil, and Chile, are to form a union for self-preservation. It will be called the A. B. C. South American Confederation.

Alfred Deakin, leader of the Opposition in the Commonwealth House of Representatives, Australia, has resigned, owing to ill-health.

Forty million dollars' worth of oranges and lemons were ruined by frost last week in Southern California.

Turkey has refused to concede Adrianople, but the Porte is being pressed by the Powers to come to a settlement.

Viscount Haldane has announced that the Government of Great Britain is about to undertake a colossal scheme for improvement of education in the mother country, beginning with the elementary grades.

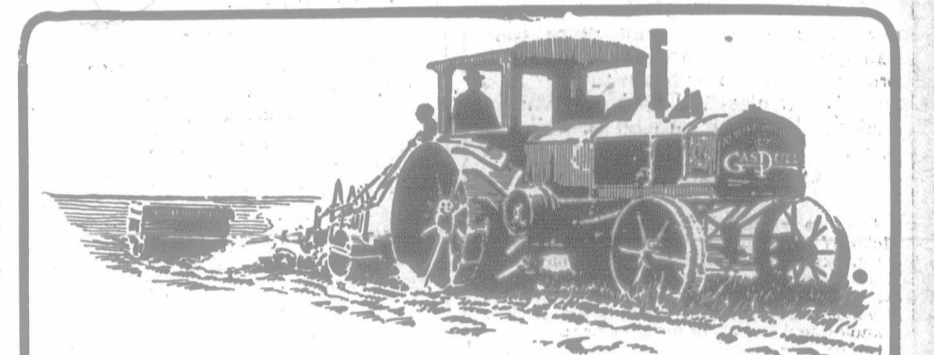
Thomas A. Edison has announced the completion of a motion-picture machine that can talk. It is to be called the kinetophone.

"Its Delicious Drawing Qualities"

Are manifested in millions of Teapots daily

"SALADA"

THE TEA OF STERLING WORTH
BLACK, MIXED or GREEN—Sealed Packets Only
FREE Sample Mailed on Enquiry 03 Address: "SALADA," Toronto

**A Rest for Your Wife**

Have you thought what a few hours pleasure a day would mean to your wife? How she would enjoy it—how much good it would do her? She can have it when you replace hired hands with a

GASPULL

Tractor

15-30 h.p.

This tractor will cut down your work and build up your profits. It will make all your work easier and do it better. It will do your work when it should be done.

A GasPull Tractor will cut out a lot of hired hands—your wife will have fewer beds to make—fewer dishes and clothes to wash. Think it over—see if a GasPull wouldn't help both you and your wife.

We have a Data-book, No. 352—it's full of valuable hints about farming and the GasPull. A card will bring it to you.

RUMELY PRODUCTS CO.
(Incorporated)

Power-Farming Machinery

Toronto, Ont.

467

POULTRY AND EGGS

Condensed advertisements will be inserted under this heading at three cents per word each insertion. Each initial counts for one word and figures for two words. Names and addresses are counted. Cash must always accompany the order for any advertisement under this heading. Parties having good pure-bred poultry and eggs for sale will find plenty of customers by using our advertising columns. No advertisement inserted for less than 50 cents.

BARRED Rocks—Cockerels and pullets from L. Patrick, Ilderton, Ont.

BARRED Plymouth Rocks exclusively. Offer ring stock from my Toronto winners very reasonable. Leslie Kerns, Freeman, Ont.

BARRED Rocks and White Wyandottes, single mated. Prices low; satisfaction guaranteed. Write for particulars. John Pringle, London, Ont.

CHOICE Rhode Island Reds, White Wyandottes, S. C. Brown Leghorns. Wm. Bunn, Birr, Ont.

CHOICE WHITE WYANDOTTE Cocks, Cockerels, Hens. Pens not related. Rose Comb Reds, Cocks, Cockerels. Satisfaction guaranteed. D. McTavish, Chesley, Ont.

HAMBEN AND TOULOUSE geese, Pekin ducks, White and Barred Rocks, S. C. White, Brown, Buff Leghorns, Black Minorcas, White Wyandottes, Rhode Island Reds, Blue Andalusian, White and Buff Orpingtons, and Pearl Guineas, Pigeons. Walter Wright, Coburg, Ont.

EXTRA Choice S.-C. Brown Leghorn cockerels (Becker strain), \$2 each. David A. Ashworth, Maple Grove, Ont.

FOR SALE—Single-comb White Leghorn cockerels and pullets. Good birds, \$2 a pair and up. Eggs for hatching. R. Hughes, Ideal Poultry Yards, Collingwood, Ont.

FOR SALE—S. C. Black Minorca cockerels. W. F. Carpenter, Ivy, Simcoe Co., Ont.

INDIAN Runners and White Wyandottes. W. D. Monkman, Newmarket, Ont.

PURE-BRED Bronze turkeys, heavy toms and hens, prices reasonable. C. A. Powell, Arva, Ont.

We again lead with the best egg-producing strain of Barred Rocks. A grand lot of cockerels for sale. Central Ontario Poultry Yards, Colborne, Ont.

WHITE Orpingtons—Winners at leading sale shows, greatest layers known. Stock for sale at reasonable prices. Eggs in season. Write me to-day. L. A. Glessman, Conneautville, Penna.

WHITE Rocks—Guelph winners. Booklet free. John Pettit, Fruitland, Ont.

YEARLING Toulouse geese, large-boned; bred fight. Trio \$12. L. W. Hoffman, Ridgetown, Ont.

Stump Pullers, earth augers, well-boring, self-opening and shutting gates and doors, etc., manufactured. Write

469 Burnside Road, Victoria, B. C.
Special 5-year arrangements to settlers for stump puller outfits; capacity up to 36-inch green stumps, 6-ft. trees; large area cleared at each sitting; 30 minutes to rest. Prices \$50 and upwards.

PLEASE MENTION THIS PAPER.

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CO.

467

Leghorn cockerels
David A. Ash-

White Leghorn cock-
birds, \$2 a pair and
eggs, Ideal Poultry

Minorca cockerels.
W.
nce Co., Ont.

Wyandottes. W.
Ont.

s, heavy toms and
C. A. Powell, Arva,

best egg-producing
s. A grand lot of
ario Poultry Yards,

winners at leading
known. Stock for
s in season. Write
neautville, Penna.
winners. Booklet
land, Ont.

large-boned; bred
Hoffman, Ridge-

augers, well-boring,
up, cables, fixtures,
es and doors, etc.,

Victoria, B. C.
settlers for stump
-inch green stumps,
at each sitting; 30
nd upwards.

HIS PAPER.

The Roundabout Club
Concluded.

ciety as a great economy. It increases
both the skill of the individual and the
efficiency of the whole body. This prin-
ciple is brought to a high degree of
perfection in a tree. The leaves require
much air and light for the work they
have to do. They are therefore very
large and thin in the majority of trees.
Being light in weight, the tree can easily
support a large number of them. The
little rootlets and root hairs have ex-
tremely thin and delicate walls. They
must absorb water and soluble foods
from the soil, and at the same time
keep back impurities. The tip, or cap
of the root, on the other hand, is hard
and thick. It has to force its way
through the earth as the root becomes
longer. The stem, or trunk, is very
stiff, hard, and strong, but at the same
time, porous. It supports the upper
organs of the tree, and forms a conduit
by which food may pass from the roots
upward, and from the leaves downward.
Of course, not one of these could pos-
sibly do the work of another.

When the seed of any of our trees falls
into suitable soil and germinates, two
distinct parts may be observed, one
growing upward, the future trunk and
branches, and the root pushing its way
deeper down into the soil. Under all
conditions, whether light be present or
not, this relation will be preserved.
What is the stimulus that regulates these
phenomena, and how does it act? The
most careful microscopic analysis has
utterly failed to give a satisfactory an-
swer to these questions.

The effect of light on our trees, and
indeed on all plants, is very marked.
The leaves are usually set so as to re-
ceive the maximum of light, and if for
any reason the light should be shut off
on one side, the leaves on that side will
very soon change their position to suit
the altered conditions. In time, the
whole tree will be affected, causing a
lean to one side. For this reason, trees
which grow close together have long,
straight, bare trunks. The light comes
chiefly from above. Here again, in the
relation of plants to light, lies a prob-
lem which the most learned scientist has
not adequately solved.

These are unexplained physical facts in
connection with a common tree. In its
life activities are even more abstruse
problems in chemistry. When we think
of the science of chemistry, we are apt
to see in imagination a druggist's shop
with its rows of bottles, acids, and all
kinds of evil-tasting salts. In other
words, we think of inorganic chemistry,
or that which is not related to life
processes. We would class such sub-
stances as wood, seeds, foods of all
kinds, as of an entirely different order,
as indeed they are, but for one reason,
only—their extraordinary complexity.
It is only in recent years that science
has applied itself to the study of these
compounds.

Only in the intricate laboratory of
living things can the majority of these
substances be produced. The delicate
odors of flowers, the flavor of the nectar,
the coloring of the flowers, and of the
leaves in autumn—all these are chemical
compounds, so extremely elusive that
they have been isolated.

The essential constituent of all living
cells is the remarkable substance called
protoplasm. It has been analyzed, but
little is gained by this means, for, it
must be remembered that it is not living,
but dead protoplasm which undergoes the
analysis. It is the mysterious quantity
called life which is the governing and
selective power by which all the activi-
ties of a living tree are carried on.

It is not necessary to go to the full-
grown tree to find the seat of this
power, and the qualities which determine
the individuality of a tree, or species of
trees. In the ripened seed lie dormant
all the characteristics of the parent
plant, which are transmitted to the next
generation. Indeed, if we examine this
seed, we can eliminate a large part of
merely a store of food, and again we
can eliminate till we get down to the
protoplasm of a few cells, and their
governing nuclei. In one of these
nuclei, itself of microscopic size, lie the
powers and promise of the future giant
of the forest. These determinative
qualities are called rudiments. Their
nature, however, can only be surmised.
One of the most remarkable things

See that the Piano you are thinking
about buying is par value for your money

BUYING pianos on faith may be popular, but it's not good business. We always
strongly advise a careful examination of the best pianos made before buying. Even
when people are inclined to buy the Sherlock-
Manning we advise them to investigate other makes
—to compare our pianos with the best made and form
their own conclusions. We know the

Sherlock-Manning
20th Century Piano

"Canada's Biggest Piano Value"



Style 70

possesses every feature making for piano excellence—
that its sweet singing tone is lasting—that the instru-
ment is built to endure.

Our factory is thoroughly modern in every
way—equipped with the latest labor-saving
machinery, and our employees are highly-
specialized proficient men who joy in their
work. This combination assures the high-
est possible piano value at the lowest cost
consistent with quality.

But, we have some inside information
which we would like you to consider before
buying a piano. We can show you how you
may own a Sherlock-Manning 20th Century
—one of the world's best pianos—and
yet save considerable money.

Write us direct, and we will tell you where you can see a Sherlock-Manning—how
you can save \$100, and yet be perfectly sure that your piano is par value for the money

Sherlock-Manning Piano & Organ Co.

LONDON

(No Street Address Necessary)

CANADA

HACKNEY
AUTO
PLOW
Plowing
Seeding
Discing
Harrowing
Harvesting
Threshing
Wood Sawing
Orchard Work
Road Grading
Feed Grinding
Cutting Ensilage
Hauling Loads
Etc.
DO your Plowing, Seeding, and all other work on the farm where
power is needed, with a HACKNEY AUTO PLOW—the great One-Man machine—
universally known as the greatest labor-saving device for the farmer ever invented,
the only tractor that can be worked economically on farms of average acreage. It eliminates
drudgery, solves the vexatious labor problem, and enables you to do your work better
and cheaper—when weather, soil and crop conditions are all in your favor.
The Hackney Auto Plow may be equipped with disc
plow, disc harrow or road grader attachment—attached
in same position as mould-board plows shown above.
Before you buy a tractor we want you to investi-
gate the Hackney Auto Plow—the one-man outfit.
Our catalogue, describing the machine in detail, photo-
graphs and testimonial letters from users will be mailed
on request.
Hackney Manufacturing Company
618 Prior Avenue
St. Paul, Minn.

about a plant are the cells. A tree is
an aggregate of millions of them, yet
each one has its special place in the
economy of the tree. Some, with their
thickened walls, form strengthening
tissue; some form various kinds of con-
ductive tubes; others are concerned in

the intricate processes of reproduction;
still others in the collection and manu-
facture of food; yet, in spite of the
greatest diversity of form and function,
all these cells are blended into one beau-
tiful and harmonious whole.
Although the economy of the tree will

bear the closest scrutiny, there is still
visible a different purpose, illustrative of
the truth, that the earth was made for
man. The forms of the leaves, the
brilliant autumnal color effects, the
quiet beauty of the whole tree—is there
not in these things an indication of a

COMFORT SOAP

The Standard of Cleanliness—
All Real Soap.

"IT'S ALL RIGHT"



POSITIVELY the LARGEST SALE in CANADA

CAMP

'Camp' Coffee is hailed with exclamations of delight

Pure!
Delicious!
Refreshing!

made in a moment. Don't forget the name 'CAMP.'

R. Paterson and Sons, Coffee Specialists, Glasgow.

COFFEE

Maple Syrup Makers!

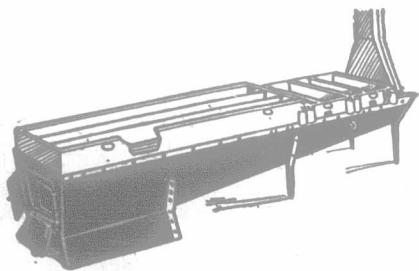
ENTER THIS CONTEST
\$500

IN GOLD CASH PRIZES CUT OUT THIS COUPON

Why Not Be a WINNER in This Contest?

We are giving away \$500 in gold, cash prizes, to users of the GRIMM "CHAMPION" EVAPORATOR. Full particulars will be mailed on receipt of above coupon.

The competition will take place during the last two weeks of April, and samples of syrup and sugar received will be placed on exhibit in the show windows of the "Montreal Star." Every purchaser and user of the Grimm "Champion" Evaporator may take part in this contest. Now is the time to properly equip yourself to make high-grade syrup and sugar—high priced, and therefore profitable. Do it now, before the sap runs.



State number of trees you will tap, and we will give you prices on a suitably-sized outfit. Address all, enquiries:

PRIZE CONTEST
GRIMM MFG. CO., Limited
56-58 Wellington Street
MONTREAL

(Don't forget coupon)

MENTION THE FARMER'S ADVOCATE WHEN WRITING ADVERTISERS.

dual purpose that is more wonderful than all else? The depth of the problems, and the underlying mysteries in a tree, or any work of nature, are well summed up in the well-known little verse of Tennyson:

"Flower in the crannied wall,
I pluck you out of the crannies,
I hold you here, root and all, in my hand,
Little flower, but if I could understand
What you are, root and all, and all in all,
I should know what God and man is."

A PRACTICAL VIEW OF TREES.

By "Dufferinite," Dufferin Co., Ont.

I have been an interested reader of your paper for several years, and would like to join your F. A. and H. M. Literary Society, and so I am sending you an essay on your opening subject, taking as my subject, "Farm Forestry."

There is no phrase of forestry as essential to the general prosperity of the country, as well as productive of direct influence on the conservation of its great water sources, nothing so practical in its effect on the greatest number of our population, as farm forestry.

The farmer has only, within a comparatively short time, awakened to the value of trees, not only as a source of fuel, especially since coal is becoming so dear, but as a protection and as a source of beauty and comfort, beyond anything else we can name.

Woodlands as a means of protection are of great interest to the agriculturist. Houses on the farm protected by trees require less heat in the winter. Stock in protected barns and barnyards, undoubtedly require less food.

Beneficial effects to field crops are also of great importance. A field of wheat or clover protected by woodlands will have a great advantage over the unprotected field. Snow falling on the protected field gives a mantle which shields from sudden changes, and lessens the danger from frost. In the spring, the snow is taken off by evaporation, caused by wind and sun. If a mantle of snow can be kept on a field of clover or wheat a few days longer in the spring during the sudden changes of temperature, it will be of great benefit to the crop.

Woodlands on the banks, and at the head waters of streams, will better regulate the flow of water, as well as protect the banks from serious erosion. Great quantities of rich soil are annually carried away by spring floods, and those who examine the public accounts will be surprised at the immense sums of money spent each season in digging out this lost land from the harbors of the Dominion.

The wood-lot, beside tempering and protecting the farm, supplies it with useful and valuable material. Once established, the wood-lot, if properly handled, will reproduce itself and supply, not only the fuel, but the timber and lumber required in the upkeep of the farm. The poorest portions of the farm, that unfit for tillage, may thus be made to bring in reasonable returns.

A farm supplied with a wood-lot, a windbreak for the orchard and buildings, and shade trees along the road, will not only benefit the farm as we have been describing, but it will so beautify it as to make life doubly pleasant to those upon it, and also to the community in which it is placed.

"A thing of beauty is a joy forever"—and what is more beautiful than a fine farm, with rows of trees along the roads and up the lanes. The value of that farm, if by any necessity it has to be put on the market, is greatly increased by such adornment, which costs very little to the farmer.

The moral influence of beautiful trees exceeds the pleasure they afford to the eye, and outweighs the consideration of dollars and cents. The sweet impressions made by their beauty and shade on childhood, are often echoed back by the soothing memories of age.

"The green trees whispered low and mild,

It was a sound of joy!
They were my playmates when a child,
And rocked me in their arms so wild."

Rebecca of Sunnybrook Farm.

By Kate Douglas Wiggin.

Serial rights secured from Houghton Mifflin Publishing Company, New York.

CHAPTER XIII.

Snow-white; Rose-red

Just before Thanksgiving the affairs of the Simpsons reached what might have been called a crisis, even in their family, which had been born and reared in a state of adventurous poverty and perilous uncertainty.

Riverboro was doing its best to return the entire tribe of Simpsons to the land of its fathers, so to speak, thinking rightly that the town which had given them birth, rather than the town of their adoption, should feed them and keep a roof over their heads until the children were of an age for self-support. There was little to eat in the household and less to wear, though Mrs. Simpson did, as always, her poor best. The children managed to satisfy their appetites by sitting modestly outside their neighbors' kitchen doors when meals were about to be served. They were not exactly popular favorites, but they did receive certain undesirable morsels from the more charitable housewives.

Life was rather dull and dreary, however and in the chill and gloom of November weather, with the vision of other people's turkeys bursting with fat, and other people's golden pumpkins and squashes and corn being garnered into barns, the young Simpsons groped about for some inexpensive form of excitement, and settled upon the selling of soap for a premium. They had sold enough to their immediate neighbors during the earlier autumn to secure a child's handcart, which, though very weak on its pins, could be trundled over the country roads. With large business sagacity and an executive capacity which must have been inherited from their father, they now proposed to extend their business operations to a larger area and distribute soap to contiguous villages, if these villages could be induced to buy. The Excelsior Soap Company paid a very small return of any kind to its infantile agents, who were scattered throughout the state, but it inflamed their imaginations by the issue of circulars with highly colored pictures of the premiums to be awarded for the sale of a certain number of cakes. It was at this juncture that Clara Belle and Susan Simpson consulted Rebecca, who threw herself solidly and wholeheartedly into the enterprise, promising her help and that of Emma Jane Perkins. The premiums within their possible grasp were three: a bookcase, a plush reclining chair, and a banquet lamp. Of course the Simpsons had no books, and casting aside, without thought or pang, the plush chair, which might have been of some use in a family of seven persons (not counting Mr. Simpson, who ordinarily sat elsewhere at the town's expense), they warmed themselves rapturously in the vision of the banquet lamp, which speedily became to them more desirable than food, drink, or clothing. Neither Emma Jane nor Rebecca perceived anything incongruous in the idea of the Simpsons striving for a banquet lamp. They looked at the picture daily and knew that if they themselves were free agents they would toil, suffer, ay sweat, for the happy privilege of occupying the same room with that lamp through the coming winter evenings. It looked to be about eight feet tall in the catalogue, and Emma Jane advised Clara Belle to measure the height of the Simpson ceilings; but a note in the margin of the circular informed them that it stood two and a half feet high when set up in all its dignity and splendor on a proper table, three dollars extra. It was only of polished brass, continued the circular, though it was invariably mistaken for solid gold, and the shade that accompanied it (at least it accompanied it if the agent sold a hundred extra cakes) was of crinkled crepe paper printed in a dozen delicate hues, from which the joy-dazzled agent might take his choice.

Seesaw Simpson was not in the syndicate. Clara Belle was rather a successful agent, but Susan, who could only say "thoap," never made large returns, and the twins, who were somewhat young to be thoroughly trustworthy, could be given only a half dozen cakes at a time, and were obliged to carry with them on their business trips a brief document stating the price per cake, dozen, and box. Rebecca and Emma Jane offered to go two or three miles in some one direction and see what

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They had the soap company's circular from which to arrange a proper speech, and they had, what was still better, the remembrance of a certain patent-medicine vender's discourse at the Milltown Fair. His method, when once observed, could never be forgotten; nor his manner, nor his vocabulary. Emma Jane practiced it on Rebecca, and Rebecca on Emma Jane.

"Can I sell you a little soap this afternoon? It is called the Snow-White and Red-Rose Soap, six cakes in an ornamental box, only twenty cents for the white, twenty-five cents for the red. It is made from the purest ingredients, and if desired could be eaten by an invalid with relish and profit."

"Oh, Rebecca, don't let's say that!" interposed Emma Jane hysterically. "It makes me feel like a fool."
"It takes so little to make you feel like a fool, Emma Jane," rebuked Rebecca, "that sometimes I think you must be one. I don't get to feeling like a fool so awfully easy; now leave out that eating part if you don't like it, and go on."

"The Snow-White is probably the most remarkable laundry soap ever manufactured. Immerse the garments in a tub, lightly rubbing the more soiled portions with the soap; leave them submerged in water from sunset to sunrise, and then the youngest baby can wash them without the slightest effort."

"Babe, not baby," corrected Rebecca from the circular.
"It's just the same thing," argued Emma Jane.
"Of course it's just the same thing but a baby has got to be called babe or infant in a circular, the same as it is in poetry! Would you rather say infant?"

"No," grumbled Emma Jane; "infant is worse even than babe. Rebecca, do you think we'd better do as the circular says, and let Elijah or Elisha try the soap before we begin selling?"

"I can't imagine a babe doing a family wash with any soap," answered Rebecca; "but it must be true or they would never dare to print it, so don't let's bother. Oh! won't it be the greatest fun, Emma Jane? At some of the houses—where they can't possibly know me—I shan't be frightened, and I shall reel off the whole rigmarole, invalid, babe, and all. Perhaps I shall say even the last sentence, if I can remember it: 'We sound every chord in the great ma-cro-cosm of satisfaction.'"

This conversation took place on a Friday afternoon at Emma Jane's house, where Rebecca, to her unbounded joy, was to stay over Sunday, her aunts having gone to Portland to the funeral of an old friend. Saturday being a holiday, they were going to have the old white horse, drive to North Riverboro three miles away, eat a twelve o'clock dinner with Emma Jane's cousins, and be back at four o'clock punctually.

When the children asked Mrs. Perkins if they could call at just a few houses coming and going, and sell a little soap for the Simpsons, she at first replied decidedly in the negative. She was an indulgent parent, however, and really had little objection to Emma Jane amusing herself in this unusual way; it was only for Rebecca, as the niece of the difficult Miranda Sawyer, that she raised scruples; but when fully persuaded that the enterprise was a charitable one, she acquiesced.

they could do in the way of stirring up a popular demand for the Snow-white and Rose-Red brands, the former being devoted to Laundry purposes and the latter being intended for the toilet.

Dull Emma Jane had never seemed to Rebecca so near, so dear, so tried and true; and Rebecca to Emma Jane's faithful heart, had never been so brilliant, so bewildering, so fascinating, as in this visit together, with its intimacy, its freedom, and the added delights of an exciting business enterprise.

A gorgeous leaf blew into the wagon. "Does color make you sort of dizzy?" asked Rebecca.
"No," answered Emma Jane after a long pause; "no, it don't; not a mite."
"Perhaps dizzy isn't just the right word, but it's nearest. I'd like to eat color, and drink it, and sleep in it. If you could be a tree, which one would you choose?"

Emma Jane had enjoyed considerable experience of this kind, and Rebecca had succeeded in unstoppering her ears, ungluing her eyes, and loosening her tongue, so that she could "play the game" after a fashion.
"I'd rather be an apple-tree in blossom,—that one that blooms pink, by our pig-pen."

Rebecca laughed. There was always something unexpected in Emma Jane's replies. "I'd choose to be that scarlet maple just on the edge of the pond there."—and she pointed with the whip. "Then I could see so much more than your pink apple-tree by the pig-pen. I could look at all the rest of the woods, see my scarlet dress in my beautiful looking-glass, and watch all the yellow and brown trees growing upside down in the water. When I'm old enough to earn money, I'm going to have a dress like this leaf, all ruby color—thin, you know, with a sweeping train and fluffy, curly edges; then I think I'll have a brown sash like the trunk of the tree, and where could I be green? Do they have green petticoats, I wonder? I'd like a green petticoat coming out now and then underneath to show what my leaves were like before I was a scarlet maple."

"I think it would be awful homely," said Emma Jane. "I'm going to have a white satin with a pink sash, pink stockings, bronze slippers, and a spangled fan."
(To be continued.)

In his new advertisement, the noted importer of Percheron and Belgian and Shire horses, Lew W. Cochran, Crawfordville, Indiana, states that he has the finest lot of stallions of these breeds in his barns that he has ever owned at one time, both imported and American-bred, coming three to five years old. He has had three importations in the last few months, and others to follow in a few weeks, and he makes a specialty of selling in car lots to parties in other States and Canada.

BARON'S PRIDE DEAD.
The Scottish Farmer announces the death on December 20th, 1912, of Messrs. A. & W. Montgomery's famous Clydesdale stallion, Baron's Pride (9122), at the advanced age of 22 years, he having thus reached the same age as Prince of Wales (673), and Maagregor (1487), a son of Darnley (222). Baron's Pride was the most celebrated son of Sir Everard (5853). His dam was Forest Queen (7233), by Springhill Darnley (2429), a magnificent big son of Darnley (222). Baron's Pride was bred by R. & J. Findlay, Springhill, Baillieston, and was foaled May 7th, 1890. He was the most celebrated of all the sons of Sir Everard (5853). He topped the list of Clydesdale breeding sires without a break until 1911, when he was passed by his own son, Baron of Buchlyvie, and established a unique reputation as sire of a numerous and sound progeny. He was possibly the soundest Clydesdale stallion ever foaled. Up to the last he cost nothing at all for veterinary attendance. His feet, joints, and legs, were, to the end of his days, clean, flat, hard, and free from any kind of malformation or disease. He had a singularly mild and equable temper, and was never excited. Summer and winter he occupied his paddock and loose box. He died without any apparent illness. His faithful attendant, David Burns, put him into his box in the corner of his paddock as usual in the evening. A short time afterwards his little girl told him she thought she heard Baron's Pride groaning. David went at once to see what was wrong, but the old horse was dead.

"Great, wide, beautiful, wonderful World, With the wonderful water round you curled, And the wonderful grass upon your breast, World, you are beautifully drest!"

Dull Emma Jane had never seemed to Rebecca so near, so dear, so tried and true; and Rebecca to Emma Jane's faithful heart, had never been so brilliant, so bewildering, so fascinating, as in this visit together, with its intimacy, its freedom, and the added delights of an exciting business enterprise.

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THE DELMAR MUSIC CO. LIMITED
231 St. Catherine St. West, MONTREAL
POPULAR MUSIC 15¢ ea. 7 Pieces for \$1
POST PAID

- All I Ask is Love.
- Angel's Prayer (Reverie).
- Another Rag. (Song).
- At the Yiddisher Ball.
- Alexander's Ragtime Band.
- A Girlie Was Made to Love.
- All Aboard for Blanket Bay.
- All Night Long.
- As Long as the Shamrock Grows Green.
- Angel Kisses (Reverie).
- A Southern Dream (Waltz).
- America Forever (March).
- And a Little Oh! Oh! Shall Lead Them.
- Army and Navy. (Two-Step).
- A Trip to Niagara.
- Angels of Night. (Reverie).
- Arbutus Waltz.
- Billy Bounce Your Baby Doll.
- Burning of Rome. (March).
- Beautiful Doll Good-bye.
- Bless Your Loving Heart.
- By the Old Cathedral Door.
- Beal Rose. (Waltz).
- I Was Born With Nothing.
- Bump, Bump, Bump in My Automobile.
- Beautiful Star of Heaven.
- (Reverie).
- Baby Rose.
- Bring Back My Lovin' Man.
- By the Light of the Silvery Moon.
- Chicken Rag.
- Charles Race. (March).
- Cassey Jones Went Down on the Robert B. Lee.
- Carnival King. (March).
- Castelano. (Waltz).
- Carnival. (Reverie).
- Canadian Hustler. (March).
- Chills and Fever Rag.
- Captivating Kitty Green.
- Charme d'Amour Waltz.
- College Capers. (Two-Step).
- Capit's Message. (Inst.).
- Chiribirin. Song.
- Cassey Jones.
- Consolation. (Reverie by Morrison).
- Cow Boy Joe. (Ragtime).
- Canadian Boy Scout. (March Song).
- Celeste. (Valse).
- College Rag.
- Chimes at Twilight. (Reverie).
- Chickens Reel. (Buck Dance).
- Chanticleer. (Two-Step).
- Dream of Long Ago.
- Dreaming of Mother and Home Sweet Home.
- Dreams of Long Ago.
- Down in the Meadow, Where the Daisies Grow.
- Dream Waltz.
- Daddy Has a Sweetheart and Mother is Her Name.
- Dreams Kisses. (Intermezzo).
- Dream Girl. (Waltz).
- Daly's Reel. (Buck Dance).
- Everybody's Doing It.
- Everybody Two-Step. (Song).
- Everybody Two-Step. (Vocal).
- Entertaining Rag.
- Every Adam Has an Eve.
- Emblem of Old Erin.
- Four Little Blackberries. (Schottische).
- Fire Alarm. (March).
- Fairy Kisses. (Waltz).
- Fire Drill March.
- Fama Bella. (Spanish Waltz).
- For Killarney and You.
- Fairy Moon.
- Flirtation. (Caprice).
- Frat. (College March).
- Ghost of the Violin.
- Garden of Roses. (Vocal).
- Ge, I Like Music With My Meals.
- Garden of Old Fashioned Roses.
- Jarden of Love. (Waltzes).
- Good Bye Rose.
- Jarden of Dreams. (Reverie).
- Jeel But I'm Lonesome.
- It's Great to Meet a Friend.
- Good-Night, Nurse.
- Garden of Roses. Inst.
- Hiltey Koo.
- Hen Chicken Rag.
- Hala Hala. (Two-Step).
- Hot Chestnuts. (Rag).
- Hold Me Just a Little Closer.
- Here's to the Friend in Stormy Weather.
- Hey's Got My Goat.
- Hunter's March.
- Hanky Panky Glide.
- Honey Man.
- Hypnotic Rag.
- Harmony Rag.
- Harmony of Love. (Waltz).
- Is It Love or Admiration.
- I'd Like to Live in Loveland.
- I Wonder How the Old Folks are at Home?
- I Would Like to Try It.
- I Can't Be True to One Little Girl.
- I'd Do As Much for You.
- I Want to be in Dixie.
- I've Got the Finest Man.
- Hal all My Dreams Were Made of Gold.
- I'll Love You Sweetheart, Sue.
- I'll Be Back in the Sweet Bye-and-Bye.

- If You Talk in Your Sleep.
- I'm the Guy.
- In the Glimmering Was the Song She Sang Me.
- I Want a Girl.
- I'd Live My Life for You.
- In the Harbour of Home Sweet Home.
- I've Got You Stava.
- In the Golden Harvest Time.
- If We Were Alone.
- I Love the Name of Moth.
- It's the Bink Every Evening.
- Kilian Bounce.
- I Wonder How the Old Folks are at Home.
- I've Been Longing Dear for You.
- I Loved you the First Time I Met You.
- In Dear Old Sweetheart Days.
- I Want a Boy to Love Me.
- I'm Feeling Blue. (Song).
- I Love It.
- I'd Give You All You Ask.
- I Want a Little Loving Sometimes.
- If You Had Asked Me Just a Little Sooner.
- I'm Going Back to Work Down on the Farm.
- I'll Put Mine Against Yours Any Time.
- If I Only Had a Home Sweet Home.
- Just an Old Sweetheart of Mine.
- June Waltzes.
- Just Across the Bridge of Years.
- Just You.
- Just Because I Love You So.
- Kentucky Sue.
- Kentucky Days. (Song).
- King of Spring. (Waltz).
- Kings and Queens March.
- Keep Away from the Fellow With the Automobile.
- Kate Killarney.
- Ki-Ki Waltz.
- Lord Hava Mercy on a Married Man.
- Love's Golden Star. (Reverie).
- Love and Passion. (Reverie).
- Lady Angelina.
- Love and Devotion. (Reverie).
- Let's Make Love While the Moon Shines.
- Let'er Go, March.
- Miss High Class Ballad.
- Mary Was My Mother's Name.
- Midnight Flyer. (March).
- Midnight Fire Alarm. (March).
- My Rosary of Dreams.
- Magic Rag.
- Mandy Lou.
- Memories of the Old School Bell.
- Moonbeams on the Lake. (Reverie).
- Mourning Star. (Reverie).
- Moon Kisses. (Reverie).
- Meet Me To-Night in Dreamland. (Waltz).
- Mandy's Ragtime Waltz.
- Meditation. (Reverie by Morrison).
- Meet Me Where the Love Star Gleams.
- Maybe That's Why I'm Lonely.
- Moonlight Waltz.
- Moonlight Dream.
- My Georgiana Lou.
- My Every Thought is of You.
- Meet Me To-night in Dreamland. (Song).
- New York Rag.
- Napoleon Can Charge.
- No Girl Can Take my Old Girl's Place.
- Nobody Knows Where the Old Man Goes.
- O You Bag!
- Only Baby Fingers.
- O Canada! (National Song).
- O'Brien Has No Place to Go.
- On the Mississippi.
- O What a Beautiful Dream.
- O You Chickens.
- O You Circus Day.
- O Mr. Dream Man.
- O You Beautiful Doll.
- Puritana Waltz.
- Pride of the Regiment. (Two-Step).
- Put on Your Old Grey Bonnet.
- Please Don't Take My Lovin' Man Away.
- Paul Revere's Ride. (March).
- Parisienne. Song.
- Ragtime Soldier Man.
- Rubies and Pearls. Rag.
- Red Cross Two-Step.
- Roses and Violets. (Waltz).
- Ragtime Rag. (Two-Step).
- Rag, Rag, Rag. (Inst.).
- Red Wing. Vocal.
- Rap, Rap, on Your Minstrel Bones.
- Rum Tum Tiddle. (Song).
- Railroad Rag.
- Ring-tin-a-ling. (Song).
- Roaring Volcano. (March).
- Ring Out Wild Bells. (Inst.).
- Row, Row, Row.
- Ragging the Baby to Sleep.
- Something's Coming to Town.

- String a King of Roses Round Your Bonie.
- Somebody Else is Getting It.
- Song My Mother Used to Sing.
- Sleigh Bells. (March).
- Signal from Mars. (March).
- Storm King. (March).
- Sun Kissed Roses. (Waltz).
- Sons of the Sun Dream Come True.
- Star of Hope. (Reverie).
- Gall on Silvery Moon.
- Scarlet Lily. (Three-Step).
- Sigh of Roses. (Waltz).
- Silver Spur. (Two-Step).
- Seated Boss. (Waltz).
- Strolling. (Song).
- Silver Bell. (Vocal).
- Sweetheart Waltz.
- Sing Me a Song.
- School Life. (Two-Step).
- Silver Bell. (Inst.).
- Some Rag. (Inst.).
- Silver Threads Among the Gold.
- That's a Funny Place to Kiss a Girl.
- Triumphant Banner March.
- The Witches Wail Waltz.
- The Dashing Cavalier. (Inst.).
- Take Me in Your Arms.
- Those Wonderful Eyes.
- Take a Trip From Pagan to the Chimes. (Reverie).
- That's How I Need You.
- Take Me Back to the Garden of Love.
- That Haunting Melody.
- The Matrimony Rag.
- True Love Can Never Die.
- Till the Sands of the Desert Grow Cold.
- Twilight Waltz.
- Toboggan Rag.
- Take off Your Hat to Princess Fat.
- Take Me Back to Dreamland.
- Those Rag Time Melodies.
- Texas Prance.
- That Gaby Glide.
- Take Me to the Cabaret.
- That Precious Little Thing Called Love.
- They Always Pick on Me.
- The Harbour of Love.
- The Outrigger. (New Dance).
- The Derby. (Two-Step).
- Tombola. (Two-Step).
- There's a Mother Old and Gray.
- That Mellow-Oldie Melody.
- Turkey. (Inst.).
- There's Nothing Like a Mother's Love.
- The Band Played Nearer My God to Thee.
- That Mellow Melody. (Song).
- Vision d'Amour Waltz.
- Village Barn Dance.
- Venetian Waters. Waltz.
- Vision of Beauty Waltz.
- What Made the Boys Like Roses.
- Waltz.
- When the sunset Turns the Mountain Tops to Gold.
- When They Gather in the Sheaves.
- Wreck of the Julie Plante.
- When My Ship Comes Home.
- Wilbur Waltz.
- When Broadway Was a Pasture.
- Waterloo Waltzes.
- When the Old Folks Were Young Folks.
- Why Did You Make Me Care.
- When You Tell the Sweetest Story.
- Whistle It.
- Waiting for the Robt. B. Lee.
- Won't You Let Me Take You Home.
- When I Get You Alone To-Night.
- Where the River Shannon Flows.
- Where are the Scenes of Yesterday.
- When I Waltz With You.
- When the Dew is on the Rose.
- When I Was 21 and You Were Sweet 16.
- Where the Silvery Colorado Winds Its Way.
- When the Roses Bloom in Heaven?
- Warming Up in Dixie. (March).
- When You Tell the Sweetest Story to the Sweetest Girl You Know.
- Wedding Ring Waltz.
- Wedding of the Fairies. (Inst.).
- When the Harbour Lights are Burning.
- We Have Had a Lovely Time—So Long, Good-bye.
- Your Daddy Did the Same Thing 50 Years Ago.
- You Can't Expect Kisses From Me.
- You are the Ideal of my Dreams.
- You and I and the Moon.
- You are the Sweetest Girl in all the World to Me.

Annual Combination Sale

CLYDESDALES AND PERCHERONS

Will be held at

Union Stock Yards Co., Ltd., of Toronto
HORSE DEPARTMENT, TORONTO

TUESDAY AND WEDNESDAY

February 25th and 26th, 1913

Tuesday, February 25th, at 11 a.m.

75 CLYDESDALES
Imported and Canadian-bred, will be sold.

Wednesday, February 26th, at 11 a.m.

50 PERCHERONS will be sold.

Intending consignors, write for terms to—

Union Stock Yards Co., Ltd., of Toronto
HORSE DEPARTMENT, TORONTO

NEW IMPORTATION OF CLYDESDALES

Just landed. Thirty-five head imported mares and fillies, some prizewinners in Scotland, others of show calibre,

TO BE SOLD BY AUCTION

(Place and date to be named later.) Anyone wanting a first-class filly or brood mare, in foal to one of Scotland's best sires, should not on any account fail to attend this great sale. "Small profits and quick returns" is my motto.

JOHN SEMPLE, Milverton, Ontario

Clydesdales & Shorthorns

FOR QUICK SALE

6 Imported Stallions—4 two-year-olds and 2 yearlings.

Also a number of in-foal mares and fillies, sired by Royal Edward, Hillhead Chief, Farmer's Counsel and Baron Lomond. The stallions are by such sires as Baron of Buchlyvie, Pride of Blacon, Baron Beaulieu, Cimaroon and Brigadier General.

IN SHORTHORNS: One young bull fit for service, sired by (Imp.) Rob Roy; also a few heifers. Prices reasonable. Address:

Telephone
in house.

W. W. HOGG, Thamesford, Ont.

COLUMBUS CLYDESDALES AT HOME

To our past customers and intending purchasers, we wish to say that we can show you something really worth while in Canadian-bred and imported Clydesdale stallions and mares. Our aim is to please you.

SMITH & RICHARDSON, Columbus, Ontario

'Phone connections. Stations: Oshawa G.T.R. and C.N.R., Brooklin G.T.R., Myrtle C.P.R.

WHEN WRITING ADVERTISERS PLEASE MENTION

The Farmer's Advocate

GOSSIP.

CANADIAN HOLSTEIN TESTS FROM
DECEMBER 15 TO 31.

Mature Class.

1. Duchess Star 5517, at 8 years 8 months 2 days: Milk, 474.4 lbs.; fat, 16 lbs.; equal to 20 lbs. butter. Owner, Estate of I. G. Wyckoff, Ontario.

2. Maysie Inka De Kol 7227, at 6 years 5 months 27 days: Milk, 428.64 lbs.; fat, 14.46 lbs.; equal to 18.07 lbs. butter. Owner, J. K. Moore, Ontario.

3. Dolly Echo Cornucopia, at 5 years 1 month 7 days: Milk, 404.01 lbs.; fat, 13.69 lbs.; equal to 17.11 lbs. butter. Owner, J. K. Moore.

Senior Four-year Class.

1. Ladoga Idaline Veeman 11220, at 4 years 7 months 26 days: Milk, 384.2 lbs.; fat, 14.22 lbs.; equal to 17.77 lbs. butter. Owner, A. E. Hulet, Ontario.

Senior Three-year Class.

1. Jessie Posch 2nd 11816, at 3 years 8 months 19 days: Milk, 315 lbs.; fat, 11.47 lbs.; equal to 14.34 lbs. butter. Owner, A. E. Hulet.

2. Hillview Queen 14235, at 3 years 7 months 1 day: Milk, 319.5 lbs.; fat, 10.87 lbs.; equal to 13.59 lbs. butter. Owner, Edmund Laidlaw & Sons, Ontario.

Junior Three-year Class.

1. Maysie Helen De Kol 12686, at 3 years 5 months 26 days: Milk, 417.81 lbs.; fat, 13.86 lbs.; equal to 17.32 lbs. butter. Owner, J. K. Moore.

2. May Schuiling Pieterje 13810, at 3 years 5 months 30 days: Milk, 330.8 lbs.; fat, 10.54 lbs.; equal to 13.17 lbs. butter. Owner, Clarence C. Kettle, Ontario.

3. Pauline Colantha Tensen 12077, at 3 years 2 months 7 days: Milk, 293.8 lbs.; fat, 10.38 lbs.; equal to 12.97 lbs. butter. Owner, A. E. Hulet.

Senior Two-year Class.

1. Madam Pauline Abbekerk 14976, at 2 years 10 months 28 days: Milk, 372.3 lbs.; fat, 12.04 lbs.; equal to 15.05 lbs. butter. Owner, A. E. Hulet.

2. Homestead Jossie Colantha 14277, at 2 years 6 months 10 days: Milk, 334.1 lbs.; fat, 10.89 lbs.; equal to 13.61 lbs. butter. Owner, Edmund Laidlaw & Sons.

3. Countess Maud Posch 15864, at 2 years 8 months 29 days: Milk, 311.8 lbs.; fat, 9.84 lbs.; equal to 12.30 lbs. butter. Owner, Clarence C. Kettle.

Junior Two-year Class.

1. Homestead Susie Colantha 14273, at 2 years 3 months 2 days: Milk, 322.5 lbs.; fat, 10.22 lbs.; equal to 12.78 lbs. butter. Owned by Edmund Laidlaw & Sons.

2. Bleske Cornucopia May 17961, at 2 years 3 months 4 days: Milk, 311.2 lbs.; fat, 8.31 lbs.; equal to 10.39 lbs. butter. Owned by L. L. Wettlaufer, Ontario.

3. Madam Pauline Canary 16499, at 1 year 11 months 29 days: Milk, 233.9 lbs.; fat, 8.16 lbs.; equal to 10.20 lbs. butter. Owned by A. E. Hulet.

4. Beauty De Kol Pearl 19909, at 1 year 8 months 29 days: Milk, 247.9 lbs.; fat, 8 lbs.; equal to 10 lbs. butter. Owner, Clarence C. Kettle.

Special Tests Made Eight Months After Calving.

1. Queen Inka De Kol 8987, at 4 years 11 months 7 days: Milk, 314.8 lbs.; fat, 12.03 lbs.; equal to 15.04 lbs. butter. Owner, Lakeview Farm, Ontario.

2. Lakeview Daisy 12051, at 3 years 11 months 7 days: Milk, 344 lbs.; fat, 10.17 lbs.; equal to 12.81 lbs. butter. Owner, Lakeview Farm.

3. Lakeview Lestrangle 13786, at 1 year 10 months 7 days: Milk, 234.7 lbs.; fat, 7.08 lbs.; equal to 8.85 lbs. butter. Owner, Lakeview Farm.

G. W. CLEMONS, Secretary.

On February 25 and 26, as intimated in their advertisement in this issue, the Union Stock Yards Co., Ltd., of Toronto, will hold their annual Consignment Sale of horses, at their yards in West Toronto, at which time and place they announce that 75 Clydesdales and 50 Percherons will be sold. See the advertisement, and note the date of sale.

W. W. Hogg, of Thamesford, Ont., a station on the C. P. R., 14 miles east of London, writes of the imported Clydesdale stallions offered for sale in his advertisement: Dunure David is a quality horse, by the renowned Baron of Buchlyvie, with exceptionally good feet, legs, and action, is true to Clydesdale character, and is an all-round good horse. Brigadier Gerrard is a big, sappy horse, with splendid feet and action, a close mover, and few horses carry a finer head and neck, is a grand type of draft horse, and will probably weigh a ton when fully developed. Black Stamp, by the famous Pride of Blacon, twice winner of the H. & A. S. Cawdor Cup, has good feet and legs, and is altogether a good horse. Right Stamp, by Baron Beaulieu (by Baron's Pride, dam by Darnley), is a splendid horse, out of the same dam as Rozalette, winner of first prize at the H. & A. Show, at Inverness two years ago. Dunure Friendship, a flashy bay colt, with good legs, descended from a great strain of mares, his great-granddam being the famous Moss Rose, was champion of Scotland for years. Petty Chieftain, a bay colt, has a good deal of the Darnley type of body, and in walking, reminds one of that illustrious horse. Several mares and fillies in foal are also for sale.

DISPERSION SALE OF IMPORTED CLYDESDALES AND HACKNEYS.

The Graham-Renfrew Co., Ltd., of Bedford Park, Ont., whose reputation as importers of show-ring quality in Clydesdale and Hackney stallions and fillies, and whose success at Toronto, Ottawa, Guelph, Chicago, New York, and Ogdensburg Shows, is unequalled in the showing history of America, having sold their farm and stables, are going out of business, and at Burns & Shepherd's Repository, Toronto, on Friday, February 7th, will hold an absolute dispersion sale of imported and Canadian-bred Clydesdale stallions, mares and fillies, imported Hackney stallions and mares, imported Hackney and Welsh ponies, and high-class harness horses. Without doubt, this is the highest-class lot of horses ever sold by auction in Canada, all are in prime condition, all are young, and nearly all the mares and fillies are safe in foal, among them being many prizewinners and champions. The stallions are five imported and one Canadian-bred Clydes, and two imported Hackneys. The Clydes are: the noted breeding and prizewinning horse, Edward Darnley (imp.), a brown eight-year-old son of the Kilmarnock champion, Royal Edward, and dam by the immortal Darnley. This is a horse of draft character all over, weighs 2,100 lbs., and his get in Scotland are winners wherever shown. Timekeeper (imp.) is a bay, rising four, by the Royal champion, Diploma, dam by the great Up-to-Time. He is a cart-horse, thick, compact, smooth, and all quality. Milton's Last (imp.) is a bay four-year-old, by Baron's Pride, dam by Royal Chief. He is another cart-horse, very thick, smooth, and up to near a ton in weight, full of quality, and a right good horse all over. King of Diamonds (imp.) is a bay, rising four, by the great Everlasting, dam by Handsome Prince. This is a draft horse from the ground up, with faultless underpinning. Rose Victor (imp.) is a bay, rising three, by Hadatah, by Hiawatha, dam by the £3,000 Prince of Albion. He is a colt with a grand range of top, quality at the bottom, and character all over. Baron Elator is a bay seven-year-old Canadian-bred, by Elator (imp.), dam by St. Patrick (imp.). This horse has size and quality, and won championship at Guelph.

Hackneys.

Terrington Semaphore (imp.) is a bay four-year-old, winner of first and championship at Ottawa Winter Show, and first in harness at Toronto Exhibition last fall. He is a sensational, all-around mover. Terrington Narcissus (imp.) is a bay four-year-old. He was first at Ottawa last winter in the 15.2 and over class, and reserve champion; also was second at the Toronto Spring Show, in harness. In next week's issue a few notes will be given on the mare end of the sale. For a full line of breeding, write for catalogue.

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Try this Thirsty Flour

A very thirsty flour. Absorbs a lot of water. Because it contains so much *gluten*. Manitoba wheat is wonderfully rich in *sturdy gluten*. And, think of it, **FIVE ROSES** is milled *exclusively* from the very *cream* of the Manitoba wheat berries. So **FIVE ROSES** must be awfully thirsty, don't you see. In your mixing bowl it greedily absorbs *more water*. So you get *more loaves* than usual without using more flour. You use *less*. Your flour lasts *longer*, doesn't it? *Less trips* to your dealer. That's how **FIVE ROSES** saves money. Actually, saves **YOU** money. Use this *economical* flour.

Five Roses Flour

Not Bleached  Not Blended

LAKE OF THE WOODS MILLING COMPANY, LIMITED, MONTREAL

GOSSIP.

THE HEIDELBURG HOLSTEIN SALE.

The dispersion sale of 37 head of Holsteins, on January 15th, the property of C. R. Gies, Heidelberg, Ont., was very successful and satisfactory to the vendor, who writes: "I am well pleased with the results "The Farmer's Advocate" gave me. It brought me enquiries and buyers from all parts of Ontario, and also from Alberta. The females over one year averaged a little better than \$171, and those under one year, and as young as two weeks, averaged almost \$92. The males from one to thirteen months old averaged \$100. Following is the list of the females over one year old:

Toitilla, O. A. C., A. C. Hallman, Breslau	\$210
Posch Calamity Colantha, J. E. Whitney, Milverton	185
Netherland Mundella, W. Ebert, Nelles' Corners	180
Netherland Posch 2nd, Mitchener Bros., Red Deer, Alta.	150
Braemar Clothilde Pietertje, Mitchener Bros., Red Deer, Alta.	155
Braemar's Stamboul, Alfred Hutchinson, Mount Forest	200
Teake's Posch, Alfred Hutchinson, Mount Forest	220
Netherland De Kol Belle, Jesse Looker, Mitchell	150
Teake Fairmount Claxton, J. M. Boeckh, Concord	290
Black Beauty Zoze, J. M. Boeckh, Concord	210
Lady Elgin De Kol 2nd, A. L. Shantz, Heidelberg	207
Florence Wayne, Mitchener Bros.	185
Princess Wayne Johanna, Jesse Looker, Mitchell	160
Korndyke Wayne, J. E. Whitney, Milverton	180

Pauline Posch Kirkfield, Jno. Steinaecker, Sebringville	147
Belle Flora De Kol, J. E. Whitney, Milverton	110
Wayne Posch Florence, Markle Bros., Hespeler	177
Johanna Posch Wayne, J. E. Whitney, Milverton	142
Princess Diotime, Michener Bros.	105
Butter Queen Diotime, Geo. E. Wood, Mandago	155
Ava De Kol Pride, Michener Bros.	105
Fairmount Clothilde, Anthony Gies, St. Jacob's	145
Irene Diotime, W. Ebert, Nelles' Corners	165

Heifer Calves Under One Year Old.

Calf of Netherland De Kol Belle, 2 weeks old, Anthony Gies	62
Calf of Black Beauty Zoze, 3 weeks old, Dr. English, Hamilton	80
Fairmount Toitilla Cornucopia, 11 months old, W. T. Whale, Goldstone	115
Posch Calamity Colantha 2nd, 8 months old, Dr. English	150
Netherland Posch Cornucopia, 8 months old, Anthony Gies	87
Fairmount Netherland Cornucopia, 5 months old, Anthony Gies	82
Aaggie Grace Cornucopia De Kol, 2 months old, Anthony Gies	65

Males.

Grace Fayne 2nd Sir Mercena, 13 months old, C. C. Kettle, Wilsonville	175
Sir Cornucopia Stamboul, 7 months old, A. L. Shantz, Heidelberg	57
Sir Cornucopia Pietertje, 9 months old, J. E. Whitney, Milverton	100
Teake's Pietertje, 8 months old, John Dittner, St. Agatha	67

Gabe—What is culture?
Steve—Culture is when you speak of the House Beautiful when you mean the beautiful house.—Cincinnati Enquirer.

TRADE TOPICS.

TOUR WITH THE MASONS.—The St. Patrick Chapter, Royal Arch Masons, Toronto, have accepted invitations extended by the Grand Chapters of Ireland and Scotland, to visit them in the early part of 1913, and to carry the plan through to a successful conclusion, have arranged with the White Star Line for an interesting and unusual tour to the Old Country. The party will leave on the "Teutonic," May 3rd, and land at Queenstown by special arrangement with the Company. The points to be visited include Cork, Bantry, Glengariff, Killarney, Dublin, Belfast, Ayr, Glasgow, Edinburgh, Melrose, Keswick, Grasmere, Windermere, Bourness, Chester, Stratford, Kemilworth, Leamington, London, Paris, London again, and then Liverpool, to connect with the "Teutonic" June 14th, Quebec, and Montreal.

WIRE-FENCE MANUFACTURE.—Few lines of endeavor have seen such rapid progress during the last decade as the manufacture of wire fencing. Years ago, the old rail and stump fences were the only fences used generally on the farms of Canada. Saw mills became more common, resulting in such a decline in the price of lumber, so that board fencing came to be used practically everywhere. But gradually the forests grew thinner and the price of lumber grew higher. A cheaper material must be found. The result was the advent of the barb wire. The sale of this for a time was enormous, but the number of animals annually destroyed or injured with the barbs was appalling. "Necessity—the mother of invention," produced the modern, woven-wire fencing. Properly made, of good material, it can be constructed to hold any domestic animal, and the price is not excessive. Some of the best woven-wire fencing is Canadian-made. Every rod of fencing that leaves

the plant of the Banwell-Hoxie Wire Fence Co., Ltd., Hamilton, Ont., whether it be poultry fence, stock fence, ornamental fence, or gates, is built on honor, and guaranteed. Those interested in the purchase of fencing should not fail to secure their catalogue and prices.

GOSSIP.

James Begg, breeder of Ayrshire cattle, St. Thomas, Ont., writes that 1912 was another successful year of sales, he having sold young bulls to G. F. Douglas, Staples, Ont.; Neil Sinclair & Son, Coldstream, Ont.; John Robertson & Sons, Northwood, Ont., and B. Hewitt, Marshville, Ont. Mr. Begg intends making additions to his stable this spring, and he will sell any of his cows, as he has a number of heifers coming on. He reports seven heifer calves in succession. Look up his change of advertisement elsewhere in this issue.

James Douglas, Caledonia, Ont., proprietor of one of the oldest and yet up-to-date herds of Shorthorns in the Dominion, in ordering a change of advertisement, states that his Willow Bank herd of Shorthorns and flock of Leicesters are all looking exceedingly well, and he has the very best lot of young bulls of serviceable age that he has ever had, some from imported dams, such as Jilts, Prides, Marr Beautys, Nonpareils, including an extra good one by Imp. Joy of Morning. Also some choice cows and heifers, and bred to the imported Butterfly bull, Roan Chief =80865=.

"More tough luck," whispered his wife.
"Well, what now," he muttered.
"You know Miss Green never sings without her music?"
"Yes."
"Well, she's brought her music."—Detroit Free Press.

15⁹⁵ AND UPWARD

AMERICAN SEPARATOR

THIS OFFER IS NO CATCH. It is a solid proposition to send, on trial, fully guaranteed, a new, well made, easy running separator for \$15.95. Skims hot or cold milk; making heavy or light cream. Designed especially for small dairies, hotels and private families. Different from this picture, which illustrates our large capacity machines. The bowl is a sanitary marvel, easily cleaned. Shipments made promptly from WINNIPEG, MAN., TORONTO, ONT., or ST. JOHN, N. B. Whether your dairy is large or small, write us and obtain our handsome free catalog. Address: AMERICAN SEPARATOR CO. Box 1200, RAINDRIDGE, N.Y.



Winter Protection



THE DYSTHE FACE PROTECTOR is a wonderful boon to Doctors, Liverymen, Railway Employees, Farmers, and others compelled to face all kinds of weather. PRICE \$1.00, POSTPAID. Made of flannel, with cloudless goggles. Perfectly sanitary. Recommended by all medical authorities. Write to-day for one. M. DYSTHE, 302 Toronto St., WINNIPEG, MAN.

Maple Evaporators

To the live farmer, our Perfect Maple Evaporator and a sugar bush can be made to produce a revenue when it is most needed. With our Maple Evaporator sap is easily and economically converted into the finest quality maple syrup.

The body of the Perfect Evaporator is made of heavy sheet steel, thoroughly riveted and braced with steel angles and fitted with cast-iron door and frame. The working of the Evaporator is very simple—put the sap in at one end, and it comes out syrup at the other.



Send for illustrated leaflet. STEEL TROUGH & MACHINE CO. LIMITED, 5 James St., TWEED, ONT.

"Go North Young Man"

WHY? Because there are millions of acres of agricultural land in Northern Ontario, in some cases free, and in others at 50 cents per acre, excelling in richness any other part of Canada, blessing and waiting to bless the strong, willing settler, especially the man of some capital. For information as to terms, home-stead regulations, special railway rates, etc., write to H. A. Macdonnell, Director of Colonization, TORONTO, ONTARIO. HON. JAS. S. DUFF, Minister of Agriculture

Cream—Sweet or sour, bought at highest Toronto prices, at any point in Ontario. We furnish cans, pay promptly—haven't paid less than 82 cents for weeks. Write: TORONTO CREAMERY CO., Ltd., Toronto

QUESTIONS AND ANSWERS.
1st.—Questions asked by bona-fide subscribers to "The Farmer's Advocate" are answered in this department free.
2nd.—Questions should be clearly stated and plainly written, on one side of the paper only, and must be accompanied by the full name and address of the writer.
3rd.—In Veterinary questions the symptoms especially must be fully and clearly stated, otherwise satisfactory replies cannot be given.
4th.—When a reply by mail is required to urgent veterinary or legal enquiries, \$1.00 must be enclosed.

Miscellaneous.

AUTO FOR GRINDING.
Is it practical or possible to use an auto, say, 20-h. p., as a power for cutting and grinding feed? If not, why?
A. R.

Ans.—Have any of our readers ever seen an auto used for this purpose?

OXFORD AND SHROPSHIRE EWES.

Where could I procure a carload or two of old ewes in lamb, either Oxford or Shropshire Downs? Perhaps you could give me some idea of what they would cost.
L. T. R.

Ans.—It is somewhat difficult to determine whether your inquirer wants pure-breds or grades, or what he means by old ewes. Presuming that he wants good-mouthed grade ewes of fairly good quality, I expect they would cost about \$10 each, at country points; more ordinary ones could perhaps be bought at from \$3 to \$9 per head. If it was pure-breds he meant, I think they could be bought around \$15 per head. If it's Oxford grade ewes he wants, the Sheddon and Dutton Districts have as good a class of stuff as I know of, but they have been pretty closely picked up. An advertisement in your journal would likely bring as quick and satisfactory returns to your inquirer as can be secured through any other source, and at a minimum cost.
R. H. HARDING.

WINTERING HENS—FEEDING BEAN STRAW—POTATO VARIETIES.

1. Wish to winter one hundred hens as cheaply as possible. What kinds of food and how much of same per day would you advise to feed?
2. Have lots of corn stalks, bean straw, and timothy hay. How much of each of these would you feed milking cows?
3. Is bean straw good for sheep and for cows?
4. What kind of potatoes do you think yield heaviest on sandy loam?
5. Please name a good early potato. Which is the best yielder, "New King" or "Bovee"?

Ans.—1. Give all the sour milk they will drink. Feed all the mixed grain they will eat. Scatter this in the litter and cover up with straw in the afternoon, after allowing them to eat all they will from a trough. That in the litter serves for the morning feed. Keep rolled oats in a feed hopper in the pen at all times. Give oyster shell, or some other form of mineral food, and keep a mangel, cabbage, or some other form of green food in the pen.
2. Give all the corn stalks the cows will eat, either cut or whole. Clover hay would be better than the timothy, but a little of the latter can be used where clover is not plentiful. The bean straw and timothy might be fed in about equal quantities. The best indicator is the cows themselves. Feed what they clean up readily.
3. Bean straw is a fair substitute for clover hay for sheep. It is not as good a feed, being a little more fibrous, and not containing as high a percentage of protein. It is not a first-class cattle feed, but may be utilized for this purpose.
4. A few good varieties are Davies' Warrior, Rural New Yorker No. 2, Carman, Empire State, Beauty of Hebron.
5. Early Eureka is a good early variety. We are not acquainted with Bovee and New King varieties.

"The codfish," said the professor, "lays more than a million eggs."
"It is mighty lucky for the codfish that she doesn't have to cackle over every egg," said a student who came from a farm.—Indianapolis Journal.

PEERLESS—PERFECTION

THE FENCE THAT'S STRONG—YET SPRINGY AS A BED SPRING!

Animals can't break through it no matter how hard their attacks. It simply can't be broken. Just springs back in shape like a bed spring. It's made of heavy Open Hearth steel galvanized wire with all the imperfections taken out and all the strength and toughness left in. Will not corrode or rust. Top and bottom wires are extra heavy. Will not sag. Requires less posts than ordinary fence. Absolutely guaranteed.

Here's Proof of Our Statements
Read These Letters

Gentlemen—I have handled your fence for four years and find it a good, strong, durable fence, and that the galvanizing is first-class. In referring to this I have a fence that I put on four years ago across a gully and the water is as high as the second wire and it is not rusted nor broken yet. I had a team of heavy horses that ran into your fence last summer and did not break or damage it in the least, and I am glad to say that in the four years I have handled your wire I have had no complaints about it. I remain,
Yours truly,
DAVID CUMMINGS
Bowesville, Ont.

Gentlemen—About four years ago a fence was put up of your make on one side of a road and I may say today it is just as good as ever it was. Now on the other side of the road is a fence put up at the same time, but not yours; it looked nice at the first, but today you would not know that fence or think it the same. It is both breaking down and rusted. This is just to show that your fence is the best and will wear and I think credit should be placed where it is due.
Yours truly,
W. MADDER
Madford, Man.

These are but a few of the strong testimonial letters we have received from our thousands of satisfied customers. Maybe we have some from your vicinity. Ask us for them. We also make poultry fence, farm gates and ornamental gates. Remember our products are all absolutely guaranteed.
Send for catalog today. Agencies nearly everywhere. Agents wanted in open territory.

BANWELL-HOXIE WIRE FENCE CO., Ltd.,
Winnipeg, Man., Hamilton, Ont.

HIGHEST PRICE FOR CREAM

T. EATON CO. LIMITED is now paying 31c per lb. for Butter Fat. We buy cream, sweet or sour, of good flavor. We furnish the cans and pay the express charges within a radius of 250 miles of Toronto.


We test and weigh each can on arrival, and send you a statement for same.

We pay all patrons once a week, and the price is increased as the price of butter advances.

Drop us a card, and we shall be pleased to furnish you with any further information you may require.

THE T. EATON CO. LIMITED
TORONTO - CANADA

WAGON AND STOCK SCALE, a Money-saver to You, Mr. Farmer



So often you lose money because you are not quite sure of the weight of the article that is changing hands, and by just putting it on the scales your eyes are opened, and you are in a position to judge very accurately as to what this or that particular thing is worth. Write to-day for our illustrated catalogue, telling you about the Three-wheeled Wagon and Stock Scale. Capacity, 2,000 lbs. All material and workmanship first-class and guaranteed.
Address:
The Aylmer Pump & Scale Co., Limited
AYLMER, ONTARIO

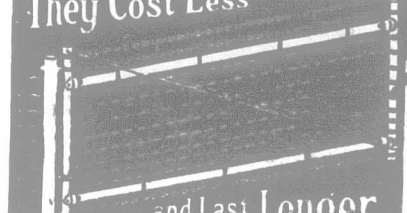
A CANADIAN SCHOOL FOR BOYS

RIDLEY COLLEGE
St. Catharines, Ontario

Three separate residences; new, specially built and equipped. 1. Lower School for Boys under fourteen. 2. Dean's House, for Boys of fourteen and fifteen. 3. Upper School, for advanced Pupils. Gymnasium and Swimming Baths just erected. Fine Hockey Rink. Athletic Fields and Playgrounds unsurpassed. Eighty acres. Mild climate. University Scholarship won in 1909 and 1910. Boys prepared for Agricultural College.

REV. J. O. MILLER, M.A., D.C.L., PRINCIPAL

They Cost Less



"Clay" Gates
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OF ALL the losses owners are liable to, none can be less prevented or modified in any manner whatsoever than loss by foaling. Notwithstanding the best care and attention, although a mare may have foaled many times successfully, she is always a cause of worry and anxiety to the owner through the fear of losing by death the often very high cash value of the Beast, not to mention service fee, care and expenses incurred for no avail. Why risk such loss when a payment of a few dollars in premiums would cover you should it happen. Reduce the amount of the RISK by insuring, only risking thereby the loss of the Premium if the mare foals allright. We issue 30 days, 6 months and 12 months policies with or without cover on foal.

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Save your fine Specimens! Every trophy you kill is worth money to you. You will be astonished at the prices you will get for your specimens. We can teach you, by mail in your own home, how to

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NORTHWESTERN SCHOOL OF TAXIDERMY
 581 Elwood Building, Omaha, Neb.

QUESTIONS AND ANSWERS. Miscellaneous.

MARE SWEATS.

Mare, rising five years, high spirited, not very fleshy, will sometimes sweat, standing in bank-barn stable. Does it indicate disorder, or what? W. J.

Ans.—Some horses, particularly colts, sweat much more easily than others. This mare is likely just shedding her teeth, and may be somewhat weakened on that account. She likely also has a heavy coat of hair, and if kept in an overwarm or poorly-ventilated stable, is almost sure to sweat. Keep the stable well supplied with fresh air, groom her carefully, don't overwork, and feed well, and she should be all right.

NAVICULAR DISEASE — CORN FOR COWS.

1. I have a registered Clyde mare, 18 years old, with navicular disease. She has been lame for nearly eight months, able to move about all right, but when she is worked she gets worse, and I would like to know whether anything can be done for her? If not, I will have her destroyed, as she is only a bill of expense to me in her present state.

2. Also, I would like to get a good veterinary book for the farmer, especially on the diseases of horses and cattle, and would like to know what you would recommend, and price of same.

3. Also, if it would pay me to trade my barley for corn, to feed dairy cows, barley and corn being the same price? I have a fulla hay, corn ensilage, and mangels, and have been feeding oat chop for concentrate, but feel I need something heavier.

H. M. R.
 Ans.—1. If treatment be adopted during the early stages, navicular disease may be cured, but once alteration of the structure of bone and tendon has taken place, a cure is impossible, although it is possible to give relief. On account of the age of this mare, and the time the disease has been developing, a cure is unlikely. If she is still any use for breeding purposes, take her shoes off, give rest, and pare the soles of the feet down well and lower the heels and blister the coronet repeatedly with a mixture of two drams each of biniodide of mercury and cantharides, mixed with two ounces of vaseline. Clip the hair off all around the coronet, and tie so she cannot bite the parts. Rub the blister well in on each of two days. On the third day, wash off and apply sweet oil. Let loose now and oil daily. When the scab comes off blister again.

2. A good book is "Diseases of Horses and Cattle," by McIntosh, which may be had through this office, at \$1.75, postpaid. Another is "The Farmer's Veterinarian," by C. W. Burkett, at \$1.50, postpaid, through this office.

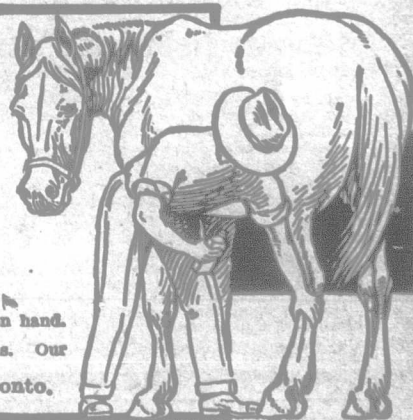
3. With your roughage ration, you would not be justified in feeding corn exclusively as a grain ration. Good alfalfa hay is a great help in keeping up the protein end of the ration, and with good ensilage, makes a fairly well-balanced ration. Dairy cows do not give as good results on corn exclusively as upon mixed grains. If your ensilage does not contain a reasonable percentage of fairly well-matured ears, a part of the barley might be exchanged for corn. Why not feed a grain ration of corn, barley and oats, mixed, or of barley and oats mixed. Good ensilage, first-class alfalfa hay, and a grain ration of half barley and half oat chop, should be quite suitable. However, if the ensilage is not well eared, exchange a little of the barley for corn, and mix the three grains.

Give Your Stock a Chance

to do their best for you. Special attention in the winter months pays, not only now but throughout the whole year. Lack of exercise and heavy feeding of dry feeds make liver and bowels sluggish, and the animals unthrifty and unprofitable.

Pratt's Animal Regulator
 corrects these conditions at small cost. Test at our risk!
 25c, 50c, \$1; 25-lb. pail \$3.50
 For sprains, bruises, stiff joints—man or beast—use

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At the late horse show in Guelph my entries in both Clydesdales and Percherons won by far the largest number of first prizes besides four championships. When you want a Clyde or Percheron stallion or filly come where you can get the best the breeds produce. Over 60 head to select from, champions and prize-winners.

T. H. Hassard

Markham P. O., G. T. R. Locust Hill, C.P.R. is only 3 miles.

Clydesdales in Quantity and Quality

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As I am feeding no steers this winter I have filled my stables with imported fillies, selected personally in Scotland; many in foal to such sires as Hiawatha, Sir Hugo, King's Champion, Sir Rudolph, etc. Fourteen have been sold, eighteen of the best are still on hand—the selections being made more on account of price than superiority. There are no culls in the lot. Send for pedigrees and particulars before buying elsewhere. Inspection invited.

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We have stallions and fillies of our 1912 importation size; have won many first prizes and championships. This type, quality and breeding is unequalled. Prices as low as any, and terms the best.

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I have a big importation of Clyde stallions and fillies just landed; a lot that cannot be duplicated to-day in Scotland and never was in Canada. Let me know your wants.

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Imp. Clydesdale Stallions AND FILLIES just landed. Size and quality and breeding unsurpassed. Come and see them. Prices away down.

Terms to suit buyer. W. B. ANNETT, ALVINSTON, ONT. Farm situated 5 miles from Watford, Ont., G. T. R. station, and 4 miles from Alvinston, G. T. R. and M. C. R.

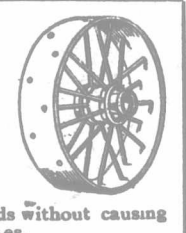
Orchard-Grove Herefords I have lately made a big importation of Bulls, Heifers and Mature Cows from the leading herds of Illinois. In my herd you now have 25 Bulls to select from; a big range of Heifers and Cows. High-class show and breeding stock a specialty.

L. O. CLIFFORD, Oshawa, Ontario, G.T.R. and C.N.R.

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Get a T-A Handy Farm Wagon—it's just the kind you need on your farm. This sturdy little wagon will get over the ground quicker and with less strain on your horses than any other wagon that's made.

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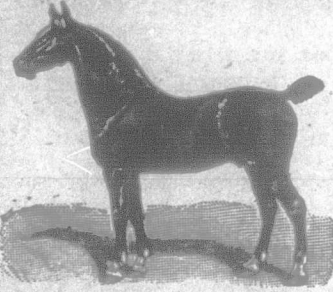
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Has Imitators But No Competitors.
A Safe, Speedy and Positive Cure for
 Curb, Splint, Sweeney, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable. Every bottle of Caustic Balsam sold is warranted to give satisfaction. Price \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address The Lawrence-Williams Co., Toronto, Ont.

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(Trade Mark Registered)



THE LAME HORSE is never cured whose owner reads and doubts,—BUT FAILS TO ACT—Here is a case in Point.—And what happened to this Subscriber is taking place with thousands.

Letter No. 1. Orleans, Vermont, April 26th, 1912. Troy Chemical Co., Binghamton, N. Y.—Your adv. has given me courage to try again. I have a valuable pacer. Two years ago he went lame. I tried every remedy and Doctors have blistered three times for spavin and twice for the symptoms are—etc., etc. I determined to see what you think. HALE MASON.

Letter No. 2. Orleans, Vt., May 2nd, 1912.—I received your letter and took yesterday and believe you are right about its being a bone spavin. I was so encouraged I drove eight miles and bought a bottle of Fred D. Pierce's drug at Barton, and will closely follow your special instructions. Thanking you for your quick reply to my first letter, I remain, Letter No. 3. HALE MASON.

Orleans, Vt., Oct. 2, 1912.—Perhaps you expected to hear from me before, but I have been waiting to see if any trouble would return after stopping the treatment. I am pleased to say the horse is well. I cannot thank you enough for your interest and the advice you gave. If I had known about it two years ago it would have saved me a lot of money. Yours respectfully, HALE MASON.

Save-the-Horse has stood alone and unique among veterinary remedies for over seventeen years.

Every bottle of Save-the-Horse is sold with an iron-clad contract that has \$60,000 paid-up capital back of it, guaranteeing to permanently cure or refund the money; no matter whether it is Bone Spavin, Tendon disease or Puff—nor how aged, acute or complicated the lameness or blemish may be. But writing describing your case, and we will send you—\$3.00—sample contract, letters from breeders and business men the world over, on every kind of case, and advice—all free (to horse owners and managers).

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Will reduce inflamed, strained, swollen Tendons, Ligaments, Muscles or Bruises, Cure the Lameness and stop pain from a Splint, Side Bone or Bone Spavin. No blister, no hair gone. Horse can be used. \$2 a bottle delivered. Describes how After your case for special instructions and Book 2 E free.

ABSORBINE, J.R., the liniment for manking, reduces strained, torn ligaments, enlarged glands, boils or muscles—heals ulcers—relieves pain. Price \$1.00 a bottle at dealers or delivered.

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In Shire stallions and fillies, from the best studs in England, we are offering some rare animals at rare prices. Scotch Shorthorns of either sex or age of highest breeding and quality. John Gardhouse & Son, Highfield, Ont. L.-D. Phone.

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PATENTS EGERTON R. CASE, Registered Attorney, Dept. E, Temple Building, Toronto. Booklets on request, 20 years' experience.

Mention "The Farmer's Advocate."

QUESTIONS AND ANSWERS. Veterinary.

OPHTHALMIA.

For three or four days my bull's eyes have been discharging matter. E. W.

Ans.—Keep him excluded from drafts and strong light. Dissolve 5 grains atropine in an ounce of distilled water. Bathe the eyes well with hot water three or four times daily, and after bathing put a few drops of the lotion into each. V.

INJURY TO SPINE.

Two-year-old colt became stiff on hind legs three weeks ago. His appetite is not good. He lifts hind feet and sweats, lies down, and has trouble in rising. W. M. F.

Ans.—Treatment is likely to be tedious. Keep as quiet as possible in a comfortable box stall. Give him a purgative of 5 drams aloes and 2 drams ginger, and follow up with 1 dram nuxvomica three times daily. To improve his appetite, give a teaspoonful of equal parts sulphate of iron, gentian, and ginger, three times daily. Have patience, as it will probably take a few months for recovery to take place. V.

PRODUCED DEAD CALVES.

I was feeding my cows some corn stalks that had been frozen in the shocks. I cut it and kept it two days in stable, then mixed it with silage and grain before feeding. A three-year-old and one yearling heifer produced dead calves at full term. I think the calves had been dead a week or more, as the afterbirth had commenced to decompose. They had no exercise after being put in stable. B. M.

Ans.—It is possible, if the corn mentioned was moldy, that it caused the trouble, but we think it more probable the heifers met with some accident unknown to you. We would advise you to discontinue feeding the frozen corn, and to see that all pregnant cows get regular exercise in some way. Isolate the heifers, and give 30 drops carbolic acid mixed with half a pint cold water and sprinkled on food, or given as a drench to each three times daily until all discharge ceases. V.

CHRONIC INDIGESTION.

My cow has been ailing for some time. Her appetite is fairly good, but she is thin in flesh. She is always more or less bloated, her bowels are too lax, and she does not ruminate in a natural manner. She will be due to calve in May. A. B.

Ans.—This is chronic indigestion, and if due to disease of the liver little can be done. She may be tubercular, but there is no means of telling except by the tuberculin test applied by a veterinarian. If she has no liver or tubercular trouble of any organ, she should yield to treatment. Give her a purgative of 1 lb. Epsom salts, ½ ounce gamboge, and 1 ounce ginger. Follow up with a tablespoonful three times daily of equal parts sulphate of iron, gentian, ginger, and nuxvomica. Feed on food of good quality, and not of too laxative a nature, and add to her drinking water one-fifth of its bulk of lime water. V.

GOSSIP.

R. W. Walker, Utica, South Ontario, County, Port Perry, G. T. R., and Myrtle, C. P. R., in ordering a change of his advertisement of Holsteins, writes that his stock is in fine condition, and doing well.

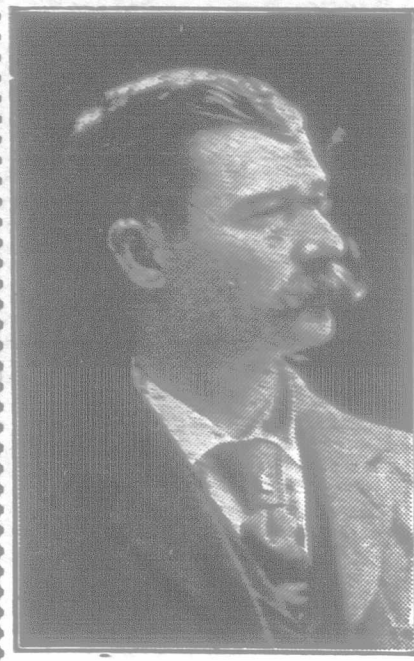
J. A. Watt, Salem, Ont., ordering a change of advertisement, writes: "Our herd never looked better than at present. We have a great collection of calves by the grand champion, Gainford Marquis (imp.). Have a few young bulls of quality that I would sell right. They are excellently well bred, and would sell them well worth the money to make room for new ones. Have sold more Shorthorns in the past year than ever before. No herd in Canada has sent out more winners the past year. The Salem Shorthorns were represented in nearly every class at the International, and were owned by different men. We also sold the dam of the junior champion bull at Chicago. 1913 should be a great year for Shorthorn-breeders."

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We can ship you the above in mixed carloads or **FEED WHEAT, CORN, BARLEY and OATS** In straight carloads

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ARCHIBALD CEREAL COMPANY LIMITED.
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PERCHERON

Mares and Stallions

Ages from one year old to five years old. Blacks and grays. Weights from 1,600 to 2,100 pounds, of the very best style and quality and breeding France produces. They are of the big thick kind. See them before you buy. I do my own buying in France, ship large numbers, have no partners to divide profits with. Will take small profits so feel sure it will save you money to get prices before you buy. No reasonable offer will be refused. Terms to suit. Many of the mares are safe in foal. For further particulars, write

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 Auction Sale every Wednesday Private Sale every day
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W. W. SUTHERLAND, **J. H. ASHCRAFT, Jr.,**
 IN OFFICE MANAGER

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Bigger and better than ever before is our 1912 importation just arrived. Stallions with size, character, quality and breeding. Fillies of high-class breeding and quality for show or breeding purposes. Come and see them. Terms and prices right. **JOHN A. BOAG & SON** Queensville P.O. and Sta., on Toronto to Sutton Electric Line L.-D. Phone.

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We have lately landed a shipment of Clyde stallions and fillies, several Scotch winners among them. Their breeding is unsurpassed. Comparison with any others in the country will make you a buyer from us. Our prices are as low as the lowest. L.-D. Phone. **GOODFELLOW BROS., MACVILLE P. O., ONT.; BOLTON STATION, C. P. R.**

QUALITY AND SIZE IN CLYDESDALES

For the best the breed produces in the combination of size, character, quality, breeding and action, see my 1912 importation of Clyde Stallions and Fillies. Prices and terms unequalled.

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Will meet Importers at any port in France or Belgium, and assist them to buy Percherons, Belgians, French Coach horses. All information about shipping, banking, and pedigrees. Many years experience; best references. Correspondence solicited.

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Aberdeen-Angus of Show Form and Quality. For this season my offering in young bulls and heifers, are toppers, every one. Show-ring form and quality, and bred from show winners. T. B. BROADFOOT, Fergus, Ont., G. T. R. and C. P. R.

Shorthorns, Cotswolds, Berkshires

For sale: 5 yearling bulls, 12 bull calves, cows, heifers and heifer calves. In Cotswolds: Lambs and shearing ewes. Will book a few orders for Berkshires, fall litters.

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SPRING VALLEY SHORTHORNS

Herd headed by the two imported bulls, Newton Ringleader, =73783 =, and Scottish Pride, =36106 =. The females are of the best Scottish families. Young stock of both sexes for sale at reasonable prices. Telephone connection.

KYLE BROS. - - - - - **Ayr, Ontario.**

Woodholme Shorthorns

I have for sale two very choice young bulls (pure Scotch). Also a number of heifers of this level type, and richest breeding. **G. M. FORSYTH,**
North Claremont, Ont.

1854 Maple Lodge Stock Farm 1912

Have the best lot of young Shorthorn bulls ever in herd at one time. Several from cows that give 50 lbs. milk per day, and sired by "Senator Lavender." A few excellent Leicester ewes and rams for sale.

A. W. SMITH, Maple Lodge, Ont.
Lucan Crossing, G.T.Ry., one Mile.

OAKLAND 50 SHORTHORNS

Present offering is eight bulls, including our champion stock bull, Scotch Grey = 72692 =, all roans and reds. Also a goodly number of females, all of the dual-purpose strain. Good cattle and no big prices.

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Shorthorns of both sexes at all times for sale at very reasonable prices.

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Fletcher's Shorthorns Our herd of Pure Scotch Shorthorns (Imp.) or direct from imported stock, is headed by the grandly-bred Bruce Mayflower bull, Royal Bruce (Imp.) = 55038 = (89909) 273853. Choice young stock for sale.

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Choice young stock of both sexes. Dual-purpose a specialty. Herd headed by (Imp.) Ivanhoe. **L. A. WAKELY, BOLTON, ONT.**

MENTION "FARMER'S ADVOCATE."

QUESTIONS AND ANSWERS.
Miscellaneous.

OYSTER SHELL FOR HENS.

Are oyster shells, broken, good grit for hens?

Ans.—Oyster shells, crushed or ground, are the most popular shell food for laying hens. Mineral food, or ash, is of great importance in the ration of the laying hen. Egg shells require lime to be in the food. Oyster shell is one of the best of these feeds.

CEMENT FOR WALL—STOCK IN BASEMENT.

1. How much cement, gravel, and stone, would be required to build a wall under a barn 52 feet long, 30 feet wide, wall 7 feet deep and 8 inches thick?

2. Would horses and cattle do as well in a basement cellar as above basement?

E. C. H.

Ans.—1. About 25 barrels of cement and six or seven cords of gravel.

2. In a well-ventilated stable, with plenty of light, horses and cattle do well in a basement.

STEER SLOBBERS—RATION FOR STEERS—BUILDING WALL.

1. I have a three-year-old steer that slobbers. He will have his manger all wet. I had my veterinarian look at him, and he said that he had an extra-long tooth, which he filed down, but he is no better, so I examined him the other day and found two lumps, one on each side of his throat, just at the gullet at the back of the jaw. They are not fastened to the jaw. One is the size of a hen's egg, the other a little smaller. He has a good appetite, but is not doing well. Tell me what they are, and how to treat them.

2. Please give me a grain ration for fattening steers of 1,100 lbs. I have lots of rye and oats. Do you think it would be advisable to buy some other grain to mix with it?

3. I have a building 27 x 47 feet, on a stone foundation, that I am thinking of putting on a wall. The foundation is rather narrow for a stone wall. Do you think that it would do to start a cement wall on top of this? How many barrels of cement would it take for an eight-foot wall the required thickness, using stone fillers? Give me cost of stone wall for same.

Ans.—1. It would likely pay you to call in your veterinarian again. The symptoms indicate a form of actinomycosis, or lump jaw. The potassium-iodide treatment may effect a cure. Give one dram of iodide of potassium as a drench in half a pint of cold water three times daily. Gradually increase the dose until his appetite fails and tears run from his eyes. When these symptoms appear, cease giving the drug for two weeks, after which, if necessary, treat again. It is generally advisable to isolate cattle having the disease.

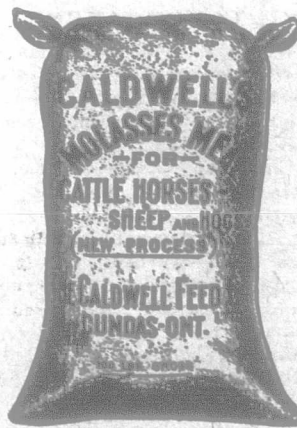
2. Not knowing what roughage is fed, it is not possible to give a correct estimate of the grain ration required. Rye has a feeding value somewhat approximating that of barley, but experiments have shown that it does better fed in a mixture than fed alone. It might pay you to buy some corn to add to this, and feed a ration of about one-third each of oats, rye and corn. If the fattening period is just commencing, it is well to feed lightly, and increase the amount as their appetites warrant until they are on full feed. Care must be taken to avoid "stalling." If finishing, anywhere from ten to fifteen pounds of the mixed meal could be fed per day, depending, of course, on the roughage. Clover or alfalfa hay should be fed as part of roughage. If more of this is fed, some more nitrogenous concentrate should be added.

3. Cement would likely be all right to finish the foundation, provided the stone foundation now standing is solid and without flaws. Twelve inches thick without flaws for the wall. An eight-foot wall would require about 36 barrels of cement and 9 cords of gravel or gravel and stone. Not figuring price of stone, or hauling, or of any material, the actual building of the wall would likely cost upwards of \$100.

Make more money and reduce your Feed bills by using

CALDWELL'S MOLASSES MEAL

Any stockman or farmer can do that easily. The systematic use of Molasses Meal does not mean extra feeding costs. It operates precisely the other way. It reduces forage bills.



The great feeding value of pure Cane Molasses is acknowledged by progressive farmers all over the world. The problem has been to find a convenient form in which to feed it, and Caldwell's Molasses Meal solves that problem.

Animals like Molasses Meal. It makes other feeding stuffs palatable—more digestible. It puts spirit and go into horses. Keeps cows contented and in excellent condition. It quickly brings steers, sheep, lambs and hogs to maturity—their highest market value.

N.B.—Remember that you could not buy pure cane molasses for what we sell the finished product. And Caldwell's Mo-

lasses Meal is 84% pure cane molasses, and the only meal manufactured from pure cane molasses exclusively. Clip out coupon—mail to us, and we will send you full particulars.

THE CALDWELL FEED CO., LIMITED
Dundas, Ont.

C

Please send me booklet and full particulars as to cost, etc., of Molasses Meal.

Name.....

Post Office.....

Province.....

THE GREAT CANADIAN ANNUAL SALE OF SCOTCH SHORTHORNS

Will be held at the UNION STOCK YARDS, TORONTO, ONT., on **Wednesday, February 5th, 1913**

J. A. Watt, Salem, Ont., will sell three bulls, one of them a grand young imported bull, and two high-class young bulls fit for anybody; and 15 heifers, nearly all of show-yard calibre; there are Mildreds-bred, like his highest-priced heifer of last year, and they are good; there is a great Jealousy heifer, a grand Emmeline, one Elvira, a beautifully-bred Orange Blossom, one Lady of The Boyne, a Bruce Mayflower, noted for the dairy and for form, too; one Lovelace, a Bessie Lass, a Kiblean Beauty, a Missie, with a C. C. at foot, that are valuable; one Celia, a Brawth Bud. A grand lot, with size, thickness and smoothness.

Peter White, K. C., Pembroke, Ont., will sell 15 head, some of them with calves at foot, big enough to sell alone. There are three bulls, the first, the Missie bull, Mountaineer, sired by Uppermill Omega, and from the \$1,700 Missie cow, Mistletoe 21st, perhaps the best Missie cow imported. This is a grand bull, one of the best sires living, and he is young. A great chance to get a sire for the best herd any place. Pinnacle is a Red Duchess of Gloster bull, a yearling for 1913, by Mountaineer. He is surely one of the best young bulls that has been offered in Canada by auction. Big, smooth and full of natural flesh, a very valuable bull. Another red bull, a Mina, is a useful sort, and will suit a herd where good thick feeders are wanted.

The cows and heifers, without exception, are as good as they are well bred, there are strong show heifers of three ages, a royal good lot, that give evidence of the great value of Mountaineer as a sire. There are Miss Ramsdens, Crimson Flowers, Brawth Buds, Duchess of Glosters, Nonpareils, Rosewoods, Marr Blythesomes, Minas and Missies, the best lot that have ever been at Belmar Farm.

W. R. Elliott & Sons, Guelph, Ont.; John Miller, Jr., Ashburn, Ont., and Robert Miller, will furnish cattle, and the lot will have 16 bulls and over 50 heifers and cows, equal to any lot that has been offered by auction in Canada. Sale to commence promptly at 11 o'clock. Be in time. Mention this paper when you write

ROBERT MILLER, Stouffville, Ont., for a catalogue

The Auld Herd and Pleasant Valley Shorthorns

Bulls like "Meadow Signet = 86823 = " are not easy to find. We have him and several others for sale. Those looking for bulls should make us a visit or at least write. Prospective buyers met at either Guelph or Rockwood.

A. F. and G. AULD

EDEN MILLS Willow Bank Stock Farm—Shorthorn Herd Established 1855. The = 60865 =, heads the herd. Young cows and heifers bred to him; also an exceedingly good lot of young bulls on hand, fit for service and at very reasonable prices. Some from imp. dams.

JAMES DOUGLAS, Caledonia, Ont.

Shorthorns—Records show that cattle bought from the Salem herd won numerous ribbons the past season. We have others. Several young bulls are priced reasonably.

Elora G. T. R. and C. P. R.

J. A. WATT, Salem, Ont.

Best Cough Syrup is Easily Made at Home

Costs Little and Acts Quickly. Money Refunded If It Fails.

This recipe makes 16 ounces of cough syrup, and saves you about \$2.00 as compared with ordinary cough remedies. It stops obstinate coughs—even whooping cough—in a hurry, and is splendid for sore lungs, asthma, croup, hoarseness and other throat troubles.

Boo Spavin

Once the lameness has been removed the hump without causing the horse any harm—the hump looking just as it did before the lameness came.



Information from our local agent, or write: The William Davies Co., Limited Commercial Fertilizer Department, Toronto, Canada.

One Shorthorn Bull for sale—Also heifer calf of superior quality and breeding; their dams have been hand milked. Prices right. STEWART M. GRAHAM, Port Perry, Ont.

CEDARDALE SHORTHORNS—To make room for newcomers, I am now offering some rare value in Scotch-bred cows and heifers, beautifully bred and high-class in type; also 1 yearling bull. Dr. T. S. Sproule, Markdale, Ont.

Spruce Lodge Shorthorns & Leicesters Present offering: Young bulls and heifers from grand milking dams. Also a choice lot of Leicester rams and ewe lambs, and ewes of all ages bred to Imp. rams. W. A. Douglas, Tuscarora, Ont.

SHORTHORNS & POLAND-CHINAS Am offering choice young bulls 8 to 14 months, and heifers of all ages. Fall pigs by Victorious Invader and Missouri Meddler, the best of the breed. Pairs not akin. Geo. G. Gould, Edgar's Mills, Ont.

Ayrshires of production, type and quality. I can supply Ayrshires that will please the most exacting critic. Young bulls or females of any age, the kind that swell the bank account. R. M. Howden, St. Louis Sta., Que. L.-D. 'Phone.

High-class Ayrshires—If you are wanting a young bull out of a 50-lb. a day and over cow, imported or Canadian-bred dam and sire, write me. Females all ages. Prices are easy. D. A. MACFARLANE, Kelso, Que.

Hillcrest Ayrshires At head of herd is a yearling of Tangles wild, a son of the champion Ayrshire cow, Printess of Tangles, 1200 P. test 16,195 lbs. milk and 625.62 lbs. fat; 99 head to select from. Inspection invited. F. H. HARRIS, Mt. Elgin, Ont.

QUESTIONS AND ANSWERS. Miscellaneous.

CEMENT FOR SILO—CARROTS FOR HORSES.

1. As I contemplate building a silo, would like to know how much cement and gravel, or how much stone and gravel, mixed, would be required, silo being 10 x 20 feet?

2. Also any points on carrots for horses, especially a pregnant mare?

J. A. M.

Ans.—1. For foundations and silo, almost twenty barrels of cement and about four cords of gravel and stone, or from twelve to fifteen large loads.

2. A few carrots are good for any horse in the winter when on dry feed. Give the mare one or two good-sized roots once or twice daily. If roots are small, give more.

CONVEYANCING

1. A and B went to the magistrate to draw out an agreement for sale of farm. The law man was not at home, but his son, a farmer, wrote the agreement out. Will it stand law?

2. Could he charge a fee, being he was no magistrate?

Ontario. Ans.—1. It depends largely upon how it has been worded. If it has been correctly attended to as to both wording and execution, and assuming that the parties to it were competent to enter into a contract—in point of age, etc.—it is probably valid, notwithstanding that it was not prepared by a solicitor.

2. His not being a magistrate would not make much difference. The work is properly solicitor's business; and the farmer's son would have difficulty in enforcing payment of a fee unless it was distinctly agreed between him and the parties to the agreement that he should be paid for drawing same.

BUILDING A COW STABLE.

I am thinking of building a cow stable, and would like to know how wide to make it for two rows of cows?

2. Which is best, heads to heads, or the reverse?

3. Can a building be put up thirty-two feet wide, without purlin plates? If it can, what size should the rafters be, and how far apart, and what pitch?

J. F.

Ans.—1. A building from 35 to 40 feet wide is necessary. It depends somewhat on the width of the feed and litter passages, gutters, and mangers. Feed alleys should be from four to five feet wide, and litter alleys from eight to eleven. Where only one litter alley is used, eleven feet is a good width. Where two are used, eight feet each is good.

2. There is a difference of opinion upon this point; some favor one, and some the other. In a properly-constructed stable there is little difference. With the cows facing the windows is considered by many preferable.

3. This depends on the style of building. With a balloon frame, it is possible, with the ordinary timber frame purlins would likely be necessary. Consult your carpenter or contractor.

CRACKED HEELS—COLT UNTHRIFTY.

1. Have a ten-year-old mare which has been lame when standing in the stable a while. I have blistered her for spavin, and in fetlock without success. Now she appears to have a cracked heel, and I think that causes the lameness. Is there a cure for cracked heel, and what should I apply?

2. I have also a year-old colt which is not doing very well, it being always thin in flesh. I feed on timothy and clover hay, oats, and some bran. Give cause and cure.

A. T.

Ans.—1. Keep in a nice dry stall. Purge with 8 drams aloes and 2 drams ginger. Follow up with 1 1/2 ounces Fowler's Solution of Arsenic twice daily for a week. Poultice the legs with boiled turnips and powdered charcoal, applied warm, three times daily for two days and nights. This will soften the scales. Then apply three times daily a lotion made of one ounce each of sulphate of zinc and acetate of lead to a pint of water.

2. He may be troubled with worms. Increase his ration and give plenty of exercise, and add a little oil cake to his feed.

Livingston's OIL CAKE MEAL

Is the most wholly nutritious stock food you can buy. Made of the purest Linseed—by the celebrated Old Patent Process (which makes it keep three or four years, if necessary) proved by feeding tests, both practical and scientific, to be 95% digestible.

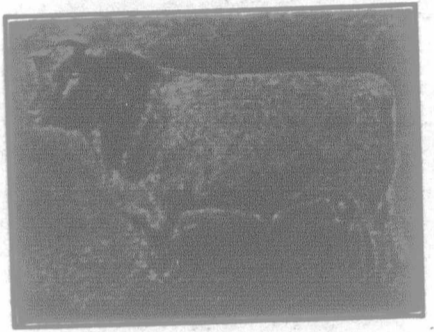
Even if LIVINGSTON'S OIL CAKE MEAL costs twice as much as the other foods which do not keep and cannot be half digested, it would pay every farmer and dairyman to get LIVINGSTON'S OIL CAKE MEAL. The cost is only a trifle higher.

LIVINGSTON'S OIL CAKE MEAL is really cheapest in the end—quickly increasing and improving the milk and healthily FATTENING CATTLE.

Ask your dealer. If he cannot supply you, write us.

THE DOMINION LINSEED OIL CO. LTD.

Manufacturers. BADEN, ONTARIO. MONTREAL, QUEBEC.



SCOTCH SHORTHORNS FOR SALE

Two high-class imported yearling bulls. Eighteen bull calves, 8 to 14 months old, by the imported sires Bandsman and Village Duke. Forty heifers and young cows of best Scotch families, bred to imported sires. Some Toronto and London prizewinners, both sexes; also some imp. yearling heifers.

MITCHELL BROS.

Burlington, Ontario. Farm 1/4-mile from Burlington Junction Station.

SHORTHORNS!

Have now a choice lot of young bulls to offer; also with something nice in heifers. Catalogue of herd and list of young animals on application. H. Cargill & Son, Props., Cargill, Ont., Bruce Co.



I Have SHORTHORN Bulls and Heifers, SHROPSHIRE and COTSWOLD Rams and Ewes, CLYDESDALE Fillies and Colts

that are as good as I have ever had, and that I will sell for prices within the reach of all. We have been in the business 75 years, always in the front rank, and propose to keep that position. You cannot afford to buy without writing us for prices. ROBERT MILLER, STOUFFVILLE, ONTARIO

1861 Irvine-Side Shorthorns 1912

Offering for sale young bulls and heifers that are the result of over 50 years successful breeding. Pure Scotch, and carrying the best blood of the breed. Few good Oxford Downs rams. John Watt & Son, Salem P. O., Ont. Elora Station, G. T. and C. P. R.

10 SHORTHORN BULLS 10

If in need of a bull those that we are offering should interest you. They range from 8 to 14 months old, and are nearly all bred direct from imported stock. We also have females of all ages. Bell 'phone. Burlington Junction, G. T. R. W. G. PETTIT & SONS, Freeman, Ontario.

SCOTCH SHORTHORNS

At prices that defy competition. I am offering a big, choice and royally-bred selection of females from calves up. Also a few right good herd headers, including my great stock bull, Lord Lavendar. A. J. HOWDEN, COLUMBUS P. O., ONT. Brooklin Sta., G. T. R.; Myrtle Sta., C. P. R.

MEADOW LAWN SHORTHORNS

of richest and most fashionable Scotch breeding, and of high-class type and condition. I can supply young bulls and heifers—Clarets, Roan Ladys, Mildreds, Stamfords, etc. F. W. EWING, SALEM, ONTARIO L.-D. 'Phone. Elora Station.

Shorthorns

of breeding and quality—Our offering this year in young bulls and heifers, out of Scotch cow, and sired by our great Mildreds Royal, are put up on show lines, and strictly first-class. GEO. GIER & SON, Grand Valley, Ont., P. O. and Sta.

Springhurst Shorthorns

Four of the first-prize Shorthorns at the late Guelph show, including the champion and grand champion fat heifer, were all sired by bulls of my breeding. I have now for sale ten young herd Exeter Station. Long-distance 'phone. HARRY SMITH, HAY P. O., ONT

80 Imported and Canadian-bred Ayrshires

I am now offering by private sale my entire herd of 80 Ayrshires, imported, imp. in dam and Canadian-bred; big producers, show stock, high-class in quality, with best breeding. L.-D. 'PHONE. DAVID HUNTER, MAXVILLE, ONTARIO

Stonehouse Ayrshires

Of choicest imported stock and with imp. sires and dams. I am offering young cows, 3, 4 and 5 years of age; a grand bunch of imp. yearling heifers, and a particularly good pair of young bulls. L.-D. 'Phone. HECTOR GORDON, Howick, Que.

Ayrshires and Yorkshires

We now offer at bargain bull calves dropped in dams with good records, or their daughters either imported or home-bred. Some choice February pigs; also young pigs. Alex. Hume & Co., Menie, Ont.

City View Ayrshires

Three young bulls fit for service; females from 3 months to 9 years; all young stock 3 years and under from R. O. P. ancestors. Always something for sale. Bell 'phone connections; 1 1/2 miles from 5 railroad stations. JAMES BEGG & SON, R. R. 1, St. Thomas, Ont.

Maple Grove, Crescent Ridge and Welcome Stock Farms.
 Motto: Richest breeding, superior individuals, representing the famous Tidy Abbekerk's, the Mercens's, also granddaughters of Pieterje Hengerveld's Count De Kol, and Pontiac Korndyke and other rich producers; 100 head to select from. King Lyons Hengerveld and two grandsons of Pontiac Korndyke head the herds.
H. BOLLERT, Tavistock, Ontario
 R. R. No. 1.



PURE-BRED REGISTERED Holstein Cattle
 The most profitable dairy breed, greatest in size, milk, butter-fat and in vitality. Send for FREE illustrated descriptive booklets.
HOLSTEIN-FRIESIAN ASSOCIATION,
 P. L. Houghton, Sec., Box 127, Battleboro, Vt.

Holsteins of Quality

Write us to-day for our proposition, telling us how any good dairymen may own a registered Holstein bull from a Record-of-Performance cow without investing a cent for him.
MORNO & LAWLESS, "Fimdale Farm"
 Thorold, Ontario

The Maples Holsteins

I am now offering for sale 10 young bulls, official record backing on both sire's and dam's side. They are good enough for service, and my prices should sell them.
WALBURN RIVERS, Foldens, Ont.
 Phone.

Maple Holstein-Friesians Special offering: Bulls from 1 to 15 months old. The growthy kind that will give good service. One from a son of Evergreen March, and all from Record of Merit dams. Write for particulars. **G. W. CLEMONS, St. George, Ont.** Bell telephone.

Glenwood Stock Farm 5 BULL CALVES fit for service, out of big milking strains, at low price for quick sale. **THOS. B. CARLAW & SON, WARKWORTH, ONT.,** Campbellford Sta

Ridgedale Holsteins—We have a couple of 3-year-old heifers for sale, one due to calve in February, the other is bred; both are milking now; also a few bull calves for sale, one over a year old. Shipping stations: Port Perry, G. T. R., and Myrtle, C. P. R., Ontario County. **R. W. WALKER, Utica, Ont.**

DON JERSEY HERD

Offers young bulls and heifers for sale; heifers bred to Eminent Royal Fern. **D. DUNCAN, DON, ONTARIO**
 Phone L.-D. Agincourt. Duncan Stn., C. N. R.

Balaphorene Farm Jerseys Present offerings: Choice bull calves from three to sixteen months, at very reasonable prices for quick sale. **JOSEPH SEABROOK, Havelock, Ontario.**

OBVIOUS.
 Father (reprovingly)—"Do you know what happens to liars when they die?"
 Johnny—"Yes, sir; they lie still."

GETTING IT ALL.

The doctor told him he needed carbohydrates, proteids, and above all, something nitrogenous. The doctor mentioned a long list of foods for him to eat. He staggered out and wobbled into a restaurant.
 "How about beefsteak?" he asked the waiter. "Is that nitrogenous?"
 The waiter didn't know.
 "Are fried potatoes rich in carbohydrates or not?"
 The waiter couldn't say.
 "Well, I'll fix it," declared the poor man in despair. "Bring me a large plate of hash."

Chapped Hands Won't Bother You
 if instead of soap you use SNAP, the original hand cleaner.
 SNAP contains no lye or acids, but glycerine and neutral oils which keep the skin smooth and in splendid condition.
 Try SNAP for a week and notice the difference. 47

S N A P
 Order from your dealer to-day. Save coupons.

QUESTIONS AND ANSWERS.
 Miscellaneous.

TURKEYS HAVE COLD.

My turkeys go around sneezing, and they breathe hard, but they eat well. Their heads are not swelled, and they do not seem sick. They just seem to have a common cold, but I do not know what to give them. Could you recommend a cure?
 A. Y.

Ans.—Colds result from damp weather, and also from closing the birds in too close houses at night. Remove the cause. Keep houses clean and well ventilated, and feed liberally on wholesome food, and the turkeys should recover.

WORMS IN HORSE-OIL CAKE FOR HORSES.

1. Have a horse five years old seems to be troubled with worms. Has a ravenous appetite, and hair stands on end. What would be a medicine for him?
 D. M.

Ans.—1. Take 1½ ounces each of sulphate of iron, sulphate of copper, and tartar emetic, and one ounce of calomel. Mix, and make into 12 powders. Give a powder every night and morning in damp food, or mixed with a little water as a drench. Give nothing to eat but a little bran. After giving the last powder, in about eight or ten hours, give a purgative of 8 drams Barbadoes aloes and 2 drams ginger. Feed bran only until purgation commences, and do not work until the bowels regain their normal condition.
 2. In small quantities, yes.

BUILDING POULTRY HOUSE—RAPE FOR SHEEP.

1. How much gravel and how much cement would it take to build a wall for a henhouse 40 feet long by 14 feet wide, and 10 feet high? Also, give the thickness the wall would need to be to support the roof only.
 2. Would such a building be damp if strapped and boarded inside?
 3. Could you suggest any cheaper and better wall?
 4. How many acres of rape would it take to pasture twelve sheep?
 O. W. N.

Ans.—1. About 17 barrels of cement and 4½ cords of gravel. Six inches would be thick enough for the wall.
 2. Too some extent, yes.
 3. An open-front house, 20 feet square, 4 feet high behind and 3 feet in front; 7 feet in the center, with a window 5 feet square in the west end and a door in the east, and hinged roosts at the back, two feet of the front being wire netting, and the rest of the building one thickness of boards, would be drier, cheaper, and better.
 4. This depends upon how long they are to be pastured on it? Try three or four acres.

BOG SPAVIN AND THOROUGH-PIN.

Have Percheron filly one year and ten months of age, extra large and well developed, but has always had rather coarse hock joints. A bog spavin and thoroughpin have recently developed on her left hind leg. The bog is very prominent, and seems to extend around the inside of joint and connect with the thoroughpin. At any rate, pressure on one will cause the other to bulge. She is not lame, and is otherwise unblemished and very promising. Please recommend treatment. Is it considered a serious blemish, and would you advise me keeping her as a brood mare as I had anticipated?
 SUBSCRIBER.

Ans.—Get a blister made of 1½ drams each of biniodide of mercury and cantharides mixed with two ounces vaseline. Clip the hair off the parts. Tie so she cannot bite them. Rub well with the blister once daily for two days; on the third day apply sweet oil. Turn loose in a box stall now, and oil every day. As soon as the scale comes off, tie up and blister again, and repeat once a month until cured. She may be hereditarily predisposed to a coarseness of the hocks. If so, it may be passed on to her progeny, but breed her to a good clean-limbed sire if you decide to make a brood mare of her.

MOLASSINE MEAL

Watch a horse when he is eating his oats—note how he slobbers—bolts a lot—and spills a lot—also a large proportion is undigested.
 Take a couple of handfuls of MOLASSINE MEAL, and mix with the oats at the next feeding time—reducing the oats by the amount of MOLASSINE MEAL added—then watch him eat—note how he masticates each mouthful and with what evident enjoyment.
 Every particle of nutriment is obtained from all its feed—that's why it will cost you less for feed and you get better work out of your horses, if you feed them regularly with Genuine MOLASSINE MEAL (Made in England).
 Prevents colic and eradicates worms.
 Get the genuine made in England. Ask your dealer, or write us direct for full information.
THE MOLASSINE CO., LTD., LONDON, ENGLAND
 Distributors for Canada—L. C. PRIME CO., LIMITED
 St. John, N.B. 482 Board of Trade Bldg., Montreal. Pacific Bldg., Toronto.

MALASOFAT DAIRY MEAL
PARK FEED MILLING COMPANY, LIMITED
 17 River Street Toronto, Ontario, Canada

LAKEVIEW HOLSTEINS
 To make room for the coming crop of calves, we are offering bulls of the richest breeding at farmers' prices. Grandsons of Pieterje Hengerveld Count De Kol and of Colantha Johanna Lad, all out of Record-of-Merit dams. Come now and get your choice.
E. F. OSLER, BRONTE, ONTARIO

FAIRVIEW FARM'S HERD OFFERS sons of Pontiac Korndyke 25983, the greatest sire that ever lived, and the only bull that ever sired 12 daughters that have made 7-day records above 30 pounds each. Do you want your next bull to be a brother to such cows as Pontiac Lady Korndyke (38.02), Pontiac Pet (37.67), Pontiac Clothilde De Kol 2nd (37.21), Sadie Vale Korndyke (36.20), and eight others above 30 pounds? If you do, write me for price on a son of Pontiac Korndyke. I also have sons of Rag Apple Korndyke and Sir Johanna Colantha Gladi. **E. H. DOLLAR, HEUVELTON, NEW YORK. Near Prescott.**

Summer Hill Holsteins
 Would you like your next bull to be from the same sire as the heifer that holds the world's record for yearly work, and the same sire as the Champion Cow of Canada in the seven day work, and the same sire as the Champion four-year-old of Canada in the thirty day work? We have bulls of this breeding to offer whose dams have records of over 27 lbs. We have also some extra choice heifers bred to our junior bull whose dam has a record of 34.80 lbs. butter in seven days and 111 lbs. milk a day. Yorkshires of all ages. **D. C. FLATT & SON, R. R. No. 2, Hamilton, Ont.**

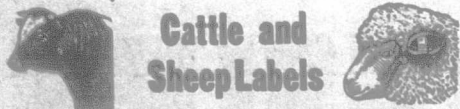
HOLSTEINS AND YORKSHIRES We have at present a number of two-year-old heifers, some in calf and some just bred, also our stock bull King Peter Teak sired by Peter Teak O. A. C., dam Queen Mabe. Also some sows safe in pig. **A. WATSON & SONS, R. R. NO. 1, ST. THOMAS, ONTARIO.**

HOLSTEINS OF HIGHEST QUALITY
 Our Holsteins have won wherever shown. Our herd is away up in the official records. They are bred from the world's best producing blood; there are none better. Let us know your wants in either males or females.
M. L. & M. H. HALEY, Springford P.O. and Sta., G. T. R. L.-D. Phone.

Woodbine Holsteins Herd headed by King Segis Pontiac Lad, whose sire's dam is the champion cow of the world. Sire's sire is the only bull that has sired five four-year-olds that average 30 lbs. each. Dam's sire is the bull that has sired two 30-lb. three-year-olds. His two great grand sires are the only bulls in the world that have sired two 37-lb. cows. Bulls and bull calves for sale. **A. KENNEDY, AYR, ONT.**

Evergreen Stock Farm High-class Registered Holsteins
 For sale: A few choice young bull calves and females, all ages; good enough for foundation stock
A. E. HULET, Norwich, Ontario.

Brampton Jerseys
 Bulls fit for service are getting scarce. Just a few left. Yearling heifers in calf are in great demand, 6 for sale; 6 now being bred. Brampton Stockwell the sire. A few good cows and some calves for sale. Production and quality.
B. H. BULL & SON, Brampton, Ont.



Cattle and Sheep Labels

A cent spent now may be the means of saving you three calves next fall. Send your name and address for free sample and circular. It is no trouble, and you can judge them for yourself. Write to-day.

F. G. JAMES, Bowmanville, Ont.

Farnham Oxfords and Hampshires. The oldest established flock in America. Present offering: a few two-shear and older ewes of both breeds, bred to our imported champion ram.

Also a few nice ewe lambs by imported sires. Prices reasonable. Henry Arkell & Sons, Arkell, Ont. L.-D. phone in house.

Dorset Ewes

Is lamb. Ewe lambs. Chester White Boars about five months old. One Holstein bull 12 months old. All of the choicest breeding, and will be sold at a bargain to make room.

R. H. HARDING, THORNDALE, ONTARIO
Mapleview Farm.

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Aberdeen-Angus Cattle

A few young bulls and heifers that are right in breeding and quality, and will go at farmer's prices.

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Quality Oxford Downs Winners. Imp. and prize-winning stock. 1 and 2 shear rams and ewes, ram and ewe lambs; many winners among them, the highest types of the breed.

E. BARBOUR, Erin P.O. & Sta. L.D. Phone.

Oxford Down Sheep, Shorthorn Cattle, Yorkshire Hogs—Present offering: Lambs of either sex. For prices, etc., write to John Cousins & Sons Buena Vista Farm Harriston, Ont.

Maple Grove Yorkshires & Holsteins

Eight young boars fit for use; good, long, straight, growthy ones, and young pigs of various ages and both sexes, sired by S. H. Jack (23815) (imp.), for three years champion at Toronto. A few beautiful sows, big enough to breed. One two-year-old Holstein bull—a show animal that has few equals—to be sold very cheaply; out of a heavy milking dam. One yearling Holstein bull, a good one, sired by Dutchman Olantha Sir Abbecker, and out of a grand young cow; also a heifer calf, just lately dropped, a beautiful, straight calf, out of the same dam; also grade heifer, calves and yearlings. All will be sold at bargain prices.

H. S. McDIARMID, Fingal, Ont.
Long-distance phone. Shedden Station.

Large White Yorkshires

Have a choice lot of sows in pig. Boars ready for service and young pigs of both sexes supplied not akin, at reasonable prices. All breeding stock imported, or from imported stock, from the best British herds. Write or call on:

H. J. Davis, Woodstock, Ont.
C. F. R. and G. T. R. Long-distance phone

Newcastle Tamworths and Shorthorns

Present offering: Seven boars from 6 to 10 months old; boars and sow pigs 6 weeks to 4 months; sows bred and others ready to breed, from such sired stock as Colwill's Choice, Canada's champion boar, 1901, '02, '03 and '05, and Imp. Cholderton Golden Secret. Also a few choice Shorthorn heifers in calf; beef and milk combined. Show stock a specialty. Prices right.

L.-D. Phone. A. A. Colwill Newcastle, Ont.

SWINE OF ALL BREEDS FOR SALE.

Yorkshires, Tamworths, Berkshires, Hampshires, Chester Whites, Poland-Chinas, and Duroc-Jerseys. I have constantly on hand both sexes of all ages. Show stock a specialty. John Harvey, Frelighsburg, Que.

Duroc Jersey Swine AND JERSEY CATTLE.

Grand stock, either sex, constantly for sale. Price reasonable. MAC CAMPBELL & SONS, Northwood, Ontario.

Morrison Tamworths and Shorthorns

Present offering: Four dandy bull calves that will make show winners, from 6 to 10 months old. Choice Tamworths, both sexes.

Chas. Currie, Morrison, Ontario.

TAMWORTHS

A few sows bred to farrow in February and March; also choice pigs from three to five months. Bell phone, HERBERT GERMAN, St. George, Ont.

Cloverdale Berkshires

Present offering: Sows bred and others ready to breed; also younger stock of both sexes. Prices reasonable.

C. J. LANG, Hampton, Ont. Durham Co.

QUESTIONS AND ANSWERS. Miscellaneous.

SCHOOL TAXES AND PRIVILEGES.

A lives and owns property in S. S. No. 10. A also owns, or rents, property in S. S. No. 12.

1. Can A send his children to school in S. S. No. 12, without paying a special tax levied by the trustees of S. S. No. 12?

2. Does paying school tax on property in both sections give A the right to send children to school in either or both sections?

Ontario.
Ans.—1. Probably not.
2. Not of itself.

MOVING A POST.

I am making some improvements in our barn, and a post is in the hall before the cattle. I am going to take it away and put one on each side, and have a stick across to hold up the sill. I would like to use a rail from the railroad. The span would be about six feet. Would a rail of steel be strong enough? How would it compare with a stick of elm 10x12 inches on its flat?

F. G. S.
Ans.—We have no comparison of the breaking strengths of elm and railroad steel laid horizontally. Either the steel rail or the elm beam should be strong enough to carry the span of six feet. If the elm is put in, place it on its edge. That is, the thickest side up and down.

IMPROVING GARDEN SOIL.

Will you kindly advise me, through "The Farmer's Advocate," what is the best thing to do with a heavy clay soil in our garden to make it productive. We use it mostly for flowers, but think something can be done to overcome the objectionable tendency it has to harden. And last summer we were troubled with a lot of snails, I think they were, and should like to prevent their coming again next year. How can we fix them without hurting the plant?

W. R.
Ans.—It should have been dug over deeply last fall and a rough surface left, that the frost might get a chance to work on it. If you could incorporate some straw manure it would help it greatly. Do not work it when it is too wet, and cultivate after rains to prevent baking. The most practical method of destroying the snails would be to remove all boards or rubbish under which they might hide and kill them as discovered.

FOXTAIL FOR FEED—HEN DIED.

1. Has foxtail seed any food value for cattle? Pigs do not seem to eat it, nor any chop it is mixed with, but our cattle seem to like it when ground.

2. On killing a hen for home consumption, found, on opening, several large formations in what we supposed was the egg pouch. They were not attached to anything. Varied in size from the size of a hen egg to as small as a swallow's egg, very irregular in shape, a yellow color, and on cutting open had somewhat the color and texture of liver. The whole carcass seemed in an unhealthy condition, the entrails, liver, etc., pulling all to pieces very easily. The new growth of feathers seemed stunted, many curling up and withered looking. Previously had noticed a hen show a heavy falling down behind till it almost trailed on the ground, and it soon died. I presume it was a more advanced case of the same complaint. From this description, can you tell what was the trouble, the cause, and if contagious, and whether there is any treatment. Would it be from a broken egg inside the hen? Did not consider it fit for use.

X. Y. Z.
Ans.—1. Foxtail seed should have a feeding value approximating that of millet seed, but it would likely be just about as profitable to destroy it to prevent its spread. If fed at all, it should be carefully ground.

2. This may have been some disease of the ovaries or oviduct. Breaking down behind is often due to an over-fat condition, but is sometimes caused by a derangement of the oviduct, and is not often curable. It is not contagious.

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This fall I have the best lot of lambs I ever bred. I have plenty of show material, bred from the best stock procurable in England. Order early if you want the best. Ram lambs, shearings and ewe lambs. Yorkshires of all ages.

J. A. Gerswill, Bond Head P. O., Ontario
Bradford or Beeton stations. Long-distance phone.

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50 young Shropshire ewes of good size and quality, bred to the great breeding ram, Belvoir Sensation. 40 Cotswold ewes, from one to three shears, bred to choice rams. Also a few extra good ewe lambs. Get my prices before you buy, as I have never been able to offer such good value at a reasonable price.

Claremont Stn., C.P.R., 3 miles. Pickering, Stn., G.T.R., 7 miles. JOHN MILLER, Brougham, Ont.

Belmont Shropshires and Southdowns

I have a grand lot of rams and ewes for sale, both breeds. Anyone wanting a good ram, or a few good breeding ewes, should write me at once and get the first choice.

C. Hodgson, Brantford, Ont.

COTSWOLDS AND SHROPSHIRE At Toronto I won 1st on flock, champion on both ewe lambs of both breeds; strictly high-class.
J. MILLER, JR., "BLAIRGOWRIE FARM," ASHBURN P. O., ONTARIO

Spring Valley Shropshires Present offering—6 ewes, five years old; and 6 yearling ewes, good quality, all bred to Cooper Ram (Imp.); also 2-year-old Cooper Ram (Imp.) will be sold cheap to avoid inbreeding, 2 shearling rams, and lambs of both sexes; here is a good opportunity to buy foundation pure-bred flock.
THOS. HALL, Bradford, Ont., P.O. and Station.

ELMHURST LARGE ENGLISH BERKSHIRES
Present offering: Select sows. Choice boars ready for service; also younger stock, the get of Duke of Somerset, imp. and out of imported dams. Satisfaction and safe delivery guaranteed. H. M. VANDERLIP, Breeder and Importer, CAINSVILLE P.O. Langford station, Brantford and Hamilton Radial.

Pine Grove Yorkshires Bred from prizewinning stock of England and Canada. Have a choice lot of young pigs of both sexes, pairs not akin, to offer at reasonable prices. Guaranteed satisfaction.
Joseph Featherston & Son, Streetsville, Ont.

Woodburn Berkshires are founded on the famous old Sally tribe, noted for big size, length of body and strength of bone. We can supply pairs and trios not akin. Show stock a specialty. Also high-class Cotswolds, ram and ewe lambs, shearings.
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If the farmers of the Maritime Provinces, Quebec and Ontario want to make sure of getting the highest possible grade of seed oats for the spring of 1913, apply to us at once. To prevent a repetition of the disaster that befell so many farmers last year by sowing devaluated grain, we have stored at Point Du Chene and Picou 50,000 bushels of large, selected, separated white seed oats, true to name and free from noxious weed seeds. If will be the farmers' own fault if they do not procure good seed, as the extra yield of these oats pays twice over the cost of the seed. Our firm name is stenciled on every bag. Do not allow the dealers to give you other than Read's oats for seed.

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SAMUEL WIEHL, Sisters, Oregon.

GOSSIP.

John Sample, of Milverton, Ont., a station on the Guelph-to-Goderich branch of the C. P. R., a well-known horse importer, writes that he has thirty-five head of imported Clydesdale mares and fillies due to land in Ontario January 15, some of which have won numerous prizes in Scotland, and the majority of which are in foal to some of the best sires in the Old Country. These are all to be sold by auction, date and place of sale to be announced in advertisement in a later issue. Readers interested will do well to look up his advertisement in this and later issues.

GREAT SHORTHORN SALE.

The Toronto sale, advertised in this issue, is an annual event of great importance to the farmers and cattle-breeders in Canada. Several of the best and oldest breeders in Canada make the consignment. They have in past years made good in the cattle offered, though the claims before the sale seemed difficult to fulfil. They have made the highest averages in Canada each year that they have sold, and there were many good things that sold for very low prices. Some of them have since been sold for more than three times the price paid at Toronto. There will always be the best bargains at the best sales.

Peter White, K. C., President of the Dominion Shorthorn Association, will sell fifteen head. Three bulls, one of them the three-year-old Missie, Mountaineer, that is sired by Uppermill Omega, and from the Missie cow, Mistletoe 21st. He is a proved show bull, and winner of second at Toronto, he never was in better form, and without doubt he is a sire without a superior. His calves, both male and female, will speak for him.

Pinnacle, a yearling for this year's shows, by Mountaineer, dam Pine Grove Duchess of Gloster, looks like giving trouble to his opponents everywhere. He is red, thick, smooth, and big, the style of a Bates, with the thickness of the best Cruickshank.

Mina Lass 2nd, that has bred many show heifers and bulls, is a grand cow, with a fine cow calf at foot. This is a great cow, such as seen at Wm. Duthie's, and she breeds as well as she looks. Blythesome Girl 14th is as good as any of the tribe we have seen at Uppermill, and they were one of the best families there. She is long, low, and thick, a beautiful head, and we see few like her. She is a credit to the owner and to the sale. Rosewood Gem is a beautiful red, by a Missie bull, and from an imported Rosewood cow. There is form and breeding here, and she is bred to Mountaineer.

Nonpareil 72nd is a good doer, a worker, and has a nice cow calf by Gainford Marquis that will be interesting to all.

Pine Grove Duchess of Gloster is a grand, big, thick cow of the right kind. She has one of the best bull calves at foot. It proves her to be a breeder in the first rank. This is one of the best calves we have seen offered any place.

Ruby of Pine Grove 14th is a big, good show cow, has reared two good calves, and will have a calf sold with her.

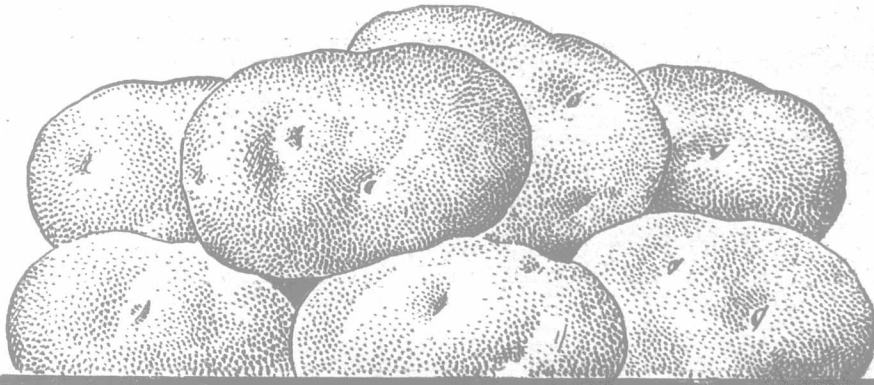
Belmar Miss Ramsden 2nd is a good show two-year-old. Two of her sisters have won in Toronto. She is like it, too.

There are three senior and one junior yearling heifer that can scarcely be duplicated. They are as nice as possible, and they have substance and utility to suit anybody. They look like winning for get of sire if shown in the form that they are approaching. Notes on the other herds will appear next week.
ROBERT MILLER.

EXODUS VS. NUMBERS.

During his first charge a clergyman found the ladies of the church entirely too much interested. Such a storm of petty squabbles arose from their over-eagerness to help that in despair he gave up the place. Not long afterward he met his successor.

"How are you getting on with the ladies?" asked the escaped divine.
"Oh, very well," was the answer.
"There's safety in numbers."
"I found it in Exodus," was the quick reply.



Progressive Jones says:

"Get Bumper Crops from Worn-Out Soil"

Scores, yes hundreds, of my farmer friends have got bumper crops from soils they thought were worn out. They now swear by

Harab FERTILIZERS

One of them, A. Robinson of Rosemount, tells me that he used Harab Fertilizers on potatoes and turnips without any manure on the land which was very old and poor. He got a bumper crop and is more than satisfied. Another man, D. J. Ferguson, got a grand crop from very light land that had been hard run by tenants.

Friend, if you have some poor land, some worn-out soil, don't be discouraged. Harab Fertilizers will make that soil yield bumper crops, and make you happy, or my name isn't Progressive Jones.

Harab Fertilizers are natural Fertilizers, manufactured from blood, bone, trimmings, etc., of animals slaughtered at the immense Harris Abattoirs. To these are added Potash and just enough quick-acting Nitrates and Superphosphates to start the plant off with a vigorous growth.

The cost of using Harab Fertilizers is small. The results are big. Write to The Harris Abattoir Co. for their booklet. It gives the information you want to know.

Yours for bumper crops
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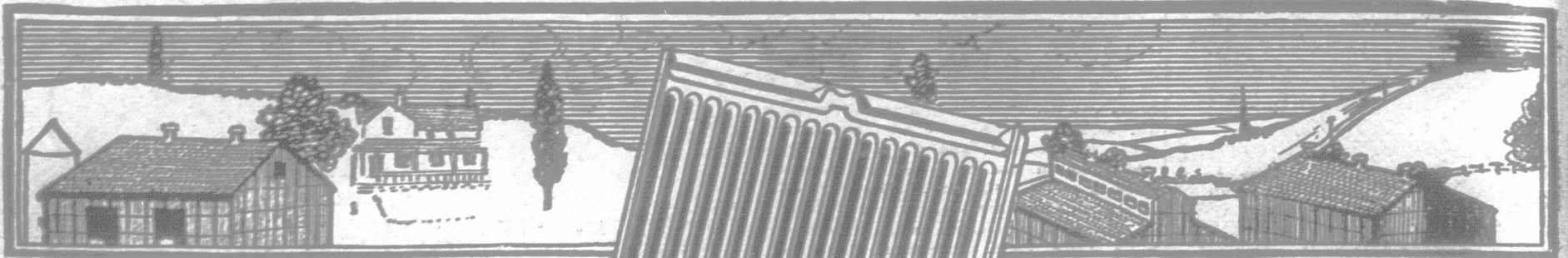
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"Use My New 'George' 100 Year Metal Shingle on the Roof and My Zinc Covered Corrugated Iron on the Walls of your Barn"

This is the Shingle I Recommend for Barns

My son, George H. Pedlar, Jr., invented this big shingle, just before he died. He planned a big shingle for big roofs, to lay in one-tenth the labor time needed for cedar. We made up and tested them for three years. I recommend the 24 x 24 inch 'George' shingle for good-size barns. It costs the same as my 16 x 20 'Oshawa' shingle per square. Both are in 100-year metal and are fireproof, lightning-proof and sunproof. These two shingles are the triumphant result of 50 years of labor in making good barn roofs."



I HAVE been making metal shingle for farm barns for half a century. I found recently a hundred-year metal for my shingle. It surpasses and outclasses anything else in the world that a man can use for a barn roof. You want a 100-year roof on your barn, at about the cost of cedar shingle, don't you? Of course you do."

"Well, that means my shingle. My metal shingle will cost any farmer less to-day, and be lighter and stronger, than cedar shingle. This is because my shingle saves many dollars for labor cost in laying. My shingle needs no paint. Once this cost advantage did not exist. But now-a-days labor cost of laying is very high. Wood shingles are of poorer quality and advanced cost. All told, my roof on the barn itself is the utmost value your money can buy—is to-day's most economical roof."

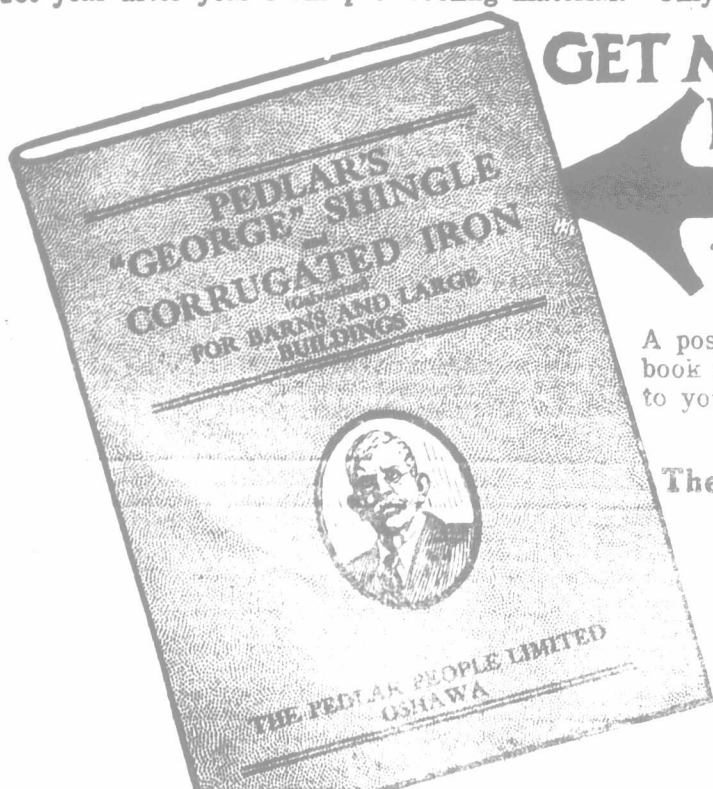
"A barn built without my shingle is going to cost you more in actual dollars to-day, and next year, and every year, than you need to spend. It is going to be a leaky barn sooner or later. You will pay higher fire insurance. You will take bigger fire risk. You will either pay out money for roof repairs, or see your hay and grain rot year after year from poor roofing material. Only my shingle in

metal will stop these troubles from the beginning. It will give service for one hundred years. Besides, you actually pay out less money for my roof, when laid, than for a cedar-shingle roof laid and painted properly."

"But that is not all in lowering barn cost. The time has come to stop using lumber sidewalls. Labor and lumber is too expensive. Use my galvanized, corrugated iron for the walls. It is fireproof and strong. It is applied swiftly in 8-ft. sheets, saving days and days of wages. Besides cutting out painting, every sheet of my iron in a brace, that strengthens your barn framing against sagging and wind pressure. A barn with my shingle and my sidewalls in metal costs less than the same barn with cedar shingles or roll roofing and lumber walls, when you figure in labor and paint. Use my corrugated iron for your barn walls, and my metal shingle for your roof—save money, get a lightning-proof barn, and get a longer-lasting barn than any other way."

"Write my nearest office about your new barn or remodelling your present barn. Tell us the dimensions. We will tell you what shingle and walls in metal will cost you and what they will save in labor and paint."

"Send them a letter to-day. I now have two sizes of metal shingle for you. My big shingle, the 'George,' is 24 x 24 inches. My 'Oshawa' is 16 x 20 inches. According to the size of your barn, we will tell you the right shingle to use. Even the big 'George' Shingle does not cost more per roofer's 'square'; your roof and its shape determines the size needed. My corrugated iron goes with either shingle."



GET MY NEW PEDLAR BOOK FREE

WHY not have my little book? It shows how a barn is built with my shingle and corrugated iron siding. It is a straight talk about making a better barn at less cost than the old way, and making it fireproof as well. A post-card will bring it. My nearest branch will send you this book free. I have just written it. It is my personal message *G. H. Pedlar* to you."

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