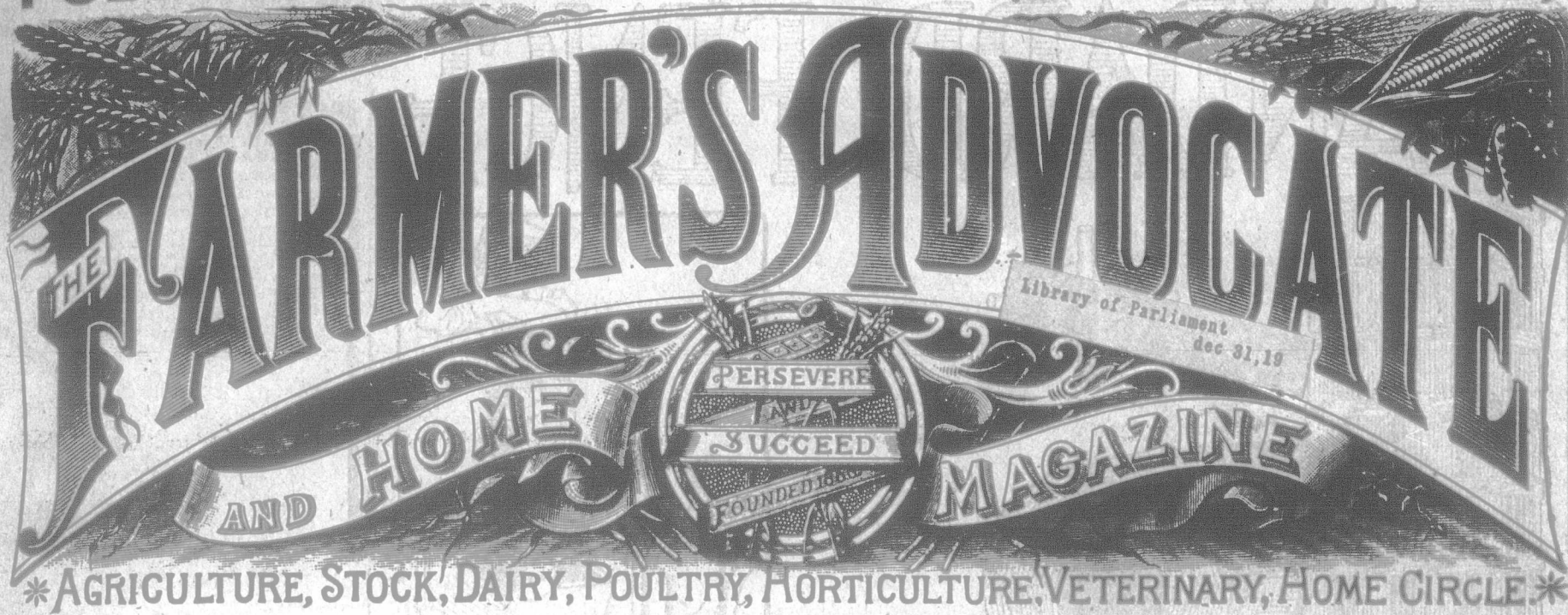


MARCH 13, 1919

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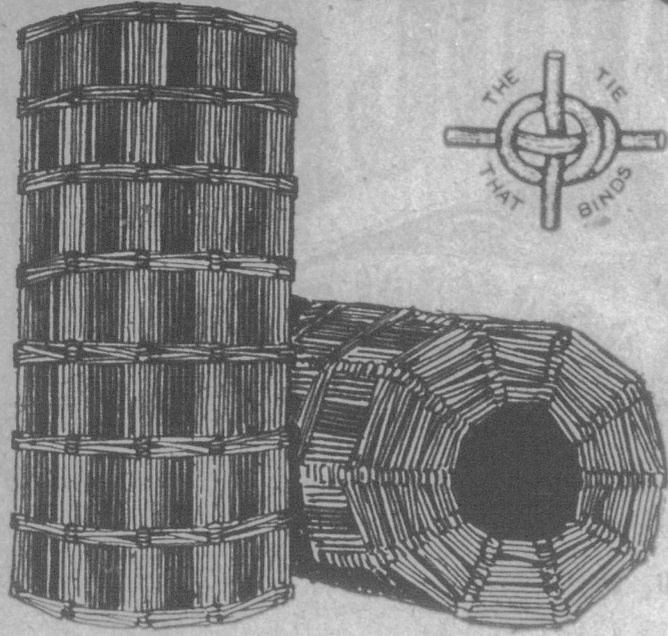
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Save the wages of two men

The time is past when you can leave out wages when you figure up the cost of a fence.

To-day you calculate this way:

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On that first item we believe we can save you money.

The whole output of Standard Fence is one quality. Naturally, we can manufacture more economically than if we made many grades. Our prices are therefore a little lower than some of the good fences on the market.

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the long run, because they do not last as long. And they do not make as good a fence as the all-steel fence built with Standard Tubes.

But using Standard Tubes makes a saving in labor alone that cannot be overlooked. **It saves the wages of two men a day, because one man and a boy will drive as many Standard Tubes in a day as three men and a boy can set of Cedar Posts!**

Stronger, More Durable, Fireproof.

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They have enough spring to stand the hardest strain without breaking. You can burn out the grass without hurting the fence.

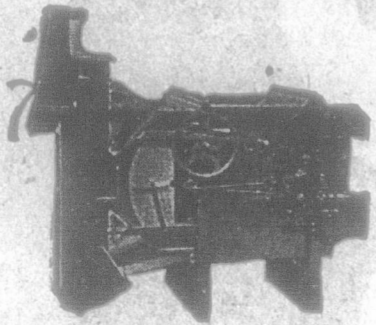
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If you want to get your fence in a hurry, and get it up in a hurry, you have only to get in touch with us. We are ready to load your fence on the cars the day your order comes in. Write to-day for prices and full information.

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Corn That Will Grow
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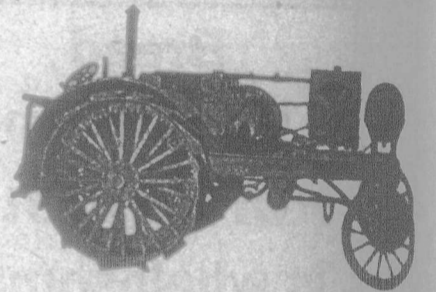
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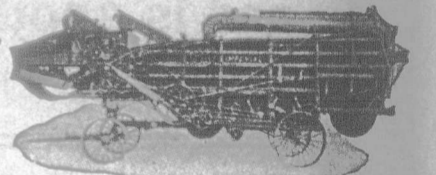


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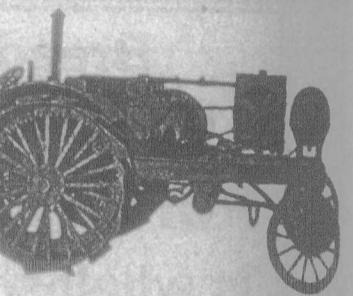
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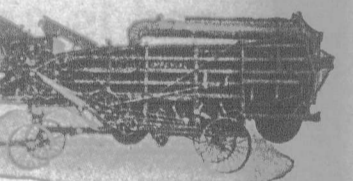
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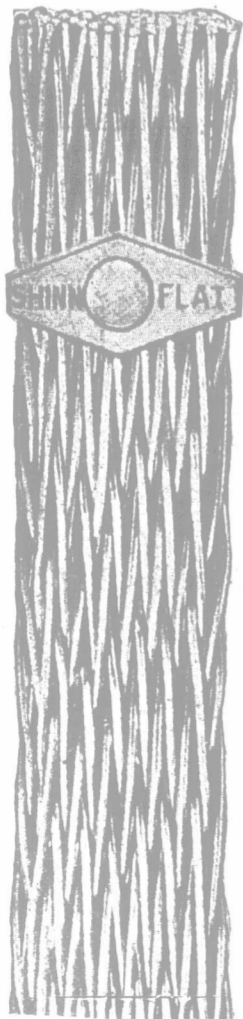
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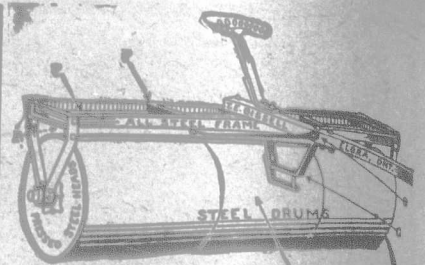
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Our Lime-stone is the highest grade in Canada. Write for free folder containing information you should have.

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of stuttering overcome positively. Our natural methods permanently restore natural speech. Graduate pupils everywhere. Free advice and literature.
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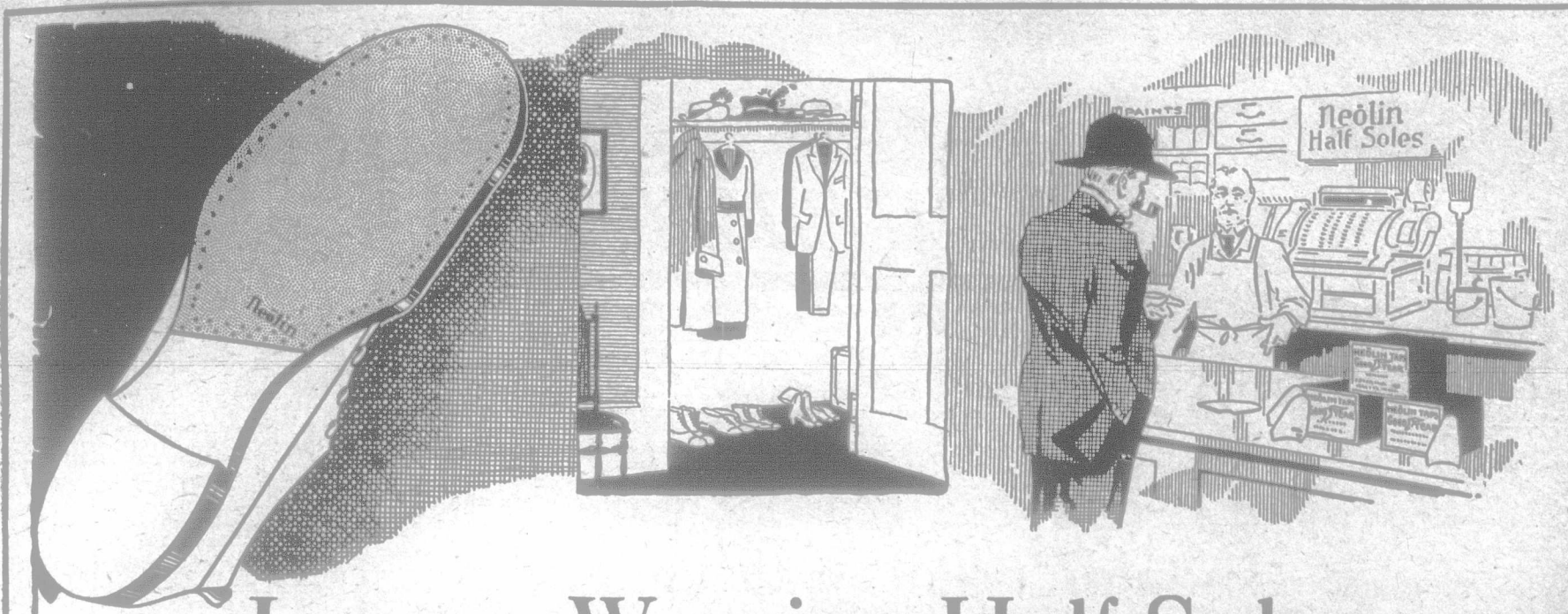
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HALF-SOLES don't have to be thick and heavy and stiff to give long wear.

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Tough and long-wearing—but light and flexible half-soles.

Bending with the foot and easing the day's work around house and dairy, in barns and fields.

But cutting shoe-costs, too, with their long, grim wear.

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Be sure you get real Neolin—look for the name "Neolin" on the bottom of the sole.

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Spray Potatoes To avoid Bugs and Blight—It Pays

The O-K Canadian 2-Row Sprayer works like a wheelbarrow and thoroughly sprays two rows at a time; agitator keeps mixture stirred. Nozzles adjustable for both height and width of row; can be used for spraying trees, whitewashing, etc., built for long service.

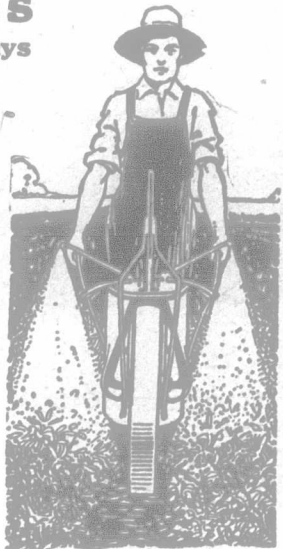
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THE O-K-SPRA for hand spraying

Keeps going without cleaning longer than any other compressed air sprayer, owing to the "efficiency" non-clog nozzle with special thimble-shaped strainer; has special curved lanes that saves you from backaches—no stooping to reach the under side of leaves; directs spray into otherwise hard to reach corners

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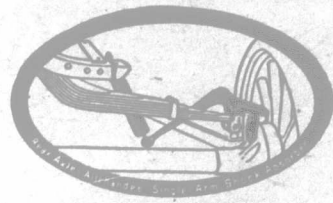


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Enjoy Limousine Comfort In Your Ford

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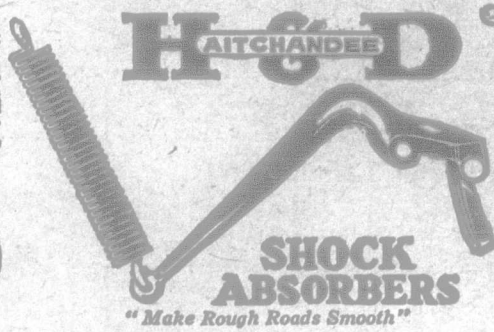
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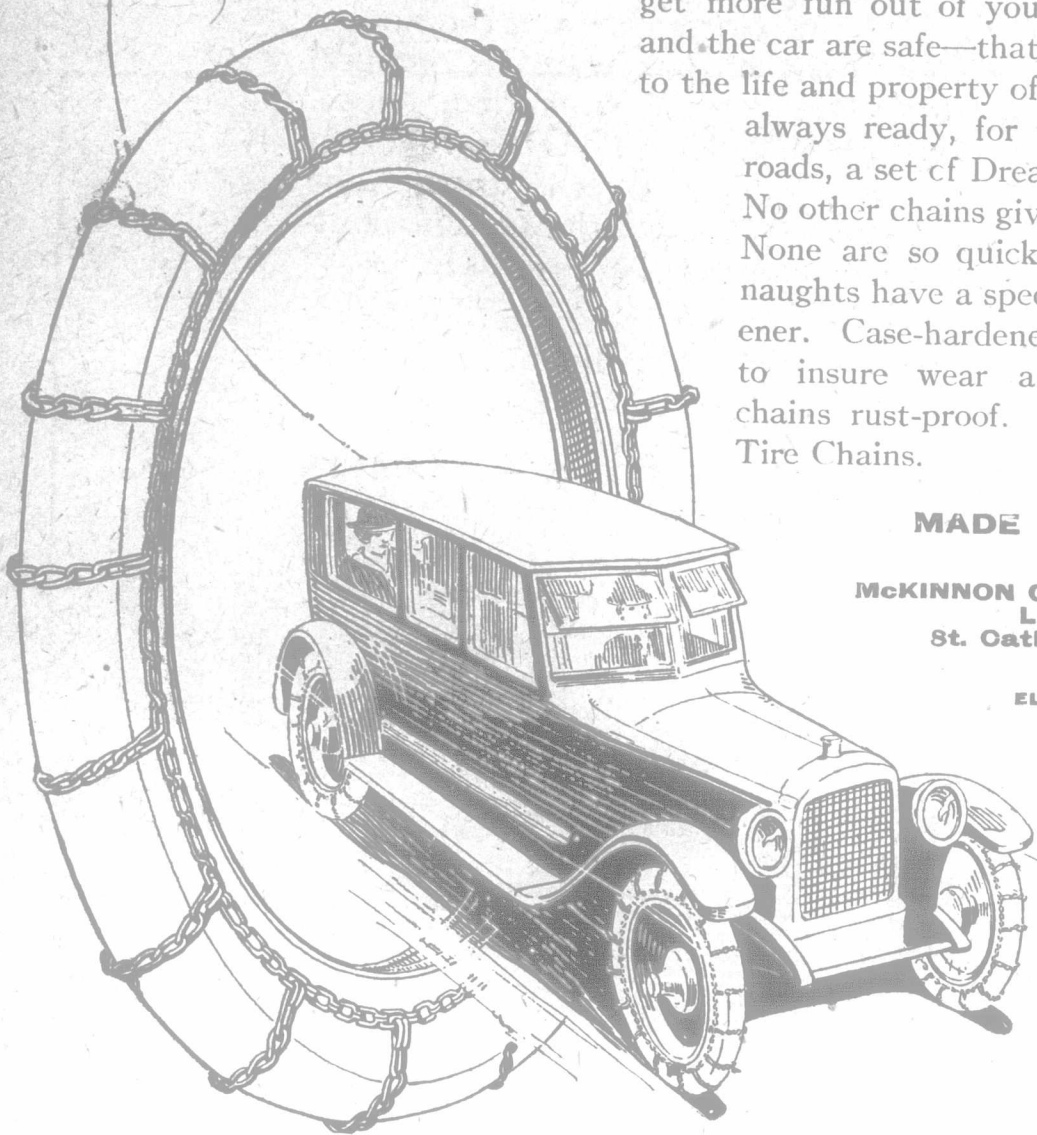
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There's no reason why you shouldn't enjoy driving your car on wet slippery roads—

No reason why you should crawl along, fearful always of what *might* happen.

You can drive with assurance on any roads—get more fun out of your car—feel that you and the car are safe—that you are not a menace to the life and property of others—if you have always ready, for the first sign of wet roads, a set of Dreadnaught Tire Chains. No other chains give the same sure grip; None are so quickly attached—Dreadnaughts have a special Long-lever Fastener. Case-hardened and electric-welded to insure wear and strength. Rim-chains rust-proof. They are finality in Tire Chains.



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A Real Oil Engine NOT AN EXPERIMENT

Uses no Gasoline, not even to start with. Starts easily in the coldest weather on the fuel it runs on. Coal Oil or Fuel Oil, and only uses half the amount required by other so-called Oil Engines. The saving in fuel will pay for this engine in a few months. The

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has no electric devices whatever, the burning of the oil is obtained by mechanical means alone, and the usual time and trouble, forever fixing electrical ignition, is entirely done away with, making this engine the Farmer's Friend. Get circulars and price of size you are interested in.

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TOWER'S FISH BRAND SCHOOLBOYS' COAT

"Built to Wear"

A STRONG, well made raincoat especially designed for school and messenger boys. Made of heavy material, finished with corduroy collar, solid brass rust proof clasps and two strong outside pockets. In two colors—Black and Olive Khaki.

Ask your dealer.

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They cut, crush, smooth, pulverize, and mulch, turning the soil twice—all in one operation. That's why the "Acme" Pulverizing Harrow makes an ideal seed bed. Light draft—easy on the horses and YOU ride. There's an "Acme" for every purpose—sizes 3 to 17 1/2 feet in width. Send for new free book, *The "Acme" Way to Crops That Pay*. Do it NOW.

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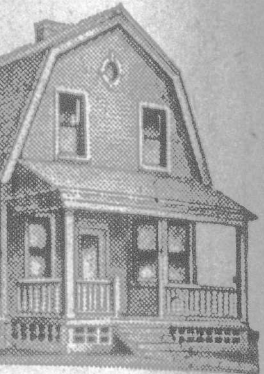


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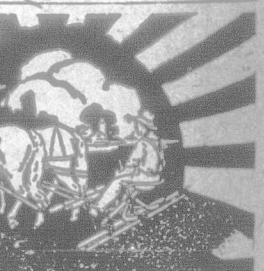
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YOU can easily find out whether your soil contains too much acid to produce the best results. At any drug store secure a small supply of "blue litmus paper." Keep this paper in a clean, dry bottle, and when tearing off a piece use forceps or scissors, as your fingers may spoil it for testing purposes.

With spade or trowel, take a little of the surface soil from several different parts of your fields. Mix these different lots of earth together, but do not touch them with your hands.

Take a few ounces of the mixed soil, put it in a clean cup or tumbler, pour on a little boiled water and stir with a clean stick until a pasty mass is obtained. Then press a strip of the litmus paper into this "mud" for half its length.

In fifteen minutes, draw out the paper, and if the part that came in contact with the soil is red, then that soil is acid and should be treated as explained below.

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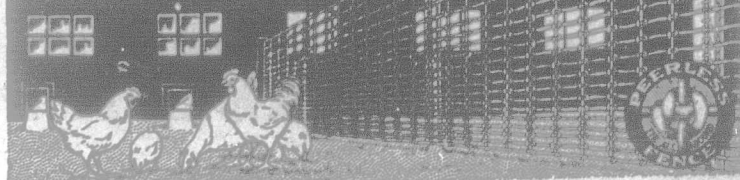
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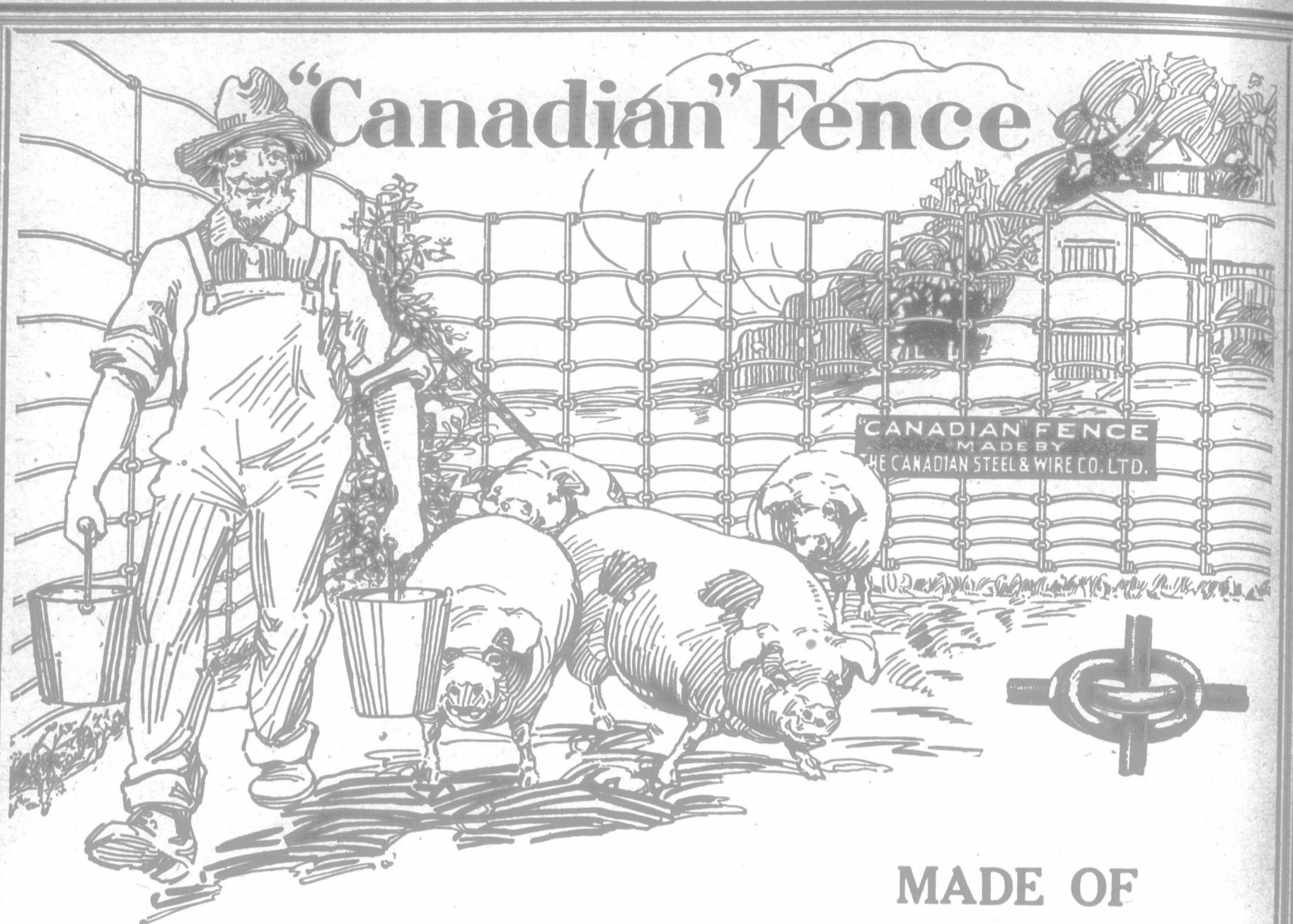
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The Farmer's Advocate and Home Magazine

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LONDON, ONTARIO, MARCH 20, 1919

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EDITORIAL.

Are the implements ready for the 1919 spring drive?

Lay in a supply of chop and millfeed to last over seeding.

Make a tour of the fields and see that all outlets and drains are open.

Save a few typey mangels, beets and turnips to plant for seed production.

If you have not already done so, start the incubator and get out an early hatch of chicks.

Get the seed grain ready and have some formalin on hand with which to treat it for smut.

Take good care of the wool while it is on the sheep and it will bring better returns when it is off.

Canada, rather than class or individual, should be considered when the tariff is under discussion.

Many are now looking for herd headers, and this is the time to make sure you are breeding up, not down.

Better seed and better breeding stock are prime requisites in Canadian agriculture. Now is the time to secure both.

Are you satisfied with the education measured out to rural children? If not, what improvement would you suggest?

As more enterprises come under Government control the greater becomes the need that patronage in all its forms be abolished.

Attend your Farmers' Club meetings and take part in the discussion; it will help you, your neighbors and the community.

Plan on repairing the fences and hanging the gates before seeding. Once seeding starts sundry jobs like these are too often neglected.

Wash and thoroughly oil the harness before the spring work commences. Be careful, however, not to put the leather into water that is too hot.

Drag the road in front of your farm, if the township council does not undertake to do so. A simple split-log drag, used at the right time, will make a vast improvement in the roads.

Rumors are common among dairymen that some of the official testers, in addition to their duties, engage to feed and milk the cows on 7-day tests. It is easy to see where such action will lead and the effect it will have on the value of the R. O. M. work. This matter should be looked into and straightened out at once.

What Is Wrong With the Rural School?

The human race of this and all countries engaged in the world war received a severe test, and never was such a thorough analysis made of the population. Exceptional physique was required that the human body might endure exposure to hardships incident to battle, and a still greater premium was placed on intellect, because it was a struggle where the cunning or resourcefulness of one man's brain might tell for more than the manpower of a whole battalion. The race received a severe combing, and one thing we have no occasion to be proud of is the percentage of illiteracy discovered in the ranks, and out of them. The same striking discovery was made in the United States, where the authorities have been more liberal with the information made public. The people in the country to the South are awakening to the inadequacy of their educational system, and we, too, shall demand a higher standard when the facts are disclosed.

Some day we shall begin to set our house in order, and one of the greatest problems to be faced will be found in the rural school. "What is wrong with the rural school?" is a question frequently asked, but seldom answered. Possibly a great deal which is wrong could be found in all schools, but the difficulty is to suggest a remedy which is applicable. There is too much idealism, and too little real practical common sense embodied in present-day discussions. The country school is commonly blamed for the depopulation of rural districts, and the ever-increasing migration to the city. This accusation is correct to a certain extent, but the school as such an influence is overshadowed by a great economic problem which must be solved, so conditions will be absolutely reversed, before any type of school, any form of pedagogy or any curriculum man could devise would educate a rural district full of ambitious, contented young people. The niggardly dividends which accrue from the farm and the consequent inconveniences and hardships which country people as a class are obliged to endure will tend to negative any progressive step taken by the rural school in an effort to fasten a healthy, ambitious race of young people on the land. Place farming on a level with other industries in regard to returns for capital invested and labor expended, then there will be no rural depopulation, for even now the country attracts and holds a great many who "would sooner farm for less than do something else for more." The country attracts and holds a stalwart race of people who desire in God's great outdoors to perform their daily tasks and rear their children amid natural environments.

While the rural school is not alone to blame for urbanizing the Province of Ontario or any other province, every one knows that a bright pupil is not taken in hand by the teacher and prepared for the occupation which his parents have followed. The high school is held up before him, and when he enters on the second lap of his educational course, university matriculation is the object to which he is directed. Any curriculum should not be tolerated in the rural school which has a tendency to place limitations on a child's possibilities and educate him only for the farm; such would be more grossly unjust than our present system. What we require in all schools is a clearer understanding of the needs of 95 per cent. of the enrolment who never go on to high school, and in country districts provision should be made for a continuation course in the winter months for the older boys and girls who have the time and inclination to pursue learning still further. The lack of this winter continuation course right at home is responsible for many young people going to the town or city for additional training, and at this stage the exodus begins. We would not recommend burdening the rural teacher with additional winter work; the organization of the school and the curriculum will not permit it, and more than that, as a general thing, the

rural teacher is too young to understand the needs of these boys and girls who might be seeking additional training to better fit them for country life.

The problem will never be solved so long as each section is equipped with the little one-roomed school, presided over by a teacher who is constantly looking forward to a position in the city where she will be paid according to her experience and proficiency. The country school is a training course for city teachers, and so long as this state of affairs exists the rural school will not meet the country's need. If agriculture would make heavier investments in education for the children, a new generation would grow up and in turn demand more recognition for agriculture.

We have just touched the fringe of this great question, but we shall have more to say later. Give the rural school some consideration, discuss it at club meetings and local gatherings, get some conception of the educational facilities afforded the urban child, and then decide whether you are satisfied with the opportunities provided for the country boy and girl. This is your problem, and it will never be solved till rural parents demand a solution and give expression to their desires.

The Price of Wheat.

The United Grain Growers have very clearly and concisely interpreted the desires of producers in regard to a fixed price for wheat. The Company's position is that they are absolutely opposed to the opening of the wheat market on the old basis which allows unrestricted speculation. As an alternative they suggest that: "The most desirable method of marketing our 1919 wheat crop would be for the Dominion Government to sell our exportable surplus of wheat and flour at a fair price, based on world values, to the British and Allied Governments. Such a price, mutually agreed on between the farmers of Canada and the Allied Governments, could be made a fixed price until August 31, 1920, and would, of course, govern the price of flour and wheat for domestic use in Canada."

Nothing could be fairer than this, especially at a time when all other commodities are being held up to a very high level. Herbert Hoover recently said that the United States Government might lose very little as a result of fixing the price at \$2.26. A portion of the Australian stores have spoiled. The famine in India necessitates sending considerable wheat in that direction, and vast quantities will be required to supply the hungry and unsettled peoples of Europe. Consumers everywhere might profit in the end by having the price fixed on such a basis as the United Grain Growers suggest.

How We Got Our Railroads.

The acquisition of the Grand Trunk Pacific places Canada in possession altogether of approximately 32,500 miles of railroads. This stupendous public enterprise has not been brought about by any great desire of the people to engage in railroading. The Intercolonial, now embracing in the neighborhood of 1,500 miles was not built to demonstrate the principle of state control. It was a part of the compact of Confederation. The Maritime Provinces demanded some connection with Ontario and Quebec when the Eastern States markets were taken away from them, as a result of the union. The National Transcontinental, running from Moncton to Winnipeg, a distance of 1,810 miles, was built by the Canadian Government with the understanding that it would be handed over to the Grand Trunk Pacific on certain terms stipulated in the agreement. The Company was unable to carry out its contract, and the National Transcontinental was left on the Government's hands. This road cost about \$180,000,000 and runs through an undeveloped country west of Quebec, and is sure to be operated at a loss for many years. The failure of the Grand Trunk Pacific to still further carry on has unloaded on the Government

The Farmer's Advocate and Home Magazine.

THE LEADING AGRICULTURAL JOURNAL IN THE
DOMINION.

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JOHN WELD, Manager.

Agents for "The Farmer's Advocate and Home Magazine,"
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1,733 miles of railroad from Winnipeg to Prince Rupert, and branch lines amounting to nearly 1,000 miles. It is well known, also, that the 9,500 miles of Canadian Northern lines were not acquired until no other course, consistent with any kind of administration the people would tolerate, could be found. Altogether, the Canadian people are now responsible for about 32,500 miles of railroad and its rolling stock, the enormity of which can be grasped when it is said that the whole Canadian Pacific mileage is in the neighborhood of 12,895. Anyone is unduly optimistic when they believe that this vast Government system can be operated at a profit, and the outcome will have no bearing on the advisability of Government ownership. One thing is certain, the Canadian Government should not stop half way. The Grand Trunk Railway should be included in this vast Government system, and made to contribute to the treasury which will otherwise be empty all the time. The taking over of the Grand Trunk Pacific alone is like accepting a piece of swamp land when the whole farm should be acquired and sold to discharge the loan against it.

Some People Work, Others Strike Oil.

BY ALLAN M. CDIARMID.

We are used to being told that "slow and steady wins the race," and it's a rule that generally holds good, especially in the case of us farmers who don't very often get an opportunity to "get in" on any of the schemes we sometimes hear about for getting rich without the accompanying conditions of working and waiting, that the most of us are pretty familiar with. They say that the good things of life come slowly, so, according to that line of reasoning, wealth must be one of the best things there is. To the majority of us it seems to come about as slowly as does the first grass in the spring to the stockman who is short of feed for his cattle.

No doubt that is why we think a good deal of our money, once we get it, as they say we do, and why we are "tight" and "close" and "near" and "sharp" and several other things that we haven't time to set down. "What comes easy goes easy" and naturally what a man sweats to acquire may make him sweat to part with. It's all in the attitude of mind of the individual, but this attitude has been created by his past experience.

I remember in my younger days hiring out with my team, one winter, to draw logs for a neighbor, who had been operating a "shanty" on a small scale. I was to be

paid according to the amount of timber I drew, and if things had turned out as I expected I might have done well enough. But the winter was stormy and the roads got bad, and then worse, until finally the only way to stay on them was to start from the bush with about half a load. And instead of making three trips a day I could only make two. I had agreed to furnish what oats my horses would use and it wasn't long before I began to wonder if shantying was, after all, the quickest way in the world to become independently wealthy. In the end I found that it wasn't. I stuck to the job until the logs were at the landing, to the last one, but when I got my wages and had finished counting them and then figured out the cost of the oats I had fed to my horses in the course of the winter, the hard fact dawned on me that I had acquired considerable experience through my getting up at three o'clock in the morning and being out in all kinds of weather and so on, but that in so far as money was concerned I hadn't made a single copper.

After an experience like that I don't feel like taking too much blame to myself for getting an exalted idea of the value of money and of trying to hang on to what little of it came my way in the next few years. It's hard experiences that make us "hard". No question about that.

But what started my mind running along these lines was some experiences of quite a different nature that have come to some of our brother farmers in the country south of us, where the unusual and surprising happens oftener than anywhere else on earth, I think.

They have discovered oil lately down in Texas. And that means as much to some of those who happen to own land in the right spot there as it did to those who owned the ground that Winnipeg now stands on, when the Western land-boom started, a few years ago. All one needed to do to get wealthy was to "sit tight" and refuse to sell. It all depended on how much land you had to start with how soon you became a millionaire.

So it is now down in Texas. The man who had something to start with, either money, or land on which oil had been found, has found money-making anything but the difficult task that he had grown to think it. In fact, some of the farmers we have been hearing about couldn't help making it. They had it pushed at them and forced on them. One cattleman and wheat farmer, S. L. Fowler by name, formed a company of his own and sold stock to all his friends who would buy it. One of these, a merchant, wouldn't take anything to do with the scheme, but Fowler told him that he was going to put his name down anyway. A few weeks after, this merchant was offered \$30,000, for his share that he was bound he wouldn't accept. He has developed quite an interest in the progress of the oil business since that, they say. The majority of those who invested as much as a hundred dollars with Fowler have since cleared not less than \$15,000.

Another example of the sort of thing that is going on just now is the case of a farmer who was promised a one-eighth interest in all the oil that would be taken out of his property. When oil was found he took the first offer that came and sold half of his eighth interest for \$100,000 cash. But the purchasers got eight times this amount for it.

A farm in the district was owned by two sisters. They lived on another farm at some distance from the one on which oil had been discovered, so a delegation of business men was sent to interview them and try and buy the property. One of the sisters was making soap in the yard in front of the house when the delegation arrived. "What do you want?" she said, without so much as looking up. This reception somewhat rattled the business-men and they got down to business at once by offering her \$750,000 cash, for her interest in the farm. She never missed a stroke with her soap ladle. "I'm not interested," was all she said, and the delegation had to leave without so much as a look from her.

One old farmer, who had sold his share, or interest, for half a million asked his wife if there was anything she wanted that he could buy for her. After thinking for a long while Miranda finally replied, "I wonder if we could get a new axe. You know the old one is awful dull."

Another farmer got so rich, by the same means as the rest we have mentioned, that he was persuaded to invest his money in a public building that the town was badly in need of. When building operations began this farmer hired with the contractor as hod-carrier. He couldn't resist the big wages that were being paid, although he knew it was himself who was supplying the money for the whole outfit.

He was more careful, evidently, than another man, they tell of, who got a note for \$250,000 and then promptly lost it.

The most of them are cautious enough, however. When it comes to paying their Income Taxes they "kick like blazes," as one assessor said. He spoke of one man who, a couple of months ago couldn't pay his store-bill. He had a sandy farm that wouldn't grow good thistles. But he traded it off for a hundred thousand dollars and now he's fighting the Government because they are trying to tax the interest on this amount.

Oil was found on a certain church property a few weeks ago, and although the church-members at first refused to sell their land and building, they finally changed their minds. Now the business men of the place are trying to get the grave-yard from them. And the chances are that, in time, they'll have it.

It's a great game. The gambling instinct of the people of this country is pretty strong and where there's a chance of "winning big and winning quick" there will be ten men ready to jump at it for every one that will be found willing to try the up-hill road of small profits and hard work. A good many people have never been able to find any fun in hard work. It gives them a pain. These are the kind that we find naturally turning to

real-estate and oil-wells. It's all right, if they're ready to take the long chance that goes with these things, but generally they come out just about where I did myself in my timber-hauling contract. With me it was a case of work and no plan. With them it is plan and no work. There's not much made either way. Unless it's money for the other fellow.

Nature's Diary

A. B. KLUGH, M.A.

In classifying birds with respect to the time they are to be found in any particular locality we divide them into the following classes: Residents, those which are present throughout the year; Summer Residents, those which breed in the locality; Winter Visitors, those which appear only during the late fall and winter; and Migrants, those which are seen only on their way north in the spring and on their return journey in the autumn.

In the case of the great majority of species this classification is quite exact, but in the case of a few species we find that they shift from one category to another in different years. Thus the American Goldfinch and Purple Finch sometimes winter in Central Ontario, and in the particular years in which they do so they are really residents. Or, in very rare cases, a winter visitor may remain to breed, as in the case of the Pine Siskin in Wellington County in 1905, in which case they also become residents for that year.

The species which are resident in Ontario, (exclusive of Northern Ontario), are the Ruffed Grouse, Herring Gull, Great Horned Owl, Long-eared Owl, Screech Owl, Pileated Woodpecker, Hairy Woodpecker, Downy Woodpecker, Blue Jay, House Sparrow, White-breasted Nuthatch, Golden-crowned Kinglet, (rare as a breeder), Brown Creeper, and Chickadee. In Southwestern Ontario we should add as residents the Crow, Prairie Horned Lark, American Goldfinch, Purple Finch and Junco.

The earliest spring arrival in Central and Eastern Ontario is the Prairie Horned Lark. This species is about seven inches in length, of a light pinkish brown above and whitish beneath. The outer tail-feathers are black and there are black patches on the breast and cheeks. The chin and throat are a pale yellow, and the little tufts on the head, which give the bird its name of "horned" Lark, are black. These little tufts can be erected or depressed at will.

The Prairie Horned Lark is a species of the open fields and roadsides, and it and the Vesper Sparrow are the two birds most frequently seen along the roads. It is included with a good many other small brownish birds under the general name "gray-bird" by those who are not particularly acute in their observation of bird-life.

This species has not always been an inhabitant of Ontario, but is one of the birds which have moved in as the forests gave place to fields. It was first observed in the Province in 1868, and by 1887 had reached Muskoka.

It is a very early breeder, the full set of three or four eggs being laid by the end of March. Sometimes the nest is found under an over-hanging snow-drift. The nest is built of grass in a depression in the ground, and is lined with horse hair and feathers. The eggs are dull olive in color and speckled with brownish purple.

The song of the Prairie Horned Lark is a cheerful tinkling ditty, usually delivered from a stone or clod of earth. But it also, in the mating season, rises into the air and sings while on the wing after the manner of the far-famed Skylark of England.

This species is one of the very few small birds which walk instead of hopping. It usually keeps to the ground, being very rarely seen in a tree or even a bush, though the top of a fence-post is a rather favorite perch.

As it is a bird of the fields its food-habits are of considerable interest to the farmer. It has been accused of eating sprouting wheat and a careful investigation of its food-habits shows that it does so, but to a very limited extent. Nearly all the grain eaten is consumed during the winter months, and is consequently waste grain which has been left on the ground after harvest. Its main food during early spring and late fall consists of weed seeds. It is particularly fond of the seeds of the Green Fox-tail, Yellow Fox-tail, Smartweeds, Bind-weeds, Pigweed, Purslane, Ragweed, Crab-grass and Barnyard-grass. Its gizzard is extremely muscular, and it has been found that the combined action of the wall of the gizzard and the gravel which it contains crushes every kind of seed which is eaten. Even the exceedingly hard seeds of the Gromwell are ground up and cherry stones are broken.

It eats large numbers of insects of various kinds—beetles, grasshoppers, moths, ants, flies, wasps, wire-worms, cutworms and weevils of various species.

The Crow is another bird which moves up into Central Ontario early in the spring. This is one of those species whose economic status is rather hard to settle with exactness. It does a great deal of harm by eating sprouting corn, by eating young birds and carrying off chickens, and it does much good by eating insects and devouring carrion. Thus it is "on the fence" in more senses than one. Personally, I incline to the view that it does more harm than good, and while I would not advocate a war of extermination against it, at the same time it is perfectly safe to recommend the shooting of as many as possible. Too many will not be killed—trust the Crow to look out for that!

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Itchy Legs.

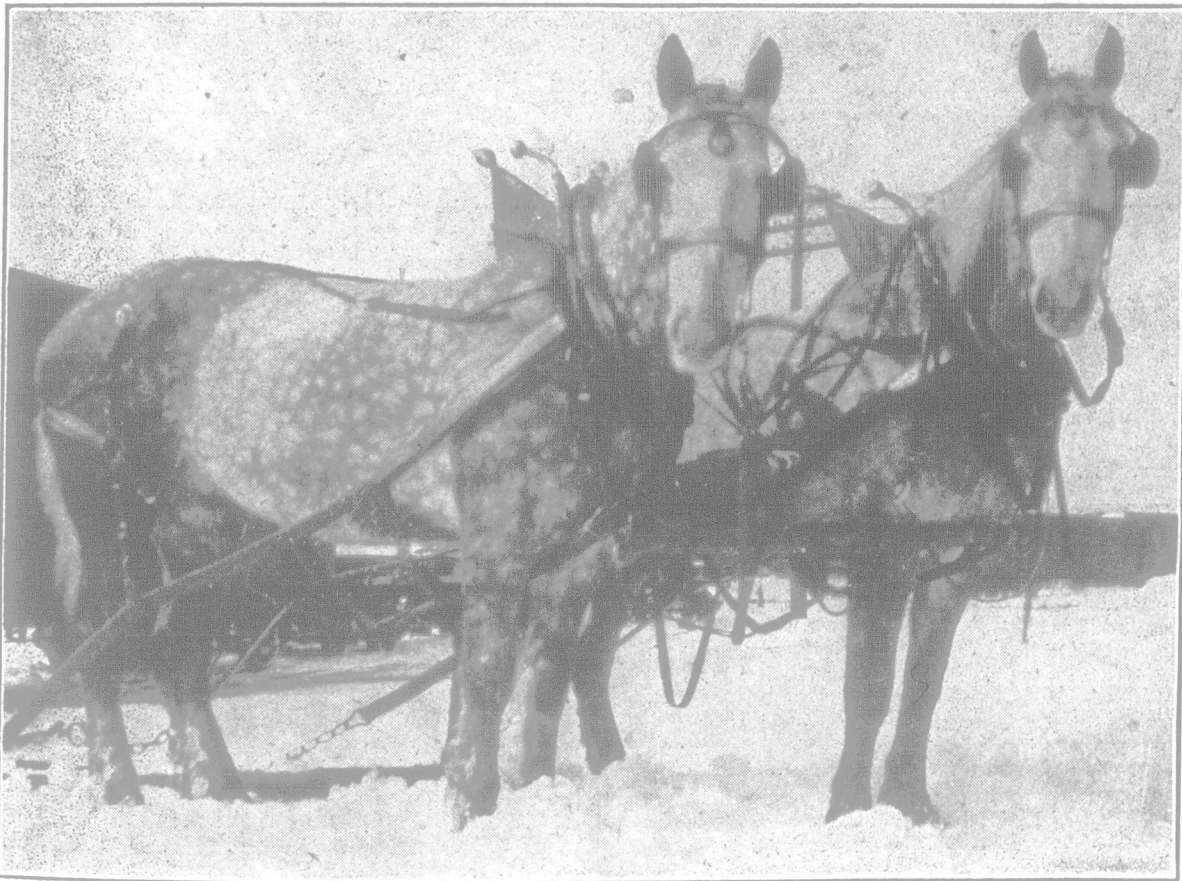
Heavy horses are more or less subject to an itchininess of the skin of the legs, particularly in the region of the fetlocks and cannons. This is much more noticeable in those with bone or feathering or both of poor quality, commonly called "round bone," or bone of a beefy or fatty type. While light horses are not immune they seldom suffer. It is seldom seen in horses with good quality of bone and feathering. In many cases there undoubtedly is a congenital predisposition inherited from dam or sire, or both. While this predisposition exists to a more or less marked degree in all breeds and classes of heavy horses, it is probably more marked in the hairy-legged classes. The trouble is more frequently noticed during the winter months than in other seasons, but is, nevertheless, frequently noticed during warm weather, especially in horses that are kept in the stable and spend considerable time in idleness. It is not common in horses while on grass.

As stated, there is usually a predisposition. The exciting causes are idleness, high feeding, lack of brushing and grooming, dirt, alternate wet and dry conditions of the legs, changes from heat to cold, etc. Whatever the cause, the legs become itchy, the horse stamps, bites his legs, rubs one leg with the shoe of the opposite leg, etc. This continues until the limbs become raw in places, small quantities of blood escape and adhere to the hair and collect dust, etc. If this be not removed the parts become foul and fetid, hence the trouble becomes aggravated. When warm water and soap are used for cleaning the parts, and the legs, instead of

removal of scruff or dandruff, go a long way towards preventing trouble. We are aware of the fact that many consider it unnecessary to groom idle horses, and also of the fact that in many cases the legs do not receive the attention they require. But experience teaches us that, while general and regular grooming may probably be dispensed with in idle horses, if they be of the hairy-legged class the legs must receive reasonable attention, else trouble is very liable to arise. When the legs become covered with ice or mud or both they should not be washed, but allowed to become dry and then be well brushed. All the exciting causes mentioned should, so far as possible, be avoided.

Curative Treatment.—When the trouble appears, of course curative treatment is necessary. In the first place the patient should be prepared for a purgative, by feeding on bran alone for 12 to 18 hours, then a purgative of 7 to 10 drams aloes (according to the size of the patient) with 2 to 3 drams of ginger should be given, and bran alone fed until purgation commences. After the bowels regain their normal condition, alteratives, as 1 to 1½ oz. of Fowler's solution of arsenic, should be given twice daily for a week. This can be given mixed with bran or rolled oats, or mixed with a pint of cold water and given as a drench. Local treatment consists in good and regular applications of something that tends to check itchininess. A solution of corrosive sublimate, 15 grains to a pint of water, heated to about 110 degrees Fahr., the hair parted where necessary, and the liquid rubbed well into the skin twice daily, gives good results. Some recommend a solution of Gilletts lye, about a teaspoonful to a pint of water, but the writer prefers the former. After applying it is good practice to rub with cloths until dry, but at all events in cold weather, drafts should be excluded. If this treatment is well carried out it usually gives good results, but if carelessly conducted the results are seldom satisfactory. When the trouble has reached the eruptive stage the treatment for scratches or mud fever should be adopted.

WHIP.



A Well-matched Farm Team.

being rubbed until dry, are allowed to dry from the normal heat of the parts and the atmosphere, the reaction causes a more or less marked stagnation of the circulation, which tends to increase the trouble. Hence the accumulation of blood, dust, etc., should be removed by brushing and rubbing, instead of by the use of fluids unless the attendant has the time and inclination to rub the legs until dry, and this requires so much time and labor with heavy-legged horses that it is seldom properly carried out.

The question then arises, "How can we prevent the trouble?" Of course, the principal point is to procure horses with clean, hard, flinty bone, with fine feathering and well-marked absence of beefiness or roundness, hence not predisposed to the trouble. This can be done only when mares with desirable quality are mated with sires of equal quality.

The next question is, "Having horses in which the predisposition exists, how can we prevent trouble?" This can be done only by taking care to prevent any of the exciting causes. Horses that are idle or partially idle should be fed on laxative, easily-digested feed, and the grain ration should be in proportion to the work or exercise given. The use of drugs or medicines as preventives is not advisable. Regular exercise, ordinary feed of good quality, and in reasonable quantities, with an occasional feed of bran, and a few roots or a little grass daily, according to the season, combined with regularly brushing or grooming the legs in order to prevent an accumulation of dirt, etc., and the

Good Dogs An Asset

EDITOR "THE FARMER'S ADVOCATE":

As an admirer of pure-bred useful dogs my attention was drawn to a recent article in your paper written by Mr. McDiarmid and also to Mr. G. de Long's excellent reply. I quite agree with the latter's suggestion, that instead of wasting efforts in trying to have all dogs exterminated when they have proved themselves to be of so much real assistance to the farmer, we should start a campaign to do away with the "mongrel curs" in the same energetic way that progressive farmers are gradually getting rid of the "scrub bulls and grade stallions."

I would like to draw your attention to a recent meeting of dog breeders which was held last month in Regina, Sask. This meeting was called by the Hon. W. R. Motherwell, ex-Minister of Agriculture, and his Deputy F. H. Auld and Chief Game Guardian F. Bradshaw. The meeting was attended by most of the prominent dog breeders in the West and a plan to encourage the breeding of pure-bred dogs, especially those breeds known to be of benefit to agricultural interests, was thoroughly discussed. Ways and means to do away with superfluous curs and to encourage farmers to think more of the pure-bred animals were discussed thoroughly, and it was decided that the protection of live stock and the elimination or control of predatory animals could be best attained if a sufficient number of pure-bred dogs of the right breeds were kept. To attain such an object, it is proposed that Agricultural Societies be bonused in connection with the granting of prizes for pure-bred dogs of utility breeds which were later chosen by the meeting.

It was pointed out that 115 fairs were held each year in the Province and it was felt that if the Government granted a sum of money to be used for such prizes, farmers would waken up to the fact that it would be to their interests to keep one pure-bred brainy dog, rather than several useless nondescript curs. The breeds chosen as being most useful to agricultural interests were the following:

Russian Wold Hounds, Deer Hounds, Airdale Terriers, Scottish Terriers, Collies, Sheep Dogs, Fox Terriers and Irish Terriers.

It seems to me that some arrangement similar to the above might be taken in hand by the directors of our fall fairs with a view of gradually exterminating the worthless mongrels and encouraging the breeding of pure-bred animals of known worth and usefulness.

Wentworth Co., Ont. CHARLES K. BAILLIE.

Shorthorn Show and Sale at Walkerton

The sale of Shorthorn cattle at Walkerton on March 6 was considered satisfactory by the various consignors. The 37 head brought a total of \$5,516. Most of the animals remain in Bruce County; a few were purchased by breeders in Grey County. Previous to holding the sale the animals were judged, the placings being made by Prof. W. Toole of Guelph. Judging the animals previous to taking them into the sale-ring is unique but should create a good deal of interest. N. C. McKay, the Agricultural Representative of Bruce County says: "We found that the show had a lot to do with the condition in which the animals were brought into the sale-ring. There was a marked improvement in the condition of the cattle offered compared with the two previous sales." The following is a list of the animals selling for \$100 and over, together with the name and address of the purchaser.

Standard King, R. N. Fowler, Dundalk.....	\$235
Lockerby Lady, Geo. Strauss, Chepstow.....	230
Scottish Maid, Albert Gibson, Lorne, P. O.....	225
Brantwood Baron, Alex McLeod, Smithdale.....	210
Red Mist, Ed. Threndyle, Elmwood.....	205
Stamford's Model, David Connor, Chesley.....	200
Viscount 2nd, Thos. Chisholm, Walkerton.....	180
Greenock Star, W. H. Arkell, Teeswater.....	165
Greenock Chief, Harry Young, Eden Grove.....	165
Count Broadhooks, J. Young, Chepstow.....	165
Red Daisy, Philip Montag, Formosa.....	155
Glen Duke, Robt. Scott, Port Elgin.....	155
Lady Duchess, Thos. Plowright, Walkerton.....	150
General Haig, Vince Hanmore, Paisley.....	145
Royal Monarch, W. A. Rowand, Walkerton.....	145
Bruce Wilton, Jas. Halliday, Greenock.....	145
Bowhill Seal, J. T. Wallace, Port Elgin.....	145
Silver Queen, Jacob Schmidt, Elmwood.....	145
Red Earle, A. C. Brigham, Allan Park.....	140
Stramford Elect, Ambrose Fritz, Chepstow.....	135
Corporal, Robt. Wilson, Ripley.....	135
Golden Stamford, A. C. Brigham, Allan Park.....	140
British Duke, Herman Lorenz, Elmwood.....	135
Roan Hero, Duncan McKinnon, Paisley.....	135
Bruce Hero, Robt. Irwin, Ripley.....	135
Vice Sultan, Albert Diebel, Mildmay.....	135
Gold Count, Geo. Strauss, Chepstow.....	130
Silver King, Wm. Moore, Chesley.....	130
Diamond Victor, John Mulhausen, Walkerton.....	120
Victor 2nd, Alex Knoll, Walkerton.....	125
Flora of Hidden Valley, Alex. Campbell, Holyrood..	120
Cherry of Ample Shade, John Kuntz, Elmwood.....	125
Red Meteor, Andrew Miller, Port Elgin.....	110
Bandsman's Lady, H. C. Brigham, Allan Park.....	110
Roan Bruce, Jas. Kirkpatrick, Ripley.....	100

In this issue common diseases of cattle, symptoms and treatment are given in tabulated form. A number of readers have written asking that this be published Tack it up in the stable for ready reference.

Common Diseases of Cattle---Causes, Symptoms, Treatment.

What To Do and How To Do It.

In the following table we have briefly described the causes, symptoms and treatment of some of the most common diseases of cattle.

The doses mentioned are for cattle of ordinary size. Those of larger or smaller size should be given doses in proportion.

It may be wise to state, that in most cases an ox will swallow liquids readily and quickly, but there are exceptions, and in such cases there is great danger of a

portion of the liquid passing down the windpipe and causing death by suffocation, or mechanical bronchitis, which usually ends fatally. If while being drenched an ox continues to work his or her jaws, it indicates that he is swallowing, but if the jaws be held quiet great care must be taken. (We use the word "ox" when referring to any sex.) We also wish to caution readers against attempting to drench an animal that has a sore throat, or that is unable to swallow properly on account of paralysis of the muscles of deglutition (swallowing)

or is in a comatose, or partially comatose condition, as in cases of milk fever. Many cows suffering from the last-named disease are suffocated by the fluids that are supposed to enter the stomach.

It is, of course, always understood that a sick animal be made as comfortable as possible, preferably in a box stall. It must also be understood that after the administration of a purgative the patient be allowed nothing to eat but a little sloppy bran until the bowels commence to act freely.

Disease and Cause.	Symptoms.	Treatment.
TYMPANITIS, BLOATING OR BLOWN. Over-feeding; eating food that readily ferments; frozen food, sudden changes in food; weakness of digestive glands.	Uneasiness, cessation of eating and ruminating; fullness of the abdomen, and more marked on left side; difficult breathing in proportion to degree of bloating.	Give 3 to 4 oz. oil of turpentine in a pint of raw linseed oil as a drench. Repeat if necessary in 2 hours. Tie a hay rope or round stick in the mouth. If bloating be excessive puncture in front of the point of left hip.
IMPACTION OF RUMEN. Over-feeding; dry food; sudden changes in food; weakness of digestive glands.	Uneasiness, cessation of eating and ruminating; often a grunt during expiration; fullness of abdomen, especially on left side, doughy to touch, with dull sound upon concussion.	Drench with 2 lbs. Epsom salts, ½ oz. gamboge and 1 oz. ginger in quart water. Repeat, or give 1½ pints raw oil in 24 hours if necessary. Also give 2 drams nux vomica, 3 times daily, and allow nothing to eat except a little bran.
FARDEL-BOUND—IMPACTION OF THIRD STOMACH. Food of a dry, woody nature; weakness of the digestive glands.	Dullness and loss of appetite, and rumination. Sometimes diarrhoea followed by constipation; grunt during expiration, especially when animal is lying. In some cases delirium.	Give 1 lb. Epsom salts, ½ oz. gamboge and 1 oz. ginger. In 12 hours give 1 pint raw linseed oil and alternate the above doses every 12 hours until bowels move freely. In the meantime give 2 drams nux vomica 3 times daily, and a little wet bran if desired.
CONSTIPATION. Indigestible food, dry food; weakness of digestive glands or of contractile powers of the coats of intestines.	Impaired appetite. Passage of small quantities of dry faeces, or an absence of any passage. In some cases slight uneasiness.	Give purgative, followed by nux vomica as for impaction of rumen. Give rectal injections of warm, soapy water, and nothing to eat but a little wet bran.
COLIC. Change of food; green food, frosted food; over-feeding.	Uneasiness, stamping, kicking at abdomen, whisking tail; looking around at abdomen; alternated by periods of ease.	Give a drench of 1 oz. laudanum and 2 oz. each of sweet spirits of nitre and tincture of belladonna, in a pint of cold water. Repeat, if necessary, in 2 hours.
GRAIN SICK. Eating large quantities of grain.	Same as impaction of the rumen.	So soon as it is known that the animal has had an opportunity to eat too much grain, do not await developments, but give a brisk purgative of 2 lbs. Epsom salts, ½ oz. gamboge and 1 oz. ginger at once.
CHOKING. The lodgment of a portion of a turnip or other root, apple or other foreign body in the throat or gullet.	Vain efforts to swallow; uneasiness; salivation; in many cases soon complicated with bloating.	Hold mouth open by the use of a clevice or other device. If obstruction can be reached remove by hand or forceps. If it can be located, move if possible up or down by manipulation. If not, pass probang or garden hose and force to stomach. Do not attempt to pass whip handles, broom handles, harness traces, etc.
DIARRHOEA. Too succulent foods; food or water of bad quality; irritating foods; foreign bodies in stomach or intestines.	Frequent passage of liquid or semi-liquid faeces; impaired appetite; rapid loss of strength; usually excessive thirst.	If due to foreign body, or if animal be still strong, give laxative of 1½ pints raw linseed oil. In about 8 hours, (or if animal be weak, at once); give 2 oz. laudanum and 6 drams each of catechu and prepared chalk in a pint of water, every 4 hours until diarrhoea ceases. Also add to the drinking water ¼ of its bulk of lime water.
FOUL IN FEET. Standing in, or walking through, irritating substances, as liquid manure, mud, wet rushes, etc.	Lameness, with irritation and swelling between the clouts and on coronet.	Remove cause; keep in perfectly dry place; cleanse between clouts; apply poultices of hot linseed meal until acute soreness disappears; then dress raw surfaces 3 times daily with 1 part carbolic acid to 30 parts sweet oil.
RINGWORM. Due to a vegetable parasite. It is very contagious.	Itchiness. In circular spots the hair falls out and greyish scales form. Great tendency to spread. The face and head the favorite seat, but many attack any part.	Isolate the diseased and disinfect the premises; be careful not to carry contagion to healthy stock. Moisten the scales with sweet oil, remove them and apply tincture of iodine twice daily until cured.
WARTS. Appear without appreciable cause.	Epithelial excrescences of various forms and sizes appear on any part of the body.	Clip off those with constricted necks, and to the flat ones apply butter of antimony once daily with a feather until they disappear. Very large ones should be dissected out.
LICE. Contact with affected animals or with the premises on which such are kept.	More or less intense itchiness, and the presence of the insects upon examination.	If in warm weather clip; give thorough dressing with a hot, 5-per-cent. solution of one of the coal-tar antiseptics, and repeat every 2 weeks so long as a fresh supply continue to hatch. The use of grease or oils will destroy the lice, but is objectionable on account of tendency to collect dirt.
PARTURIENT PARESIS, COMMONLY CALLED MILK FEVER. Not well understood, occurs shortly before, during or shortly after parturition.	Uneasiness; inattention to calf; glassy eyes; staggering; lying or falling down; may rise again; soon unable to rise; lies up on sternum or out flat; becomes comatose.	Prevention—allow calf to nurse, or milk little at a time and often, for 3 or 4 days after calving. Curative—Give no medicines by the mouth. Inflate the udder to its fullest capacity with oxygen gas or sterilized air, by the use of instruments specially designed; even a bicycle pump and teat syphon can be used.
MAMMITIS—INFLAMMATION OF UDDER. Wounds, bruises, exposure, irregular milking, often occurs at or about parturition.	Heat and swelling of part or all of the udder; loss of appetite; increased temperature; alteration in the quality and decrease in quantity of milk.	Give ordinary purgative, and follow with 4 drams nitrate of potash 3 times daily. Apply heat to udder by poulticing or long bathings with hot water; milk 4 times daily, and after milking rub well with camphorated oil.

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Common Diseases of Cattle---Continued.

Disease and Cause.	Symptoms.	Treatment.
RETENTION OF AFTERBIRTH. Causes not well understood.	Generally a portion of the membranes apparent through vulva, but in some cases none is apparent. In some cases straining and loss of appetite.	After retention for 24 hours in warm, or 48 hours in cold weather; it should be carefully removed by hand, the womb flushed out with a warm, 1 per cent. solution of one of the coal-tar antiseptics, and the animal given 40 drops carbolic acid in a pint of water as a drench or sprinkled on her food 3 times daily until all discharge ceases.
SORE TEATS. Rough milking or rough usage by calf when nursing; wounds, scratches, wet, filth, etc.	Teats are sore, swollen and hot, cracks generally soon appear.	Remove the cause. If necessary use teat syphon to draw milk. Dress cracks with 1 part carbolic acid to 50 parts sweet oil 3 times daily until cured.
Cow Pox. Specific virus. Is very contagious.	Soreness of teats, inflamed spots, soon forming vesicles with break and form scales with slight depression in centre, and are difficult to heal.	Isolate diseased and take great care to not carry infection to other milking cows. Dress 3 times daily with ointment made of 4 drams boracic acid, 20 drops carbolic acid and 2 oz. vaseline. If necessary use syphon. Milk not fit for use until cured.
FISTULA OF TEAT. A wound penetrating the teat and milk duct.	Escape of milk through the wound. Wound heals, except a small opening through which milk continues to escape.	Do the best you can until cow goes dry. Then scarify the edges of the opening, stitch with silk suture and dress daily with 1 part carbolic acid to 30 parts sweet oil.
OBSTRUCTION IN MILK DUCT. Appears to be a congenital predisposition.	Milk can be drawn in only small stream, or not at all. A careful manipulation between thumb and finger reveals a little, hard lump in some part of milk duct.	Either allow cow to go dry and fit for the butcher, or employ a veterinarian to operate, as the passage of needles, etc., is usually followed by serious complications.
INFECTIOUS OPTHAMIA. Due to infection.	Swollen eye lids; escape of tears; intolerance to light or sunshine, followed by a glassy appearance of the eye and partial or complete blindness. Animal after animal becomes affected.	Isolate the diseased; give a light purgative; keep in partially darkened stalls. Bathe well 3 times daily with hot water, and after bathing put a few drops of the following lotion into each eye, viz., 10 grains sulphate of zinc, 20 drops fluid extract of belladonna and 2 oz. distilled water.
DIARRHOEA IN CALVES. Improper food and insanitary surroundings.	Frequent escape of liquid or semi-liquid faeces, usually of a yellowish color. Loss of strength and vitality.	Place in sanitary quarters; feed on whole milk to which has been added 1/4 of its bulk of lime water. If diarrhoea continues give 1 to 2 teaspoonfuls of laudanum in a little new milk every 4 or 5 hours for a few doses.
INFECTIOUS DIARRHOEA IN CALVES. Due to a specific virus that exists in the surroundings, and usually enters the circulation by the navel opening.	Same as ordinary diarrhoea, except that in many cases it appears very shortly after birth.	Disinfect premises; dress navel at birth and several times daily until healed with 20 grains corrosive sublimate to a pint of water. If attacked mix 1 oz. formalin with 15 oz. water and give a teaspoonful to each pint of milk taken, or treat as for ordinary diarrhoea. WHIP.

A Profitable Sow

Some stockmen are much more successful than others in raising hogs. A good deal depends on the feeder and the care he takes of the pigs from the time they are farrowed until they are ready for market. If the pigs get a setback it takes some time for them to recover, which decreases the net profit. The accompanying illustration shows a litter of thirteen pigs, six weeks of age. They are large and thrifty youngsters for their age, and it is seldom that one will find a more uniform lot, especially in a litter which is considerably above the average in numbers. E. R. Smith, the owner of this bunch of pigs, certainly understands feeding and caring for the porcine tribe. Last spring a litter of thirteen pigs from the same sow averaged 231 pounds at six months and one week of age. There are very few feeders who can bring along a litter of this number to average 231 pounds at the age mentioned. This same sow has raised 122 pigs in ten litters in five years. She certainly does not owe Mr. Smith anything; in fact, there are very few sows with an equal record. The sow is a Yorkshire and is crossed with a Tamworth. If litters of this size and quality could always be secured, breeders would find hog raising considerably more profitable.

Shorthorn Bull Brings 4,750 Guineas.

EDITOR "THE FARMER'S ADVOCATE":
The Perth, 1919, Shorthorn bull record of 4,000 guineas, made on February 12, lived less than seven days, for at Birmingham, on February 18, and again on the 19th, two bulls were sold for 4,200 guineas, but on the 21st of the month the "record" figure of 4,750 guineas was paid for a bull at Penrith, offered at Thornborough's spring sale. For a little while, at any rate, this upward tendency of prices at public auction sales will be checked, for there are no more sales to be held until the autumn, unless, of course, something sensational is done at the private herd sales of 1919, of which there are many announced.
At Birmingham Shorthorn Sale, on February 18-19, 26 females were sold for an average of £137 17s. 5d. apiece, while 220 young bulls averaged £199 6s. 3d. each. The whole sale realized £47,436 18s., or a general average of £192 16s. 6d. for the 246 head disposed of. In 1918 the general average was £124 4s. 6d.; in 1917 it was £71; in 1916, £62; and in 1915, £41—a noticeable rise in the period of war. Let it be related that the two highest-priced bulls at Birmingham were Earl

Manvers' Pierrepont Golden Prince, sold to Sir Walpole Greenwell for 4,200 guineas, and H. M. the King's Windsor Knight, bought by Joseph Shepherd, the Argentine exporter, for the same figure. The former stays in the country, and the latter goes abroad. J. Sidey, another Argentine buyer, paid 3,000 guineas for Sir Owen Philipps' Kilsant Wanderer. Many bulls attained the 1,000-guinea mark. One was bought by Peter Ross (Ohio), to wit, A. W. Maconochie's Cudham Dreadnought. Ross made a nice selection.

But, as related, the climax came on February 21, at Penrith, when J. W. Barnes' Gartley Lancer, the champion bull at the show, was sold to Mr. Marshall, another Argentine exporter, for 4,750 guineas, and that price must go down on record as the highest ever given in Britain for a Shorthorn bull offered at a public auction.

There is no doubt the foreign trade is taking British cattle prices to very high altitudes, but the Government has its eye on the volume of export trade, and is watching it closely to see it is not overdone.

ALBION.

The Self-Feeder A Labor Saver.

EDITOR "THE FARMER'S ADVOCATE":

Having no convenient place to store a load of pig chop, I built a self-feeder 12 feet long and 6 feet high, with a shed roof. This will hold as large a load as the average farm team will care to pull. This amount of feed does my hogs for one week. I pump the water direct to the pig trough. Recently I fattened thirty-five hogs, which averaged 230 pounds each, without having to carry one pail of water or chop. When the corn was ripe I kept the feeder filled with it and found it more satisfactory than feeding on the ground, as there was not so much waste. I have heard several stockmen object to dry feeding of hogs, on account of the waste, but I believe that the labor saved will more than pay for the feed wasted. Furthermore, if there is a bunch of hogs that will not waste a small percentage of their ration, no matter how fed, I would be pleased to know of their whereabouts. The self-feeder is a labor saver.

Essex Co., Ontario.

G. B. B.

Prices of Shorthorn cattle continue to soar; 4,200 guineas paid for a bull at Perth was a record but it only stood for a few days as "Gartly Lancer" brought 4,750 guineas at Penrith on February 21. The bull goes to Argentine.

The Sheep Industry on Prince Edward Island.

EDITOR "THE FARMER'S ADVOCATE":

Sheep raising has been carried on in Prince Edward Island since interest was first exhibited in agricultural work of any kind, but during the past year noticeable progress has been made in this direction. There is a steady increase in the provincial flocks of sheep. Breeders are raising the status of the industry by paying more attention to the type of ewe purchased. These changes are a hopeful indication for the future. The natural conditions of Prince Edward Island being favorably combined with the fact that high prices are sure to prevail for the next few years, make it a certainty that any investment in sheep will more than repay the breeder.

To the early settlers on the Island the establishment of a sheep raising industry was a simple problem. Natural grass prevailed in plenty. Areas of ownership were unbounded and a large portion of each farm was in an unbroken state. The sheep were allowed free range. But when the system of farming gradually became more intensive and the unbroken areas were restricted, a new order was necessary.

At this stage, rather than make any change necessary for the maintenance of the flocks, many breeders decided to abandon sheep-raising. They did it so rapidly and completely that the Department of Agriculture sought means to encourage the perpetuation of the industry. This was done largely through the medium of lectures and the public sale of pure-bred rams. Fortunately conditions were improving at the same time for the sheep raiser. Prices for lamb and mutton were on the upward trend, and the farmers gradually came to see that it would be folly to give up sheep-raising altogether.

Co-operative Selling.

The system of co-operative selling of lambs and wool has also been influential in creating a demand for larger flocks. A number of Farmers' Institutes and Clubs have adopted the system of disposing of their lambs by advertising for tenders as a unit, instead of selling individually, as used to be the custom. This system cannot be too highly recommended. From a knowledge of current prices, it can easily be assumed that co-operative selling has rewarded the organizations with from 1/4 of a cent to 1 1/2 cents per pound, live weight, above the individual rating.

Co-operative wool selling has given even better financial results during the two years it has been in operation. The local organizations act as the collect-

ing medium for the communities, after which the wool is shipped to one or more large centres to be graded and sold by tender to the manufacturer. An average increase of seven cents a pound was established over local quotations during the two years the sales were conducted.

The possibility of making the province a pure-bred sheep-breeding centre is being considered by a number of the foremost farmers and the work is likely to develop as rapidly as conditions will justify. The improvement policy adopted two years ago aimed at this, when a carload of breeding ewes and rams were imported and added to the stock already on the Island. Since that time, the demand for pure blood has been steadily increasing. Indeed, last season the provincial and imported supply did not satisfy more than fifty per cent. of the demands.

Individual importations are expensive so that the co-operative plan of the Department of Agriculture commends itself to the breeder. He places his order with the Department and deposits an amount sufficient to cover the purchase price. The selections are then made from the best stock available and distributed at cost, including freight and feed charges, which are less on account of the number handled. By this method breeders get a new supply of stock that more than repays them in succeeding years. The popular choice rests with the short-wooled mutton breeds, such as the Shropshires and Oxford.

Finishing for Market.

There are several phases of sheep-raising that merit greater attention than they now receive. Foremost amongst these is the finishing of lambs for market. Casual observation is sufficient to convince anyone that many of the lambs are sold in a thin-fleshed condition, while others are not sufficiently mature. Occasion has prompted some of the buyers to report the handsome percentage of dressed meat that may be had from certain lots of lambs, while from other lots the percentage is below normal. In consequence of this, some sections cannot hope to be afforded as high a price as others until there is an evident improvement in the market stock.

In 1915, the first year of co-operative wool selling, 5,000 pounds of wool were offered for sale. In the following year this figure had risen to 28,000 pounds which sold at 38 1/4 cents a pound. In 1917, 24,000 pounds were sold at 70.28 cents and in 1918 approximately 53,000 pounds sold at 75 cents.

Something like 20,000 lambs are sold each year by the co-operative system, which is in the hands of the Farmers' Institutes chiefly.

Sheep raising must necessarily be conducted under mixed farming conditions on the Island because everyone of its 1,397,991 acres is suitable for cultivation. In 1881, before the land was under intensive cultivation, there were 164,496 sheep in the province. But gradually the farms became fully cultivated and in consequence the number of sheep kept declining until in 1906 there were only 71,470 sheep on the Island.

P. E. I.

W. J. REID.

Shipping Pure-Bred Stock.

Breeders of pure-bred stock are, no doubt, all aware that pure-bred animals for breeding purposes are carried by our railroads at half the regular standard tariff rate, when shipped in less than carload lots. In order to get this rate the shipper must attach to the Bill-of-Lading the shipping voucher which is attached to the bottom of each pedigree. On this is marked the name and number of the animal being shipped. The rate does not apply on shipments under four dollars, unless the full tariff rate makes a lower charge. On the Bill-of-Lading, or the live-stock contract which the shipper signs, are printed a number of rules which he subscribes to. No doubt many sign the contract without

thoroughly reading the various clauses contained therein. Live stock will be carried either at the carrier's risk or at the owner's risk, as the shipper may elect, but in each case the value of the animal or animals must be declared by the shipper or his agent. When the shipper or his agent declares the value of his animal, or animals, to exceed a certain amount, they will be charged for at the rates and weights specified for "high-priced animals." If the shipper elects to have the stock carried at the carrier's risk, the rating is one and a half first-class rate, calculated on the estimated rate named below for the respective number of animals, the value of each animal being declared on the Bill-of-Lading by the shipper or his agent. The following table forwarded to us by C. M. McRae, of Live Stock Branch, Ottawa, shows the value and weight on which the one and a half first-class rate is calculated.



A Bakers Dozen

When value of animal exceeds	And is not over	For one animal charge lbs.	Two or more animals in same car charge each lbs.
\$ 200	\$ 400	4,000	3,000
400	600	4,500	3,500
600	800	5,000	3,700
800	1,000	6,000	4,500
1,000	1,500	8,000	6,000
2,000	2,500	12,000	9,000
3,000	3,500	16,000	12,000
4,000	4,500	20,000	15,000

By paying this increased rate it serves as an insurance on the animal while in the hands of the carrier. When carried at the reduced rate, at the owner's risk, the value which the carrier is responsible for does not exceed \$200 for horses, \$100 for colts, \$80 for cattle and \$15 for hogs. As a rule, stock is sold f.o.b. shipping point, and it is usually carried at the owner's risk. Should the purchaser of a high-priced animal desire that it be shipped at the carrier's risk so that should accident occur he would be able to collect the value of the animal from the company, the shipper should be advised to that effect. For instance, if shipping an animal valued at \$1,000 or more, not more than \$80 could be collected should the animal be destroyed in transit if shipped at the owner's risk, while, by paying a rate and a half on the value and weights above mentioned, the higher figure could be collected. When pure-bred animals are shipped at half rate the shipper is supposed to sign a release and valuation of fifty dollars in case of accident, according to information secured from C. M. MacRae, of the Live Stock Branch.

THE FARM.

The Ills of Agriculture.

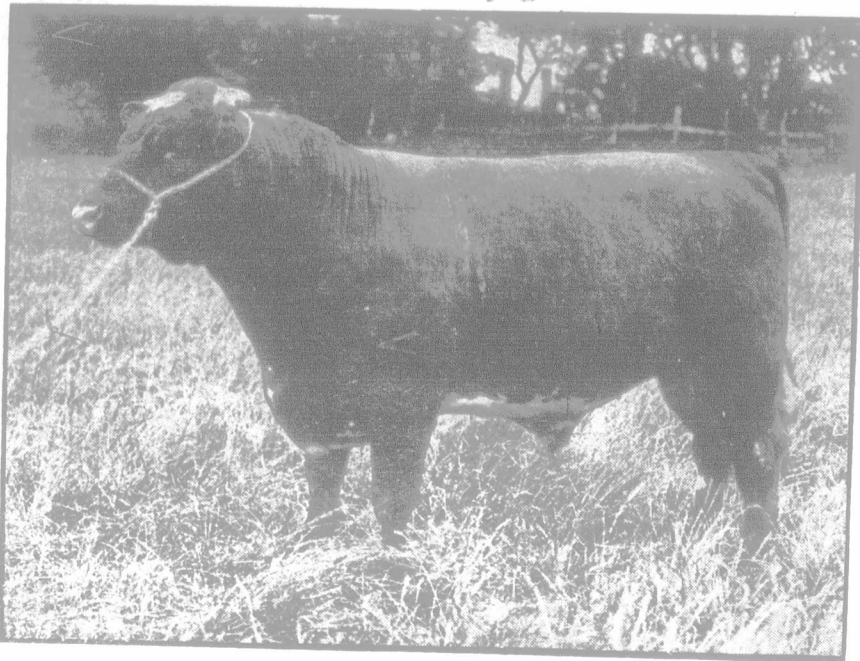
EDITOR "THE FARMER'S ADVOCATE":

This is a time of general unrest extending through all classes of people in the world. The readjustment of labor and capital is only beginning, and we are doubtful of the future. What concerns us most nearly as farmers is the position our industry will assume in relation to other industries. Extensive co-operative organizations are being formed, all with good purposes in view, but many of which can never become really effective along the lines they are following at present. It is a recognized fact, apparent to all people who are not prejudiced, that the position of the agricultural industry in the past has been most unsatisfactory. It has never been adequately represented in our system of government, and consequently has never been able to secure the liberal aid afforded to other industries. The general aim of all recently-formed organizations seems to be to change all this, in a word, to secure representation and eventually a share of government assistance. This is a good purpose but even when accomplished will prove useless until we understand why our industry has not received more attention than it has.

It is a fact that the urban communities send to the cities some of their best blood. This has always been the case and must always continue, and it should never be the sole aim of any farmer to compel his children to follow his calling whether they desire to or not. Those who leave the farm eventually belong to those classes engaged in industries that have received more attention than farming. They may not be any better off, but they know how much money they are making and when they will receive it, and are apparently satisfied. If we are to hold on the farm men with sufficient natural ability to make good there, we must endeavor to demonstrate on our own farms the fact that farming as a business ranks at least equally well in financial returns with any other legitimate business. If every individual farmer tried to do this conscientiously many of the apparent wrongs in our system of government in relation to farming would disappear.

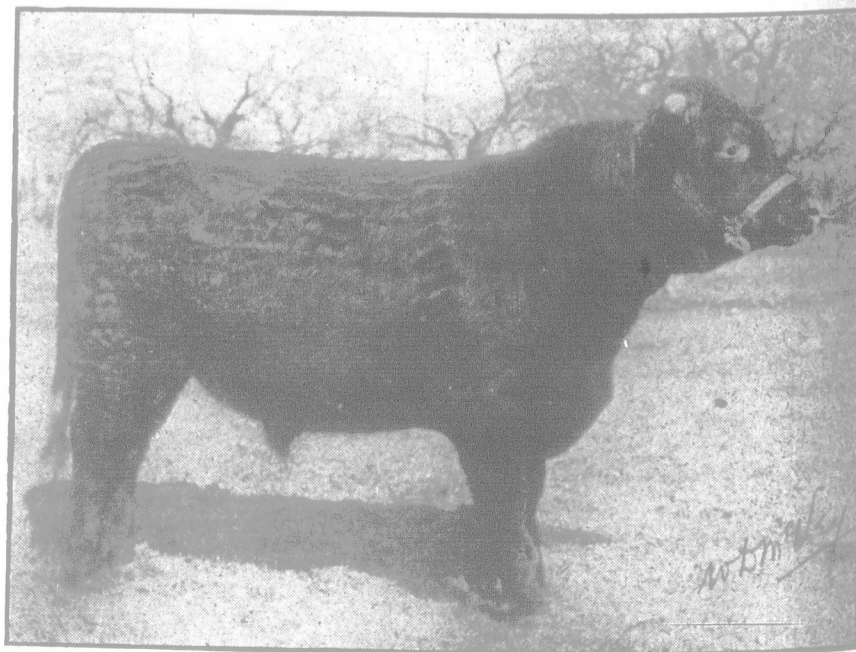
As a child grows up on the farm he observes keenly all that goes on in the business. In many cases he sees his father and mother working long hours, not one day but every day. He sees them living without modern conveniences, without sufficient pleasure, or the means of obtaining these things; not because they are not receiving as much remuneration for their efforts as other workers, but largely because their farm enterprise is so organized that the returns are generally reabsorbed into the business without becoming available for use. As a money-saving proposition this may be all right, but very few people keep in view the fact that as a business is progressive so life must be, and that no one can live in the latter years of their existence, those years that they have lost in accumulating money and which should have been used in developing their lives. Often the children, before they reach any considerable age, see clearly that their parents are not making the most out of their business. It is very well to say that money returns are not all we should consider, but it is a fact that the success or failure of a business depend on the financial returns, and if a business does not flourish there is little chance of its proving valuable to those engaged in it. In most cases it is this failure to provide financial returns that forces the boy or girl to reluctantly leave the farm, but of the thousands who are gravitating cityward yearly, there is a large percentage who are leaving behind the one business they like above all others. They are not leaving because it is handicapped by any lack of government recognition, nor yet because it has been relegated by other industries to a lower position than it should occupy. They are leaving, in the majority of cases, because the particular business in which they might have become engaged was not being developed to its full earning capacity.

It is not my desire to censure in any way the farmer



Gartly Lancer

Sold at Penrith recently for 4,750 guineas to an Argentine breeder.



Rosebud Sultan the 2nd 118784

Consigned by A. J. Fox, Harrow, Ont. to the Western Ontario Consignment Sale March 26th, 1919.

FARM.

Agriculture.

of Ontario as a class, because it is an unanswerable fact that under great difficulties they have produced the greatest men of the nation, not only in the agricultural world but in every industry or profession, but nevertheless it is possible to so increase the percentage of these good young men who will remain in the farming business, that proper representation in government and consequently legislation favorable to farmers would naturally result. Until this is accomplished no amount of co-operation can ever secure conditions which we now claim as our right.

How can the earning capacity of a farm business be increased? In the first place by better methods of cultivating the land and the adoption of good crop rotations. It is unnecessary to say anything about these better methods. The boy who sees his father growing grain year after year on the same land, or the same with any other crop, can never be contented to remain in partnership on the farm. Yet we find such practices still being followed, and the same may be said of cultivation and the selection of seed. It is quite true there are many other businesses in cities going bankrupt daily through the same type of management, but the boy on the farm never sees these cases until he leaves home to start in some other business.

The greatest means of increasing financial returns from a farm is in the improvement of live stock. The boys or girls who see their fathers feeding poor cattle or other stock and selling them at low prices, can never be contented to be farmers so long as this practice continues. But take the boys or girls who are allowed to handle high-class live stock from childhood and are taught the value of it and how it was produced and developed, they will develop a real interest in farming based on their knowledge, and if naturally adapted to it will remain in the business.

With this question of live stock is closely related the one of adaption of the farm business to the community in which it is being carried on. There are many districts in Ontario still where a large percentage of the farms are not organized properly for their locality. We see men trying to breed beef cattle in a dairy section, or dairy cattle in a district totally unsuited for the production of milk. Again we see businesses unbalanced; that is, too much stress is being placed on some special line for which the farmer has no particular ability. The result of a recent survey of a part of Oxford County shows clearly that unless a man is particularly fitted to specialize along some line, he can never make the financial returns that he could if he followed diversified or mixed farming.

We may practice the best methods of cultivation, sow the best seed, breed the best stock and have our business properly organized, and still fail to make satisfactory financial gains through an inefficient system of marketing farm products. This end of the business is in more need of development than any other line. Here is where our co-operative associations can render valuable assistance.

As far as the sale of breeding stock goes, that is a matter calling for ability in the individual, but the sale of other farm products is more or less dependent on co-operative methods to effect an improvement in our present system.

In a general way it may safely be stated that it is not ignorance of these things that causes too small financial returns. Rather is it the failure of each of us as individual farmers to realize that our occupation has changed from one in which we grew our own necessities to an industry strictly commercial, and in keen competition with other industries whose followers have long ago developed to a high degree of efficiency in their special lines of effort. So it will naturally follow that as soon as each individual business becomes well organized and shows even fair financial returns, some of which will be available, so soon will we find agriculturists sufficient in numbers and efficiency to secure all the representation in Parliament that they should have. Then we will realize that not all our wrongs were caused by improper discrimination by Governments between different industries, but largely through our own inefficiency. When we become efficient we will not need any assistance from any Government other than just legislation which, through our own representatives, we will be able to secure.

Wellington Co., Ont.

CHARLES M. FLATT.

Where Shall I Farm?

EDITOR "THE FARMER'S ADVOCATE":

The question was propounded in a recent issue of "The Farmer's Advocate," Can a young man—without capital—hope to start farming with any prospects of success and any possibility of discharging the liabilities that he would naturally incur in the process? The question continued, would it be advisable to engage in this venture in Old Ontario or more advisable in the West or Northern Ontario. It is probable that his query voices a question that has occurred to many; many would like to farm, and, of course, at first thought, desire to farm in an old established section, close to market towns, and possessing all the advantages of a

interest and charm known only to the craftsman beholding the product of his skill.

We have considered the difficulties in Old Ontario, relative to the financial obligations attendant upon this scheme, and an examination of Northern conditions will show these difficulties if not eliminated at least obviated. Practically the whole area suitable for agricultural purposes contains timber, and it is from the sale of this timber that most of the early financial obligations can be met. A ready market exists for timber in many farms; pulp wood, railroad ties, saw logs, and fuel. Notices requesting large quantities of these products are posted in all railroad depots, buyers are through the country purchasing the same, and the marketing of this timber ensures for its possessor winter employment, and an income commensurate with his skill. His building expenses will not be excessive, he can erect for himself log buildings, and the comfort of a well-built long house has to be experienced to be appreciated. The buildings are generally of a simple external architecture, but the inside must not be judged by the outside; the degree of attainable "homeliness" is only limited by the ingenuity of the inhabitant. As he prospers, his buildings will become more pretentious; he will probably consider the erection of a more commodious home, and an inspection trip through the Clay Belt will show homesteads in all stages of development from the log shack and stable of the initial stage, to the large frame barn, and modern finished house of the well established settler. Instances could be cited of settlers purchasing partly improved farms, with small clearing and simple buildings and to-day, as the result of from six to ten years work, they have a large area of cultivated land, good buildings and herds of cattle numbering ten and up. All necessary implements can be found on these farms, and many of the homes show a genuine taste for comfort and refinement. The one thing to remember is that the country is new, its inhabitants are mostly engaged in making a farm, some, of course, more advanced than others, and that no matter how simple or how humble the start, a bond of sympathy exists between all.

In many instances a practice exists of engaging in some employment through the winter months, and returning to the farm in the spring. This is another method of providing capital to carry on the farm development through the summer. When two or more are working together, this makes a most satisfactory method to follow, one or more "working out," and one staying on the place. In these instances the process of clearing a farm is greatly simplified, money for incidental expenses is at hand and work on the farm is progressing at all seasons.

Therefore, we see that shortage of capital does not necessarily preclude the possibility of success in Northern Ontario, neither does it involve the borrowing of a large sum of money. As elsewhere capital is necessary, and ready money will smooth out many of the rough spots that the settler will naturally encounter; but the fact remains beyond dispute, that many of the best established settlers entered the North country with limited means, in some cases, very limited, and that, despite their lack of capital, despite their up-hill fight by judiciously grasping the opportunities that the country constantly presents, they have won through to a degree of independence that is a credit to their industry, is a compensation for their labor, and is an asset to Canada.

Temiskaming, Ont.

NORTHERN SCRIBE.

About Plowshares.

EDITOR "THE FARMER'S ADVOCATE":

I saw a letter from a reader concerning plowshares pointed with a rasp. I have tried them and they are usually off after about four rounds, if there are any stones in the ground. It seems to be a great problem with wheel plows and especially riding plows to keep shares intact. I would be pleased to try any method or any plow that would be easier on plowshares. The breakage is not always so bad as I have painted. Last fall was easy on points but let there come a dry fall and with a good team walking strong the points break as soon as they touch a stone. A neighbor of mine once told me, as far as he could remember, he had only broken two shares in his life. I have not had as good luck. I hope to get some suggestions on this subject.

York County, Ont.

"ALFALFA".



A Bunch of Thrifty Hereford Youngsters.

good agricultural district, but they lack the necessary capital. This article discusses the prospects of such an individual, and endeavors to offer, a solution to those placed in such a quandary.

To commence farming in Old Ontario, very naturally involves the expenditure of a large sum of money; including the rent or purchase of a suitable farm, cost of implements, stock and seed, living expenses prior to any returns, etc. These items aggregate a very considerable sum and as we are considering the case of those with limited capital, it is obvious that the start must be made on credit, money must be borrowed. Setting aside the very real difficulty of a man of limited means, securing a sufficient credit to begin, the fact remains that should this capital be obtained, the start is made in debt, in heavy debt and the fight for success will be difficult, because the farmer will be travelling an up-hill road for many years.

The presence of debt often retards the progress of many individuals; it tends to develop a habit of worrying, and worry is a most insidious disease, undermining the health and strength, and exerting a discouraging influence. In fact, to many, worry is more to be avoided than hard work. Hard work in healthy surroundings is conducive to health; worry is a contributing factor to disease. Of course it must also be admitted that in some cases debt acts as a stimulant, it spurs one to greater effort, in fact, assists some people to ultimate success. The advisability then of pursuing this course is somewhat a matter of temperament. If at all susceptible to the depressing influence of worry, and worry there will inevitably be, the individual would be well advised to forego this venture. This does not mean that the proposal to farm must be dismissed. I would suggest that for a young man of limited capital, possessed of a genuine desire to farm, and willing to work to achieve this end, Northern Ontario is the most suitable place for him to commence.

A reasonable sum will purchase land in the North; for a nominal figure a location can be obtained from the Government, and for a comparatively small outlay, a partly improved farm can be obtained. Of course farming cannot be entered into in the North as in Old Ontario; the country is a timbered area, and the would-be farmer would have to make his farm, and he must decide for himself whether he will operate a ready made farm, on borrowed capital, or whether he will utilize his own inherent capital, his own strength, and by a judicious expenditure of that capital, make for himself a farm, free from debt, and possessing that indescribable



A Group of Lincoln Rams to head flocks in the Argentine.



A Modern Boiling House Located in a Maple Bush.

United Grain Growers Favor Fixed Wheat Price.

At a meeting of the board of directors of the United Grain Growers Limited, held in Winnipeg recently, the question of a fixed price for our 1919 wheat crop was considered and the following statement sets forth the Company's position in this matter.

The resolutions passed at the annual conventions of the Manitoba Grain Growers' Association, and the United Farmers of Alberta, at Brandon and Edmonton, seem to have been somewhat generally misconstrued as a request for open markets. The name of the United Grain Growers Limited has, in some instances, been coupled with statements that this was the desire of the organized farmers of Manitoba and Alberta. This interpretation of these resolutions is entirely wrong as a careful reading of them will show.

The Company's position is that they are absolutely opposed to the opening of the wheat market on the old basis which allows unrestricted speculation. We believe that the most desirable method of marketing our 1919 wheat crop would be for the Dominion Government to sell our exportable surplus of wheat and flour at a fair price based on world values to the British and Allied Governments. Such a price, mutually agreed upon between the farmers of Canada and the Allied Governments could be made a fixed price until August 31, 1920, and would, of course, govern the price of flour and wheat for domestic use in Canada. This would ensure the consumers in the Allied countries of Europe and the consumers in Canada getting their food requirements at a fair price based on world conditions, and at a minimum of added expense over the price our farmers would receive for their product. It would also ensure our farmers getting the maximum price possible based on world conditions for their product. In other words, it would eliminate all profiteering at the expense of the producer and consumer in the transfer of the former's food products to the latter.

This differs from the fixed price as discussed at the conventions, as it provides for fixing the price according to the law of supply and demand instead of on a fictitious basis. We do not believe in a fixed price set at an artificial value which would, at the expense of the consumer give protective profits to the producer, even though farmers in other countries may be temporarily more advantageously situated because of action taken by their Government previous to the signing of the armistice.

In the event of it being impossible to sell our whole exportable surplus to the Allied Governments and in this way fixing a price, we believe immediate steps should be taken to eliminate all speculation in our food stuffs. This does not mean the elimination of future markets, and we recognize that under open market conditions it is necessary for the efficient handling of our grain to have future markets in which purchasers of grain in the country can make future contracts for the protection of their purchases. We believe such markets can be conducted to serve all the necessities of the grain trade even though limited only to those who are actual owners or gatherers of grain. We suggest that our Government take steps to prevent the sale of grain for future delivery on the part of any one who at the time of sale does not actually hold title to the amount of grain they sell and to prevent the purchase of grain by any one who does not have a bona fide intention of taking delivery of the actual grain. Legislation along these lines would eliminate entirely the present unrestricted gambling on our farm products.

An Inexpensive Evaporator.

The Canada Food Board suggests an inexpensive evaporator for a small maple bush. Their recommendation follows:

For a bush of 300 or 400 trees a good practical evaporating plant can be produced for about \$31. Such a pan would require.

8 sheets of tin 3 x 10.....	\$16.00
2 men 5 hours crimping.....	7.50
Assembling.....	5.00
Extra Iron.....	2.50
Total.....	\$31.00

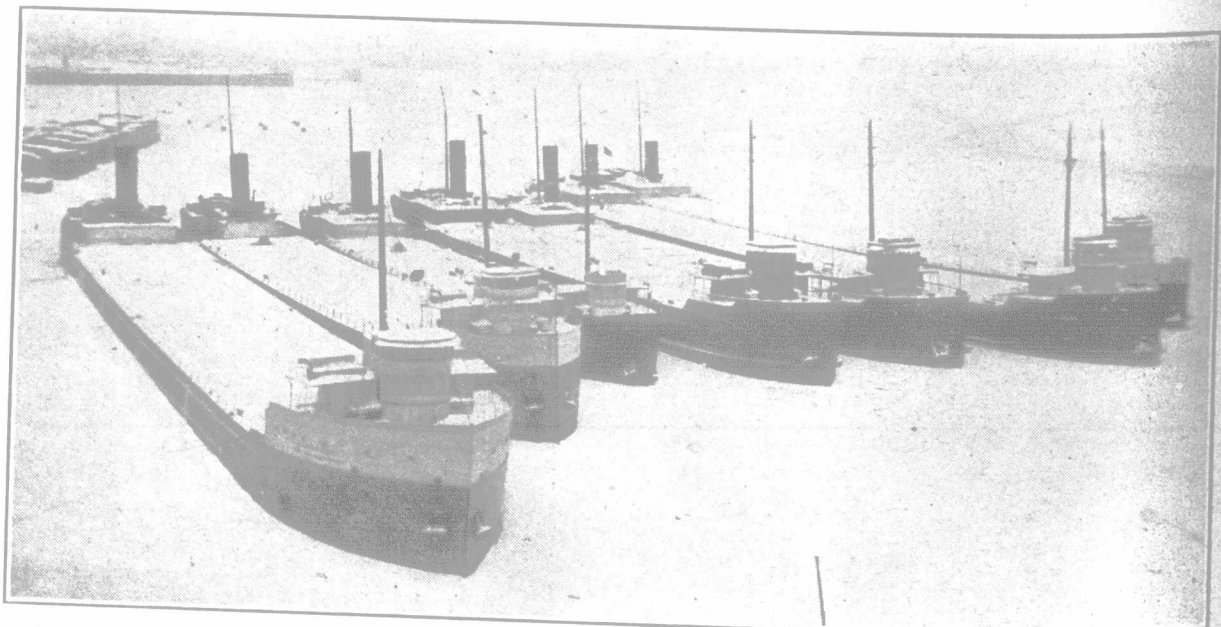
The pan should be corrugated on the bottom and divided with partitions to give a zig zag course to the sap. It should be set absolutely level so as to maintain a uniform depth of sap. A good rule is to allow ten square feet of boiling surface for every 100 trees tapped. In addition a stove and brick arch is required with the necessary length of stove pipe.

For reducing syrup to sugar an additional evaporator is necessary. This a simple pan, 2 to 2½ feet wide, from 3 to 6 feet long and about one foot deep. The metal is preferably of heavy tin, but never of sheet iron. This pan sets over an arch of fire box and has convenient handles for lifting it off the fire.

Standardization of Implement Parts.

EDITOR "THE FARMER'S ADVOCATE":

Regarding the standardizing of all parts of farm implements, which has been mentioned in recent numbers of "The Farmer's Advocate," I would say, it cannot come too soon; for the present system has been responsible for more lost time with getting repairs than the average farmer can stand and maintain a perfectly



Part of a Fleet of Vessels Loaded with Wheat at the Head of the Lakes. There are 35 vessels in this fleet with an average capacity of 400,000 bushels each.

serene frame of mind. On two different occasions my manure spreader has been "dry docked" for about one month waiting for repairs, and the agent only 3½ miles away, also the factory where it was built less than twenty miles from my farm. Standardizing would overcome all this inconvenience.
Waterloo Co., Ont. ORVILLE I. GROH.

Wider Sleights Again.

EDITOR "THE FARMER'S ADVOCATE":

I have been watching and waiting for someone to take up the cause of a wider gauge sleigh, but up to the present it is a dead letter. I suppose on account of the light snow fall this season it has not made much difference, although in travelling along the road traces of upset loads appear quite frequently, which a little more space between runners might have saved. Why not get ready for next winter; perhaps the snow may be mountains high, and then, in such cases, it is impossible to get along with a pair of horses of any draft weight; and I believe that is one of the reasons why the farmer is not raising a better type of draft horses. The smaller kind will do his work fairly well in summer and in winter, on the three-foot roads, are decidedly better. But when he comes to sell he is told that old story, "You have a nice horse, but not big enough." I believe every farmer realizes how he is handicapped by these narrow sleighs, and would gladly have them widened if the standard were fixed, and made it necessary for every one to comply with the rule by a certain date. Would not this be a good thing for the United Farmers to take up and push to a successful conclusion?
SIMCOE FARMER.

Canadian Citizens Should Steady Politics.

EDITOR "THE FARMER'S ADVOCATE":

The announcement in "The Farmer's Advocate" of February 27, concerning your intention to furnish unbiased reports of proceedings in The House of Commons during the present session of Parliament, should receive the approval of all your readers.

Canadian citizens should make an intelligent study of politics from an independent standpoint, unbiased by partisan spectacles, and be able to form an intelligent opinion of political policies and political representatives, that they may cast intelligent votes at election, and not be ignorant dupes of party henchmen, or deluded slaves of political intriguers. If Canadians are to measure up to their responsibilities as citizens, if the franchise which is granted to the men and women of Canada is to be intelligently and rightly used, if Canada is to be governed by the right sort of representatives then all Canadians should earnestly endeavor to secure a proper, unbiased understanding of political issues, and take an active interest in political matters. They should also endeavor by vote and influence, attendance at political primaries and conventions, conversation with friends and neighbors, etc., to get the right sort of candidates nominated and elected in support of proper policies. Electoral support for the proper sort of candidates and right principles should be secured by winning as many individual electors as possible by proper education and personal persuasion to vote for them, not by purchasing votes. Right-loving citizens should not let the result of elections be determined by purchasable votes. The best way to get rid of political corruption is for honest, independent citizens to combine their efforts to defeat it and make it unprofitable. No serious minded citizen can afford to ignore or neglect his or her responsibility in this matter. If laws are not what they should be it is the duty of the people to help get the laws made right. If good laws are not properly administered in the interests of the nation, and representatives in Parliament are negligent or indifferent, or are merely concerned in grasping for position, political power, and business advantages for themselves, it is "up to" the citizens to replace them with better representatives. True and righteous democracy can be

secured and intelligent people, the right Legislature people can be by "Advocate" independent. All carefully re friends and "The Farm Oxford C

Serious

The two Ontario are potato disease Rhizoctonia Mosaic cause the fact that Southern Ontario has been for the past

The cause observed in Southern Ontario the summer plants were bad in the Province. United States reduce the y

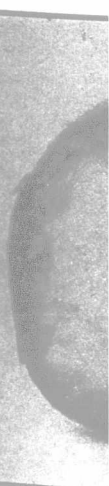
The symptoms of plants are varieties the almost starting normal way the plants appearance. growth of the never as great occasionally or reddish of the leaves with the disease may not extend ground, although even the top leaves, however Leaf Roll.

This disease texture of s point may be The tubers generally on even attached

Leaf Roll Tubers from plants. They may spread f

Hill selection be recommended loss from Leaf free from th as Northern wick, Nova S comparatively fre on in Old O with seed pot wick and Nor amount of L the three diff 45.5 per cent Ontario, 1.4 per the desirability

The cause has been observed severe there i Data gathered and Canada yield by one-



secured and maintained in Canada only by a proper and intelligent consideration of political matters by the people, and active participation in efforts to secure the right sort of representatives in Parliament and Legislature. Only by such action on the part of the people can they obtain and retain "Government of the people by the people, for the people." "The Farmer's Advocate" is worthy of commendation for giving an independent, unbiased report of Parliament proceedings. All readers of "The Farmer's Advocate" should carefully read and digest the reports given. Get your friends and neighbors all to subscribe for and read "The Farmer's Advocate."

Oxford Co., Ont. WM. E. DE FOREST.

Serious Seed-Borne Potato Diseases.

BY PROF. J. E. HOWITT, O. A. C.

The two most serious seed-borne potato diseases in Ontario are Leaf-Roll and Mosaic. Other seed-borne potato diseases common in the Province are Black Leg, Rhizoctonia, Blight, Wilt and Scab. Leaf Roll and Mosaic cause a very marked reduction in the yield and the fact that these two diseases are so prevalent in Southern Ontario accounts for the poor crop of potatoes that has been obtained in many parts of the Province for the past four years.

Leaf Roll.

The cause of Leaf Roll is unknown. It has been observed in nearly all the potato growing districts of Southern Ontario. In some fields examined during the summers of 1917 and 1918 over 70 per cent. of the plants were affected with Leaf Roll. It is especially bad in the southern and southwestern portions of the Province. Data gathered by the pathologists of the United States and Canada shows that Leaf Roll may reduce the yield to about one-third of the normal crop.

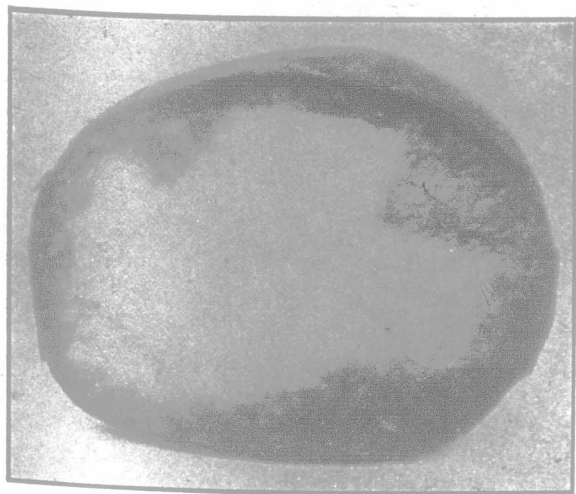
The symptoms of Leaf Roll are very variable. Affected plants are always more or less dwarfed and in some varieties the leaves assume a characteristic upright, almost staring habit instead of drooping over in the normal way. This symptom is sometimes absent, the plants presenting instead a low-headed, bushy appearance. When the crop is badly affected the poor growth of the foliage is very noticeable. It is practically never as green on affected plants as on healthy ones and occasionally on certain varieties it takes on a purplish or reddish color at the tips and around the margins of the leaves. Rolling of the leaves is always associated with the disease. This is often rather inconspicuous and may not extend beyond the leaves lying close to the ground, although it may affect the intermediate and even the topmost leaves. Marked rolling of the upper leaves, however, is often seen on plants not affected with Leaf Roll. The rolled leaves on plants affected with this disease begin to die early. The harsh, leathery texture of such leaves is a constant symptom. This point may be tested by feeling them with the fingers. The tubers of affected plants are small and are borne generally on very short tuber-branches (stolons) or even attached in a cluster to the stem.

Leaf Roll is chiefly transmitted through the seed. Tubers from affected plants invariably produce diseased plants. There is also evidence to show that the disease may spread from plant to plant in the field.

Hill selection in fields overrun with Leaf Roll cannot be recommended. The only sure way of avoiding loss from Leaf Roll is to secure fresh seed from districts free from this disease. Fortunately, this is possible, as Northern Ontario and certain sections of New Brunswick, Nova Scotia and Prince Edward Island are comparatively free from this trouble. In experiments carried on in Old Ontario by the Agricultural Representatives with seed potatoes from Southern Ontario, New Brunswick and Northern Ontario it was found that the average amount of Leaf Roll in the plants from the seed from the three different sources was as follows: Old Ontario, 45.5 per cent.; New Brunswick, 5.1 per cent.; Northern Ontario, 1.4 per cent. These figures strongly emphasize the desirability of obtaining northern-grown potato seed.

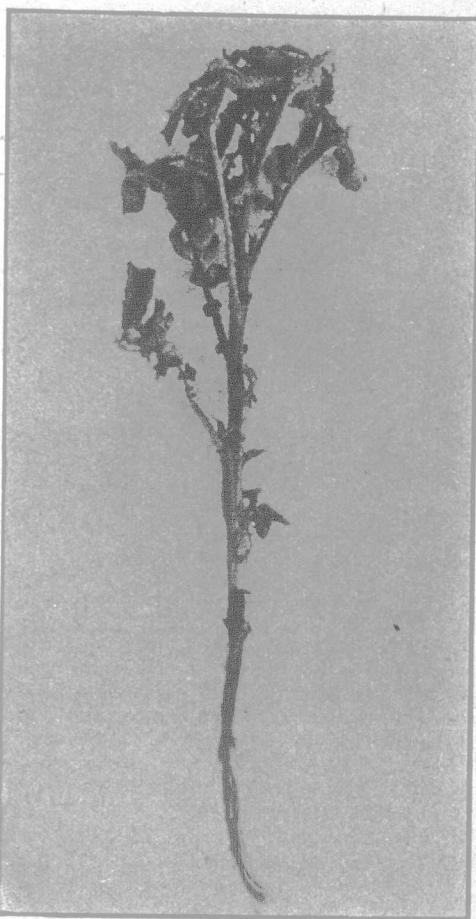
Mosaic.

The cause of Mosaic disease is also unknown. It has been observed in many fields in Ontario. When severe there is a very noticeable reduction in the crop. Data gathered by the pathologists of the United States and Canada shows that this disease may reduce the yield by one-half.

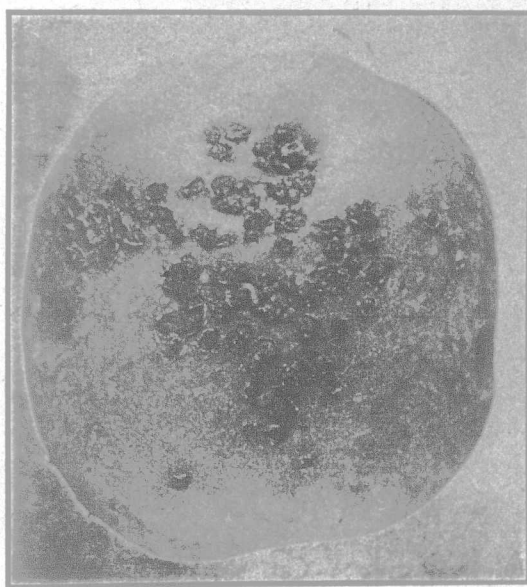


Evidences of Late Blight in the Seed.

The foliage of plants affected with Mosaic is somewhat wrinkled or corrugated and mottled, with faint, light green or yellowish spots. These symptoms very considerably, being well marked in some cases and not so noticeable in others. The stalks of diseased plants are often more bare near the ground than those of healthy ones, partly because the affected foliage does not spread out and droop down normally and partly because the lower leaves sometimes fall off in the last stages of severe attacks. The tubers of affected plants are normal looking and sound and their keeping or eating qualities are not impaired.



A Potato Plant Attacked by Blackleg.



A Mild Attack of Powdery Scab.

If Mosaic is abundant in a field, the surest and quickest way of eliminating it is by obtaining fresh seed from a non-infected district. Such seed can be obtained at the present time from Northern Ontario.

General Suggestions.

In order to avoid loss from the two most serious seed-borne potato diseases, namely, Leaf Roll and Mosaic the source of seed is of the utmost importance. Seed potatoes free from these diseases can be obtained from Northern Ontario. Not all northern grown seed, however, is free from disease, and only certified seed can be relied upon. For information concerning certified northern-grown seed write to Justus Miller, Dept. of Agriculture, Parliament Buildings, Toronto.

Even certified northern-grown seed is not a panacea for all diseases. In order to avoid loss from such seed-borne potato diseases as Black Leg, Rhizoctonia, Wilt, Blight and Scab the following precautions should be taken:

Select for seed smooth, sound tubers as free as possible from scab, black, hard lumps on the surface, and abnormal discolorations of the skin or flesh.

Disinfect all seed before cutting with formalin or corrosive sublimate. The latter substance is the more reliable for the prevention of Rhizoctonia.

When cutting potatoes have at hand two or three knives and a jar containing a 20 per cent. solution of

formalin. After cutting into a tuber which shows signs of rot drop the knife in the formalin, discard the diseased potato and take a fresh knife from the formalin solution for the next cutting.

Spray every year with Bordeaux mixture for the prevention of Late Blight and Rot. Such spraying is an insurance which it is not safe to neglect. There are in Ontario, however, certain light soils in which early potatoes apparently can be grown free from rot without spraying.

Rogue the growing crop once or twice during the summer or at least that portion of it from which the seed is to be saved. This operation consists in the removal and destruction of any plants showing signs of such diseases as Leaf Roll, Mosaic, Black Leg, Rhizoctonia and Wilt. Practice the rotation of crops and if possible plant potatoes after clover sod.

A Year's Result From a Small Farm.

EDITOR "THE FARMER'S ADVOCATE":

The following figures, showing the income from a small farm in this Country, having some forty acres under cultivation are interesting for several reasons. The owner laughingly says that he sells a little of every thing, but not much of anything but he certainly is making a good living, has a fairly steady income and is increasing the value of his farm every year.

Sales in 1918 by Months.

January.....	\$ 23.51
February.....	167.18
March.....	157.67
April and May.....	179.01
June.....	98.50
July.....	152.46
August.....	117.83
September.....	347.50
October.....	249.18
November.....	510.50
December.....	471.00

Sales 1918 by Produce.

\$2,474.34	
Cream.....	\$324.50
Eggs.....	102.75
Horses.....	275.00
Pork.....	111.60
Potatoes.....	416.87
Turnips.....	248.00
Swine (alive).....	233.50
Cattle.....	200.00
Strawberries.....	106.00
Apples.....	230.00
Hay.....	94.00
Labor, etc.....	42.00
Fowl (dressed).....	16.00
Beans.....	60.00
Beef.....	14.00

\$2,474.34

In explanation of the foregoing figures he tells me the only sale in May was cream, so he let this go in with April's sales. The swine (alive) consisted principally of young pigs sold at 4 to 5 weeks old. The labor he sold to his neighbors when he could spare it from his own farm which as you see was not very much, as he always took his team with him.

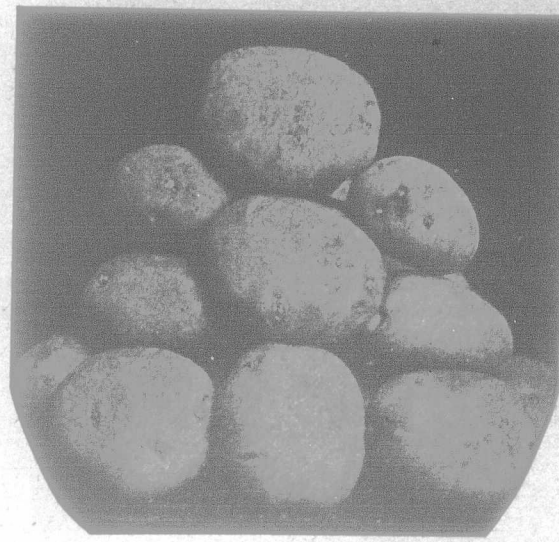
While such a style of farming may be open to criticism because of the number of irons in the fire and the evident dissipation of effort, yet a careful consideration of the lists shows that while the labor is steady and well distributed during the summer, there is no time of congestion. Outside of his own work his labor bill amounted to about \$200 for the year, as he has no help during the winter.

Another feature that would commend itself to me is the fact that ready money is coming in fairly steadily throughout the year. He lives quietly and simply, largely off his own farm.

Neither was the year of 1918 a year of selling off; as he considers his values in stock, etc., as good as at the beginning of the year. While the age calls for specialization there would seem to be cases and conditions where diversified effort is profitable.

Annapolis Co., N. S.

R. J. MESSENGER.



A Good Type, Showing Freedom from Disease.

The Government of Canada.

In order that readers, interested in our report of Parliament, may have a better understanding of the Government organization and the names of those responsible for the various departments, we are giving herewith an outline of the organization. The various departments which follow the Privy Council are arranged alphabetically with any bodies under the immediate jurisdiction of these departments included in the same paragraphs.

After the regular departments of Government come miscellaneous bodies, some of which are non-political, such as the Civil Service, Railway and Conservation Commissions. All departments of Government are mentioned; but it does not necessarily follow that the complete organization of each department is given. An instance of this is found in the Department of Railways and Canals, where organization is in a more or less transition stage and is not given in full.

THE PREMIER.

Right Honorable Sir Robert L. Borden.

PRIVY COUNCIL.

President, Hon. N. W. Rowell; Clerk of the Privy Council, Rodolphe Boudreau; Canada Registration Board—Chairman, Hon. G. D. Robertson. Reconstruction and Development Committee—Chairman, Rt. Hon. Sir Robert L. Borden; Vice-Chairman, Hon. A. K. Maclean. War Committee of the Cabinet—Chairman, Rt. Hon. Sir Robert L. Borden; Vice-Chairman, Hon. N. W. Rowell. War Purchasing Commission—Chairman, Sir H. Laporte; Public Information—Directors, M. E. Nichols and George H. Locke.

AGRICULTURE.

Minister, Hon. T. A. Crerar; Deputy Minister, J. H. Grisdale (acting); Accounting, W. A. Fraser; Agricultural Instruction Act, W. J. Black; Dairy and Cold Storage, J. A. Ruddick; Entomological, C. G. Hewitt; Experimental Farms, E. S. Archibald (acting); Fruit, C. W. Baxter; Health of Animals, F. T. Torrance; International Institute of Agriculture, T. K. Doherty; Live Stock, H. S. Arkell; Publications, J. B. Spencer; Seed, G. H. Clark; Canada Food Board—Chairman, H. B. Thomson; Secretary, S. E. Todd.

CUSTOMS AND INLAND REVENUE.

Minister, Hon. A. L. Sifton; Commissioner, John McDougald.

INTERNAL AFFAIRS.

Minister, Rt. Hon. Sir Robert L. Borden; Parliamentary Secretary, F. H. Keefer, M.P.; Under Secretary of State for External Affairs, Sir Joseph Pope; International Joint Commission—Chairman, C. A. Magrath; Secretary, L. J. Burpee.

FINANCE.

Minister, Sir Thomas White; Deputy Minister, T. C. Boville; Accounting, J. G. Macfarlane; Currency, J. E. Rourke; Estimates, J. R. Forsythe; Librarian, T. H. Siddall; Taxation, R. W. Breadner; War Loans, J. C. Saunders; Royal Mint—Deputy Master, Jas. Bonar.

IMMIGRATION AND COLONIZATION.

Minister, Hon. J. A. Calder; Deputy Minister, W. W. Cory (acting); Superintendent, W. D. Scott; Canadian Exhibitions, Wm. Hutchison; Public Health, F. Montizambert, M.D., (Director General).

INTERIOR.

Minister, Hon. Arthur Meighen; Deputy Minister, W. W. Cory; Natural Resources Intelligence, F. C. C. Lynch; International Boundary Commission, J. J. McArthur. Dominion Power Board—Chairman, Hon. Arthur Meighen; Vice-Chairman, A. St. Laurent; Secretary, J. B. Challies. North West Territories—Commissioner, Geo. D. Pope (acting); Secretary, L. DuPlessis. Soldier Settlement Board—Chairman, S. Maber (acting); Accounting, S. J. Willoughby (acting).

JUSTICE.

Minister, Hon. C. J. Doherty; Solicitor General, Hon. Hugh Guthrie; Deputy Minister, E. L. Newcombe; Internment Operations—Director, Maj.-Gen. Sir W. D. Otter; Military Service Council—Director, Lt.-Col. H. A. C. Machin; Secretary, Major T. D. Oulster.

LABOR.

Minister, Hon. G. D. Robertson; Deputy Minister, F. A. Acland; Accounting, E. A. Thomas; Cost of Living, R. J. McFall; Labor Gazette, B. M. Stewart.

MARINE.

Minister, Hon. C. C. Ballantyne; Deputy Minister, A. Johnston; Naval Service—Minister, Hon. C. C. Ballantyne; Civil—Deputy Minister, Geo. J. Desbarats. Naval—Controller, Geo. J. Desbarats; Director, Admiral Sir C. E. Kingsmill. Lake of the Woods Technical Board—Chairman, Hon. C. C. Ballantyne; Vice-Chairman, W. J. Stewart.

MILITIA AND DEFENCE.

Minister and President Militia Council, Major-General Hon. S. C. Mewburn; Parliamentary Secretary, Hugh Clark, M.P.; Civil—Deputy Minister, Major-General Sir E. Fiset; Military—Vice-President Militia Council, Major-General Sir E. Fiset; Chief General Staff, Maj.-Gen. W. G. Gwatkin; Paymaster-General, Brig.-Gen. J. G. Langton; Imperial Pensions Office—Officer in Charge, W. Stockdale.

MINES.

Minister, Hon. Martin Burrell; Deputy Minister, R. G. McConnell.

PUBLIC WORKS.

Minister, Hon. F. B. Carvell; Deputy Minister, J. B. Hunter.

RAILWAYS AND CANALS.

Minister, Hon. J. D. Reid; Deputy Minister, G. A. Bell (acting).

SECRETARY OF STATE.

Minister, Hon. Martin Burrell; Under Secretary of State, Thos. Mulvey.

SOLDIERS CIVIL RE-ESTABLISHMENT.

Minister, Hon. Sir Jas. Loughheed; Deputy Minister, Lt.-Col. F. P. Healey; Board of Pension Commissioners—Chairman, J. K. L. Ross; Secretary, Major S. B. Coristine.

TRADE AND COMMERCE.

Minister, Rt. Hon. Sir Geo. E. Foster; Deputy Minister, F. C. T. O'Hara; War Trade Board—Vice-Chairman, F. P. Jones; Board of Grain Commissioners—(Fort William, Ont.), Chairman, Leslie Boyd; Fuel Control—Controller, C. A. Magrath; Honorary Advisory Council for Scientific and Industrial Research—Chairman, Prof. A. B. Macallum.

MISCELLANEOUS.

Northwest Mounted Police—Minister, Hon. N. W. Rowell; Comptroller, A. A. McLean.

Archives—Minister, Hon. Martin Burrell; Deputy Head, A. G. Dougherty.

Public Printing and Stationery—Minister, Hon. Martin Burrell; King's Printer, J. de L. Tache.

Indian Affairs—Superintendent General, Hon. Arthur Meighen; Deputy Supt. General, D. C. Scott.

Post Office—Postmaster General, Hon. P. E. Blondin; Deputy Postmaster General, R. M. Coulter; Rural Mail Delivery, W. E. Bennett; Savings Bank, J. H. Fairweather.

Insurance—Superintendent, G. D. Finlayson.

National Gallery of Canada—Director, Eric Brown. Commission of Conservation—Chairman, Sir Clifford Sifton; Deputy Head and Asst. to Chairman, Jas. White; Fisheries, Game and Fur-Bearing Animals, C. C. Jones; Forests, Clyde Leavitt; Lands, F. C. Nunnick; Minerals, F. D. Adams; Press and Co-operation, J. F. Mackay and J. Dixon, (Editor); Public Health, C. A. Hodgetts, M.D.; Town-planning, Thos. Adams; Water and Water Powers, L. G. Denis.

Civil Service Commission—Chief Commissioner, Hon. W. J. Roche; Commissioners, M. G. LaRochelle and Clarence Jameson.

Railway Commission—Chief Commissioner, Sir H. L. Drayton; Commissioners, S. J. McLean, Hon. W. B. Nantel, A. S. Goodeve, A. C. Boyce and J. G. Rutherford.

House of Commons Staff—His Honor The Speaker, Hon. E. N. Rhodes; Clerk of the House, W. B. Northrup; Parliamentary Counsel, F. H. Gisborne; Sergeant-at-Arms, Major W. H. Bowie; Accounting, Lt.-Col. D. W. Cameron; Clerk of the Crown in Chancery, F. Chadwick (acting); Editor of Hansard, T. P. Owens.

The Senate Staff—His Honor The Speaker, Hon. Jos. Bolduc; Clerk of Senate, A. E. Blount.

Library of Parliament—Parliamentary Head, Hon. E. N. Rhodes; General Librarian, A. D. DeCelles; Parliamentary Librarian, M. J. Griffin.

Governor-General's Secretary's Office—Governor-General's Secretary, Lt.-Col. The Hon. H. G. Henderson; Deputy of the Governor-General's Secretary, A. F. Sladen.

Audit Office—Auditor General, John Fraser; Asst. Auditor General, E. D. Sutherland.

A Good Policy.

EDITOR "THE FARMER'S ADVOCATE":

I have just read an article written by R. W. E. Burnaby in your issue of February 20, and your note regarding it. I must say that I am delighted with the spirit expressed therein. I would like to think that our organization would be able to maintain friendly relations with all our farm papers and, in fact, with any other papers, for that matter. If I understand the aims of the U. F. O., there is no reason under the sun why it should have the opposition of any paper, that is at all interested in the welfare of mankind.

If the U. F. O. can help to make rural Canada a better place to live in they will be doing something that will ultimately benefit all Canadians. They deserve and should have the sympathy and help of all governing bodies and certainly if all the District Representatives are not working to build up the U. F. O. they ought to.

The U. F. O. should also have the active support of all our big men in the province, who are farmers, whether they be grain growers, dairymen, fruit growers or producers of any other line of farm products. Yet at the same time if we have not got all this we must work along quietly with what material we have endeavoring to learn what to do and how it should be done. The men and women, too, who are giving so much of their time and energy and thought freely for the benefit of their fellowmen, can scarcely avoid developing into bigger, broader and more useful human beings.

Renfrew Co., Ont.

R. M. WARREN.

AUTOMOBILES, FARM MOTORS AND FARM MACHINERY.

Tire Economy.

There are two things about which the average motorist loves to boast. One is the mileage which he gets from his car per gallon of gasoline; the other is the mileage which he secures from his tires. In both instances it is the careful driver who establishes records. Many people think that the quality of the gasoline is the principal factor in attaining large mileage, but there are many other circumstances that must be favorable. The moving parts of the car must be as far as possible free from friction; the lubrication should be efficient; the brakes accurate, and the wheels in perfect alignment. We name the principal factors because they must be apparent to everybody, but twenty other aids to mileage could be mentioned. What is true of gasoline is equally true of tires. There is not a great deal of difference in fabric tires, and not much to choose between cord tires. A lot of good reliable firms are turning out excellent casings and tubes. The thing that gives a tire long life is the studious care of the owner or driver. Just as soon as a small cut appears in a casing, have it washed out thoroughly with gasoline and then vulcanized without delay. If you find a little blister appearing upon the casing, cut it open and then cleanse the affected part in order that it too may be vulcanized. These little blisters, if allowed to remain, will eventually break open and permit sand and dirt to get between the fabric and the other coating of rubber. It is then only a matter of time until serious damage is caused. If you should run over a broken bottle or other jagged piece of glass, cutting the casing clear through, protect it by placing a patch on the inside. This usually saves the tube from a puncture until such time as a vulcanizing job can be carried out. Get into the habit of looking over your tires at frequent intervals. Small cuts and holes should be sealed up with patching cement before they develop into serious blemishes.

It is undeniably true that a car rides much easier when the tires are not filled to the maximum pressure, but such a practice while comfortable is dangerous, because a partially inflated tire will not last as long as one that is properly inflated. Tires that are not filled with air to the pressure called for by the manufacturers will soon break down in the side walls. It is also well to remember that a hard, well-filled tire exposes less surface to the road than a soft one, and consequently is not as subject to punctures. Most tire manufacturers are very considerate in the matter of adjustment, but they insist that their product should not be used unless properly inflated at all times. When you get a puncture do not keep running, a car, even for a short distance, because under these circumstances the damage done to the tire and tube is out of all proportion to the distance traveled. A flat tire can be readily cut to pieces by a rim. The proper care of a tire also calls for sane driving. Get into the habit of releasing your clutch in even fashion. A sudden start puts a great strain on the rear tires. Fast driving also increases the wear in your tires, and skidding, as everyone knows, will shorten the mileage procurable from them. Unless an emergency calls for quick action, do not put the brakes on your car so rapidly that the rear tires are dragged over the road. Remember that these casings are made of fabric and rubber, and that such a combination of material is not intended for extreme friction. At the present season of the year the roads are rutty and rough. Try as far as possible to drive in the wide ruts, and to avoid the narrow ones because the latter exercise a bad effect upon the side walls. When you are in the city, avoid street car tracks, and endeavor as far as possible to make all stops without scraping the tires against the curb. Any spare tire that you carry on your car should be covered with paper or cloth in order to protect it from light and heat, and if at any time oil is accidentally spilled over the tires, see that it is removed without delay. Perhaps everyone knows that the best place to keep tires when not in use is in a dark corner of a cellar or attic that is not subject to violent changes of temperature.

Many motorists absolutely refuse to patch a punctured tube, but an occasion will arise sooner or later when such action will be absolutely necessary. It is, therefore, advisable to know how to proceed. It will not be a difficult matter to locate the puncture, and having found it, you must clean the surface around it with gasoline. Then sand paper the spot in order that the cement may have an opportunity of sticking thoroughly. When you have cut out a proper patch, put the cement both on the patch and on the tube, and allow it to dry there for four or five minutes. Two additional applications of cement are now necessary before the patch can be applied firmly to the tube. See that the pressure that you place upon the patch is even, in order that all air-spaces may be killed. If you are satisfied that the patch has been properly applied, rub it over with talc powder. This will prevent the patch from sticking to the casing.

AUTO.

The cost of production for the coming crop season will not be much less than it was in 1918. Everything the farmer requires has gone up rather than down, and to expect any diminution in the price of farm products will be doing a great injustice to agriculture.

Short Course on Farm Power.

EDITOR "THE FARMER'S ADVOCATE":

The short course in farm power, held at the O. A. C., Guelph, in January, was the largest ever held at the College. In order to show how well the course was handled, I will try to explain how over two hundred farmer's sons got a chance to run and operate each tractor, and to fully understand each experiment. The students were divided into groups of six to eight men, and also divided into two divisions—A and B. Each division had half of the afternoon at operating and running the different makes of tractors. There were thirteen tractors and twenty-six groups. In the afternoon A would run tractors while B division took lectures and experiments until three o'clock, then they would change about and B would go on the tractors while A took lectures in rope splicing, etc. The experiments were very interesting, consisting of farm tractors, gas engines, etc., such as grinding valves, timing ignition, carburetor assembly and adjustment, removing piston and rings and replacing them, babbitting and adjusting bearings, removing carbon, timing magnetos and cam shaft. Electric generators, electric motors magnetos, make and break jump spark ignition, testing brake horse-power, rope and cable splicing and soldering was done. Of the work taken up in the morning there was lectures on different topics. One afternoon we got oiled up down town at a theatre where an oil man gave a lecture on the oil industry, illustrated by motion pictures. I may say that during the whole course there wasn't a dull moment, everything seemed to fill the bill, or hit the nail on the head.

There were some very smooth-running tractors; some had two wheels, others had three wheels, and many had four, while one crawled along like a miniature tank. Some had two cylinders while others had four, some choo-chooed along, others plug-plugged along, and a few just moaned over the road, some climbed ash heaps, others climbed gangways, and one turned upside down trying to climb the side of a gangway which would be at an angle of 40 degrees at least. The tractor got very near the top but struck a ridge on the edge of the gangway and reared. This little accident does not make it any the less a good tractor, as it sure was plucky. The experiments were held in various buildings. We had practical work in rope splicing and halter-making, where each student had a piece of rope which he cut in two and spliced properly under the guidance of an instructor. In timing ignition we had an old motor which we practiced timing on. In soldering we were given the "makin's" and told to practice joining tin, etc. Some of the chaps made "Man or Wars" and punched holes in them, only to mend them up again. In one experiment we had an electric lighting system to work on which was interesting. Some of us were stupid in the electrical end of it, but the experiments soon made it clear to us. The practical work seemed to follow up and drive home what the lecturers fired at us.

A holiday spent at a short course like this serves two ways—first it breaks the monotony of farm life, and second one learns what can be put into practical use on the farm, which is depending more and more on motive power to do the work, both on the land and in the barn. The man who has an insight into the principles of motive power has a decided advantage over the man who hasn't bothered to investigate and learn.

Wellington Co., Ont.

W. D. TOLTON.

CANADA'S YOUNG FARMERS AND FUTURE LEADERS.

Unique Stock Judging Competition

During the past few years stock judging competitions have become very popular and are now regarded as a regular feature of all large fairs in which live stock are prominent among the exhibits. For many years past, Canadian agricultural college teams have competed at the International Live Stock Exhibition at Chicago, and more than once have brought back the highest honors to be won there in the judging competition. At present the Ontario Agricultural College, Guelph, holds the bronze trophy won in the 1918 competition. By reason of the rapid placing of Agricultural Representatives in nearly every county in Ontario, and the spread of this idea from Ontario to other provinces in the Dominion, facilities have been provided whereby instruction in the judging of live stock in nearly all rural districts could be given. Although the practice of conducting two or three-day short courses in judging at different points within each county has become prevalent, and opportunity thereby afforded for farmers, old and young, to gather new ideas and crystallize old ones, it is with the young farmer particularly that stock judging competitions have been conducted. Probably few other ideas having to do with education in the principles of successful farming

with live stock have played so important a part as the live-stock judging competition and the previous training it gives the young men competing.

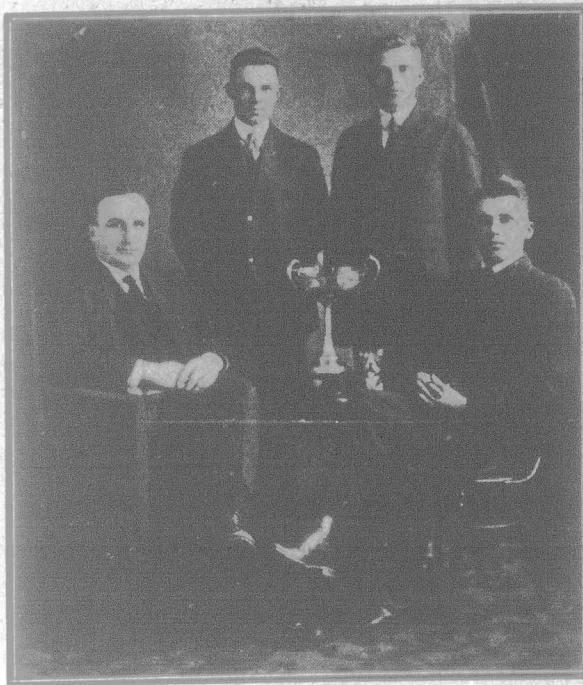
Following the development of these competitions within each county and at the larger fairs in Ontario, particularly at Toronto, Ottawa and the Provincial Winter Fair, Guelph, where inter-county teams compete for provincial and individual honors, it is not surprising that new ideas, tending to make the competitions still more helpful, should develop from time to time. A representative of "The Farmer's Advocate" enjoyed the privilege, on Monday (March 10), of visiting the County of Halton, where, in the town of Milton a unique idea was successfully put into effect in connection with a county live-stock judging competition. The Halton County Judging Competition was held under the joint auspices of the Association of Farmer's Clubs in the county and the local branch of the Department of Agriculture. W. F. Strong, the Agricultural Representative, had actual charge of the event, which was



The Junior Farmers Assembled for the Competition at Milton.

conducted under cover of the Agricultural Hall on the fair grounds.

There are ten associated farmers' clubs in the county and in preparation for the judging competition, four courses of one week each were conducted at points throughout the county, serving as logical centres for the different clubs. At each of these places afternoon sessions were conducted each day for a week, at which instruction in judging was given by competent outside men provided by the Department of Agriculture. The boys who took one of these courses were eligible to compete in the final event at Milton on March 10. In all there were 52 who took these courses, of which number 39 entered the lists at Milton. At each of these local courses, prizes of five, three and two dollars were given to those scoring highest, while a shield, donated by the county Board of Agriculture, was awarded to the candidate scoring highest, the four local courses considered. This shield must be won three years in succession to become the property of any winner, and it was won this year by C. T. Moffatt, Acton. Incidentally it may be mentioned that these courses took the place this year of the usual two or four weeks' course in agriculture, held annually in each county by the Agricultural Representative. It was



Winners of the Peter White Trophy at Ottawa.

F. Forsyth (coach), S. Graham, J. R. Hughes, W. H. Strong.

felt that the whole county could be reached in this way much better than by holding a lengthy course for the benefit of the young men in any one locality, especially since courses in previous years have pretty well covered the county. That the innovation was popular is evidenced by the enthusiasm shown throughout the county.

At the final event in Milton five classes of splendid stock were led out and judged. They consisted of three splendid agricultural horses, three very typical Shorthorn breeding heifers, three Holstein milk cows, three beautiful Yorkshire sows and three Leicester ewes. Credit is due to A. S. and Henry Wilson, S. Harrop, Ed. McCann, Mount Dairy, J. W. Hepburn and J. J. Wilson, all of Milton, for supplying stock which was a credit to the community. The really unique feature

of the competition was the method of supplying and awarding prizes. Only seven prizes were awarded, and these went for total scores made by each candidate in the five classes. The prizes were all in the form of pure-bred live stock, and the first-prize winner was allowed to take his pick, after which the second-prize winner made a choice and so on until the seventh man took what was left. The prizes were as follows: A 5-months-old Shorthorn calf valued at \$200 was donated by A. G. Farrow, Oakville. This calf Lord Scott =124750=, has a very good pedigree, both great grand parents being imported animals. An Ayrshire bull calf, seven or eight months old was also donated by C. Osmond, Milton, while a very typey Shropshire ewe lamb was donated by a breeder at Trafalgar. In addition five of the farmers' clubs raised \$145 for further prizes and a Holstein bull calf one month old, two Leicester ewe lambs and a Yorkshire sow six months old and bred, were purchased.

The placings in the various classes were made by the following well-known men: Horses and beef cattle: Jno. Gardhouse, Weston; dairy cattle: R. S. Stevenson, Ancaster; sheep and swine: R. H. Harding, Thorndale. The results of the day's work with the choice of prizes made by each winner in turn, and his total score out of a possible 500, were as follows: 1, C. T. Moffatt, Acton, 425, (Shorthorn bull calf); 2, Jno. Wilmott, Milton, 415, (Yorkshire sow); 3, E. E. Patterson, Milton, 385, (Leicester ewe); 4, Lorne McLean, Trafalgar, 380, (Shropshire ewe); 5, Fred Irvine, Hornby, 379, (Holstein bull calf); 6, Donald Pickering, Streetsville, 375, (Leicester ewe); 7, J. A. Elliott, Milton, 374, (Ayrshire bull calf). G. H. Gillies, Georgetown, won a silver trophy donated by the Bank of Toronto at Milton for the best score in horse judging.

In addition to the judging competition a small seed fair under the auspices of the farmers' clubs was held, but exhibits were very light. J. F. Ford won the special prize of five dollars for the best exhibit.

Durham County Boys Win the Judging Competition.

Short courses in agriculture and stock judging competitions put on by Agricultural Representatives, by the Department of Agriculture, Fairs' Associations and others, have greatly increased the interest in live stock among the young men of the Province. The competitive idea is a good one and tends to bring out the best that is in a man. These competitions will have a far-reaching effect. The training which the boys receive before entering the competition is fitting them to take their places as official judges in our show-rings of the future. The competitors must give reasons for their placings, and the final score is reckoned on both placings and reasons. At the Guelph Winter Fair the counties of Western Ontario each had three men comprising a team competing for what is known as the James Duff Trophy. At the Ottawa Winter Fair, the men from the Eastern Counties competed for the Peter White Trophy. The winners at these two competitions then met to decide on the provincial championship for which a cup is given by the Union Stock Yards at Toronto. At both the Winter Fairs there is very keen competition. The Agricultural Representatives train their teams well. Last December G. A. Williams' team, from Durham County, won the Duff Trophy at Guelph. The following men comprised his team: W. E. Snowden, Bowmanville; R. Fallis, Millbrook, and R. Ferguson, of Blackstock, and at the championship test held at the O. A. C., Guelph, on March 11-12, they were the winners, defeating F. Forsythe's team, from Lanark County, which was successful in securing the Peter White Trophy at Ottawa. The competitors were called upon to pass judgment on two classes each of dairy cattle, beef cattle, sheep, horses and swine. Two hundred marks were allotted for each class. The Durham team led in each class of stock, with the exception of swine. Roy Ferguson, of Blackstock, was high man. The competition was conducted by R. S. Duncan, of Toronto, and the judges were Prof. Wade Toole and Prof. J. P. Sackville, of the Animal Husbandry Department, O. A. C., Guelph.

Topics for Discussion.

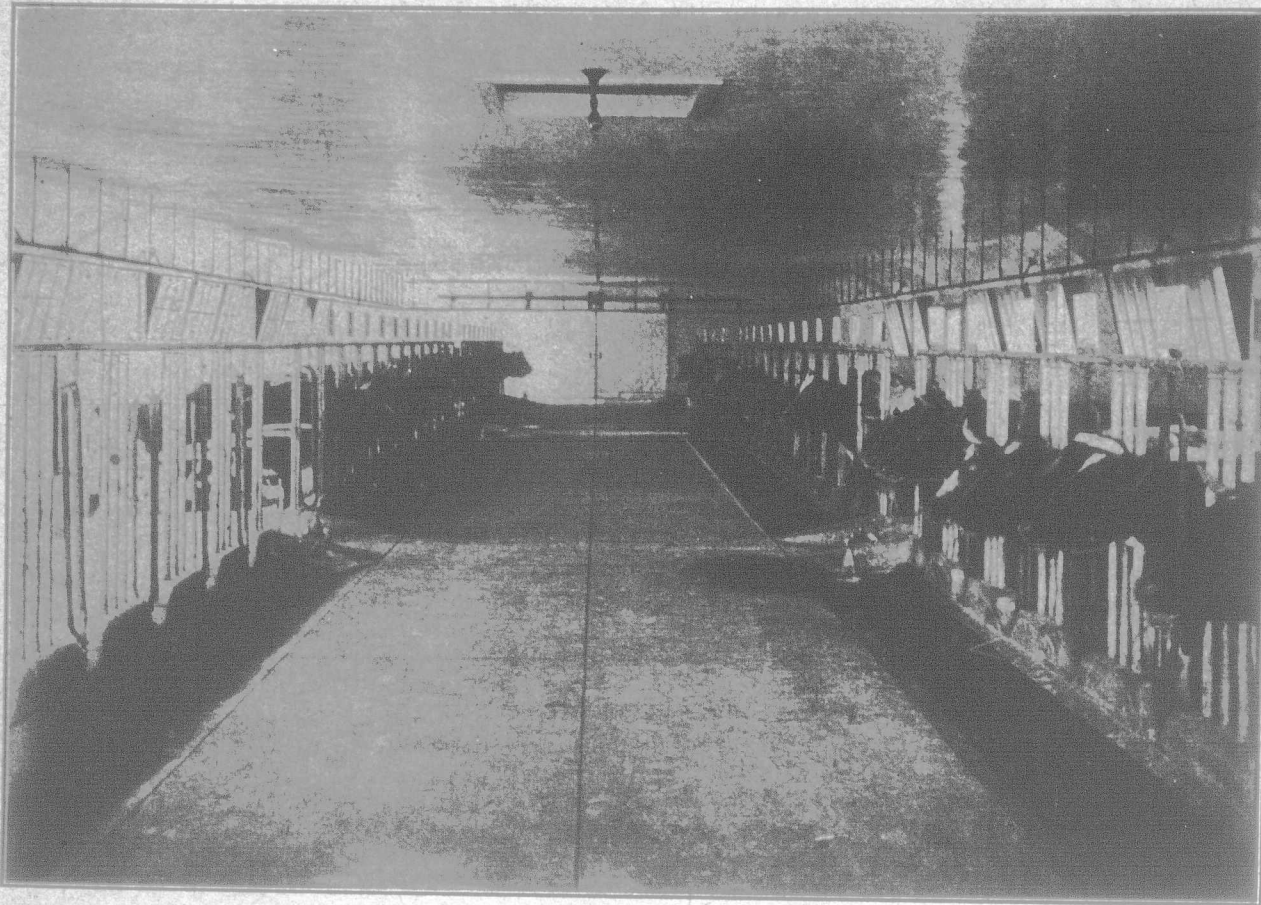
As announced in last week's issue we want the junior farmers to express their opinions and offer suggestions through this Department. During the next quarter century youth will be very much to the fore and young men cannot start any too soon to take an interest in their community and its relation to national welfare and national development. If you have an idea or suggestion send it to this Department or perhaps you would prefer to discuss some of the topics outlined below. All articles published will be paid for at a liberal rate.

1. What can the junior farmers do to make rural life more congenial for themselves and others, and what should the "old folk" do to make conditions more satisfactory for the boy or girl?

Would more attractive surroundings, better live stock, improved farming methods or more conveniences in the home help to make the boys and girls contented and satisfied with their occupation? What is the chief attraction which lures the boy from the land, and what would be most instrumental in keeping him in the country? Articles on this topic should not exceed 800 words. Let us have the articles by March 25.

2. What lessons in agriculture has the war taught?

Have you or your neighbors learned anything new



A Dairy Stable with Continuous Manger, Stanchion Tie, and Provision for Light and Ventilation.

in regard to farming during the last four years? Have new crops been introduced which promise to be more remunerative than the ones formerly grown in the district. Have methods been altered or have any labor-saving devices been found valuable. Articles on this subject should not exceed 800 words, and should reach us by April 1.

3. How could the rural school serve the community better?

If your local school has done anything different and made a success of it, write about it. Do the parents and trustees give the teacher all the support they should and help her to make the school neat and attractive. How could the rural school be made more of a community centre than it is? Articles on this subject should not exceed 800 words, and should reach us not later than April 5.

THE DAIRY.

Protect the newly-freshened cow from cold drafts. If the stable is cold and drafty blanket her.

Do not neglect the cow due to freshen. Assistance and care at the right time may save a calf that would otherwise perish.

Don't beat the heifer because she kicks when you first try to milk her. Kindness will win her much more quickly than blows.

When the grasses fail as pasture oats may be used to advantage. They furnish luxuriant feed about the time the grasses are drying up.

Success in dairying is attained by wise selection of breeding stock, careful mating, testing, good feeding and regularity in milking and feeding.

Are some of those young things in the back stable troubled with lice? Kerosene Emulsion, coal tar product or cement and hellebore are effective remedies.

Milk fever is most common with the heaviest milking cows. The air treatment or filling the udder with air by pumping it in through a milk tube in the teat has saved many cows.

A cow is more or less of a nervous creature and should be spoken to before being touched. A man we know got kicked in the head the other day because he did not exercise this precaution.

Do not trust the bull, however, quiet he may appear, but take the same precaution with the apparently quiet one that you would with one known to be cross. It may prevent an accident.

Persistency in milking although partly a breed and individual character may be considerably influenced by the length of the first milking period. Keep the heifer milking nearly the full year.

The mineral and protein content of bran makes it a valuable feed for growing animals and for cows. However, pound for pound oats are generally considered a little more valuable than bran for cows.

The new herd sire must be superior to the one now in use if advancement in records is to be made. Once started on the road to high quality stock do not look back but set a high ideal and ever work to attain it.

Cows in low condition of health are more likely to retain the afterbirth than healthy cows. Giving cold water soon after calving may also cause it to be retained. If it does not come away in twenty-four hours it should be removed by hand.

Have you paddocks near the buildings for the calves? If not why not build a couple this spring and seed them to some pasture crop for the youngsters. While young calves are better kept in the stable, until they are four or five months old they can run out at nights and be kept in during the day when the flies are troublesome.

As the amount of manufactured material a machine will turn out depends on the make of the machine and its capacity for assimilating raw material so the amount of milk and fat a cow will produce depends upon her breeding, individually, and the amount and kinds of raw material fed. A cow cannot make milk out of straw alone. The greater the variety of feeds the better. They should be palatable, digestible and contain the constituents which go to make milk.

The Bedford District Ayrshire Club recently held its annual meeting and re-elected, W. F. Kay, M. P., as President and W. M. Wallace as Secretary-Treasurer. A. R. Ness of Macdonald College addressed the meeting and advised those present to pay greater attention to the selection of good sires, and especially to use sires from R. O. P. dams. He said this was the basis of good breeding, and when good herds are to be built up it is only through the use of high-class sires that this can be done. Mr. Ness also spoke of what he had lately seen among Ayrshire men in Scotland, of the strong herds there built up by the use of good sires, also by paying greater attention to the growing of their young stock, they were emphasizing the possibilities of the Ayrshire breed as never before. Mr. Ness advised the breeders present to pay greater attention to their breeding operations and also to enter their cows in the R. O. P. W. F. Stephen advised those present to launch out and be more active in furthering the breed. He also advised



A Dairy Herd Near Simcoe, Ontario.

them to do more record work, and said the "objective for 1919 should be "better sires" to replace scrub sires with pure-bred sires on grade herds. He also advised tuberculin testing at least once a year.

Supplementing the Pasture.

In many sections of Ontario the catch of clover did not look any too promising last fall. The winter has been open, but we doubt if the clover which did catch has been injured much as yet. However, the next two or three weeks are the hardest on the new seeds. The outlook is none too promising for pasture for the coming season. Under the most ideal conditions there is usually a falling off in the milk flow during the months of July and August, the time when pastures become short and dry. Once the milk flow drops, due to lack of feed, it is difficult or practically impossible to bring it back to normal. This decrease can largely be averted by providing succulent feed to supplement the pastures during the dry summer weather. A silo full of corn is perhaps one of the best means of supplying this extra feed. However, comparatively few dairymen have made provision for silage for summer feeding. Corn is one of the most profitable crops grown on the farm, and as it gives a large bulk of feed more dairymen might advisedly put in a larger acreage this spring and erect an extra silo.

Having the stock on pasture reduces the labor a good deal. However, from the feed standpoint alone, pasturing is an expensive method of feeding dairy cows. A soiling crop, which, by the way, is some green crop that is cut and fed green to the cows in the stable, is practicable only to a limited extent in Ontario, owing to the labor problem. An acre or two of red clover, alfalfa, or peas and oats, near the barn, may be used to advantage for cutting for the herd sire, calves and some of the cows which are on test. The alfalfa comes on quickly and gives two or three cuttings. However, it is not adaptable to all soils. Red clover gives a fair cutting of feed but will not give quite the bulk that is secured from alfalfa; the second growth does not come on quite so quickly. The beauty of alfalfa is that by the time a small acreage is cut over there is usually sufficient growth on that first cut to permit of cutting again. Both alfalfa and clover must be provided for the year previous to when they are to be used. If the seed was not sown last year some other crop must be considered for the coming season. For a crop this year, oats will give as valuable feed as any crop that can be sown. A small acreage can be sown at intervals of a week or ten days, in order to prolong the feeding period. If the crop is not all required for green feed, it may be cut when in the milk stage and cured for hay, or allowed to mature for grain. A soiling crop certainly increases the work during the busy season, and is, no doubt, the reason why more do not grow such crops to help out the pasture.

Some provision can be made this spring to give pasture where the clover has failed. The new meadow that is not worth leaving may be broken up and sown to oats and clover. This will give pasture by the first of July, or the time when it is most needed. The clover is apparently not injured by pasturing, and comes on the following year for either hay or pasture. Sowing two and a half bushels of oats to the acre, and eight to ten pounds of red clover is considered fair seeding. Barley and wheat have been sown with oats as a pasture crop. The smut of barley has proven injurious to cattle, consequently we deem it advisable to leave it out of the mixture. As oats is the most leafy cereal and gives good pasture in itself, we do not see the need of sowing the wheat with the oats for pasture. Oats, early amber sugar cane and clover is a summer pasture mixture which has been advocated a good deal. It may do all right in some sections, but on most farms where this mixture has been sown the sugar cane has not amounted to very much. In fact, we know of instances where it required a long search to find a single plant. Then, why sow sugar cane in a pasture mixture? In an occasional season the sugar cane may come on all right, but it is not a sure crop when sown as pasture. Sweet clover has helped out the pasture problem on many farms. If the sweet clover is sown alone in the

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spring it will give a considerable amount of feed in the fall. There will be quite a bit of feed when it is sown with a nurse crop. This crop, termed a weed by many, is readily eaten by the stock, and our experience has been that an acre of sweet clover will stand almost as much pasturing as two acres of red clover. Oats appear to be about the best crop to sow to help out with the coming season's pasture. It is a good plan, where there is a large pasture field, to run a temporary fence across it and pasture one-half the field at a time. Considerably more feed would be obtained and the stock would do better than if allowed to roam over the entire field. Provision for pasture shortage, which almost invariably occurs, may mean many dollars to the stockman.

Maple Gore Holstein Make a Good Average

On Wednesday, March 5, at Burford, Ontario, the Maple Gore herd of pure-bred Holsteins, owned by E. Plant, was dispersed by auction. The 27 head made an average of \$211.10; 17 cows three years old and over averaged \$248.90; 2 calves sold for \$185; the two-year-old heifers averaged \$155. The herd sire went away below his value, bringing only \$200. The cattle were brought into the ring in excellent condition, and, considering that there were few officially-tested animals in the offering, the gross receipts were pleasing. The highest priced animal of the sale was Eva Mercedes DeBell, going to the bid of Howard Edmonson, Brantford, for \$375. Following is a list of the animals selling for \$100 and over, together with the names and addresses of the purchasers:

Irene Butterfly, Howard Edmonson, Brantford.....	\$255
Beauty B. of Rocy Ridge, Soldiers Civil Re-establishment Service, Guelph.....	180
Julia Netherland Baroness, W. Sager, St. George.....	350
Miss Segis Alcartra, Earl Kinney, Waterford.....	125
Axie Alcartra Calamity, Soldiers Civil Service.....	255
Miss Colanthus Walker, Jas. Knight, Brantford.....	170
Beauty of Zenda, A. E. Hulet, Norwich.....	180
Queenie Rell Colantha Earl Kinney.....	230
Queenie Rell DeKol, J. E. Brethour, Burford.....	150
Sir Segis Alcartra, Frank Lampkin, Brantford.....	200
Annie H. Pauline, Wm. Amy Burford.....	340
Lily Pauline Baroness, J. E. Brethour.....	250
Annie Pauline De Kol, Bruce Mason, Cainsville.....	245
Pauline Annie Posch, Bruce Mason.....	245
Pauline Butter Mercedes, Soldiers Civil Service.....	230
Maple Gore Bessie, Soldiers Civil Service.....	125
Dusky Mercedes Baroness, Geo. Denvey, Burford.....	250
Maple Gore Queen, T. A. Barr, Brantford.....	115
Lizzie Mercedes Johanna, Jas. Knight, Brantford.....	200
Eva Mercedes DeBell, Howard Edmonson.....	375
Flossie Abbecker, Howard Edmonson.....	200
Pearl Diotime Posch, Wm. Amy.....	350
Jane DeKol Baroness, G. W. Rutherford, Burford.....	175
Jenny Alcartra Baroness, C. G. Gurney, Paris.....	135
Maple Gore Etta Bell, Nelson Clement, Vanesa.....	195
Heifer, W. A. Hartley, St. Catharines.....	115

Milk Recording in England.

EDITOR "THE FARMER'S ADVOCATE":
Milk recording was being generally accepted all over England by our young farmers, and being entered into with a real spirit of dash and enthusiasm, when war broke out and off the youngsters trooped to the colors; leaving only their sisters, mothers and aunts to carry on the milking, much less the recording. In those areas where recorders have been available during the last four and a half years, it has been demonstrated to farmers that milk recording pays, if only it enables one to discover the weedy cows in the herd and so get rid of these unprofitable burdens, on the "costs" of milk production.

Luckily, the Government are liberating from the Army our key or pivotal farmers' sons and farm boys, and milk recording is going to be tackled in real seriousness. All kinds of schemes are being devised to interest likely entrants to the many new societies now springing into being. One of the best schemes I have seen, on paper, is that sent to me by the live stock office for a West of England province, and it is called "A Dairy Herd's Competitor."

A challenge cup and a £5 first prize is offered to the winning "recorder in the North Somerset Milk Recording Society, who shall gain 160 points from the following five clauses, to which he must submit his cattle:

1. The average milk yield per cow and heifer which has been in the herd for the whole year—say 40 points.
2. The general appearance of the herd, viz., type character, constitution, uniformity and general dairying qualities—say 40 points.
3. The character of the bull or bulls in service in the herd—special consideration will be given to the milking pedigree of the bull—say 30 points.
4. The number and quality of the offspring reared from cows whose milk yield has been recorded stress to be laid on the desirability that the young stock should be bred with a distinctive view of eventually qualifying for entry in a recognized herd book or register say the Herd Book of the particular breed, or the Register of the Board of Agriculture, or the Register of the Dairy Shorthorn Association, and a point should be made of inspecting the records kept for this purpose—say 30 points.
5. The manner in which milk yield and other records, animals, premises, dairy utensils and general surroundings are kept. The judge will be instructed to take into account the condition of the buildings and

premises for which the occupier is not responsible—say 20 points.

Total points—160.
Competition will be confined to herds whose milk yield has been recorded from October 1, 1918, to September 30, 1919.

Under headings 1, 2, 3 and 4, the exhibitor must enter every animal which comes in the category. Animals (calves excepted) purchased between the two inspections will not be recognized.

The inspections of 1 to 5 to be made between March 1 and 14, and between October 1 and 14.

The judge or judges to be selected away from the district, and will not hold a strong bias for any particular breed, and, if possible, keep or have kept milk records in their own herds.

The cup to be won twice in succession or three times in all before becoming the absolute property of a winner.
ALBION.

The London District Pure-Bred Holstein Sale.

On Thursday, March 13, the Holstein breeders in the vicinity of London disposed of sixty-five registered Holsteins at fairly remunerative prices. The consigners put in considerably better stuff than they did last fall, and prices were somewhat higher. However, some of the cows due to freshen shortly and others just fresh went a good deal under their value. There were a number of particularly large, smooth cows, with every indication of being heavy milkers, and with the breeding that would warrant them selling for nearly double the price. In several instances we believe that the cows will give enough milk in the present lactation to pay the purchase price. Firth Farm Daisy, a seven-year-old cow, was one of the best things offered. She is of the Mercena's Sir Posch breeding on the sire's side, and of the DeKol breeding on the dam's side. She is due to freshen towards the end of this month and went to the bid of F. J. Prouse, Tillsonburg, at \$275. The animals were sold by Auctioneers T. Merritt Moore and Dr. Shaw. The following is a list of the animals selling for \$100 and over, together with the names and addresses of their purchasers:

Lady Netherland Posch, W. B. Nichol, Wilton Grove.....	\$175
Pauline Abbecker Dewdrop, Geo. McFadyen, Sarnia.....	205
Ilberton King Netherland, A. H. Keene, London.....	130
Sylvan Hamming, H. Tout, Strathroy.....	170
Ourvilla Calamity Canary, J. Scott, Lambeth.....	160
Peggy Netherland De Kol, E. Ramsey, Strathroy.....	180
May Darling, A. H. Keene.....	200
Lady Ormsby Gretqui.....	180
Firth Farm Daisy, E. J. Prouse, Tillsonburg.....	275
Minnie Colantha Mercedes, C. Lawson, Wilton Grove.....	185
Dora Dewdrop Walker, W. Nott, Nilestown.....	105
Nogi Segis Alcartra, L. Pinniger, Dorchester.....	110
Alcartra Korndyke Belle, Wm. Brickwood, Exeter.....	105
Colanthus Shadelawn Canary, S. McCallum, Glanworth.....	155
Abberker Shadelawn Canary, C. H. Thornton, Comber.....	150
Isabella De Kol Princess, C. Lawson, White Oak.....	240
Detta Netherland De Kol, Geo. McFadyen.....	210
Matilda Bell, Geo. McFadyen.....	200
Bonheur Spink Korndyke, H. Tout.....	165
Houtwie Pauline Colantha, T. Rossetter, Denfield.....	200
May Hengerveld De Kol, Geo. Saul, London.....	160
Jennie Colantha Mercedes, F. Pratton, London, Jct. Grace Ormsby Hengerveld, Geo. McFadyen.....	200
Lydia Putnam De Kol 2nd, Geo. McFadyen.....	225
Adyth Abbecker Calamity, F. J. Prouse.....	140
Bessie Wayne Posch, E. Ramsey.....	150
Ella May O. A. C., A. H. Keene.....	185
Lady Nudine Korndyke, N. McGugan, Shedden.....	125
Francis Fairmont Veeman, A. H. Keene.....	205
King Calamity Segis, J. Cline, Belmont.....	100
Vera Brook of Cedar Hedge, B. Barr, Harrietsville.....	210
Bessie Beets Hartog, H. C. Wakeling, Thorndale.....	180
Gano Canary, H. Tout.....	195
Lady Veeman Belinda, N. McGugan.....	230
Abbecker Veeman De Kol, H. McNeice, Byron.....	165
Detta Calamity Butter Girl, Geo. McFadyen.....	200
Mercena De Kol Segis, W. B. Nichol.....	185
Roma Jane Veeman, F. E. Prouse, Tillsonburg.....	190
Arrawanah Netherland 2nd, J. Woods, Dorchester.....	120
Victory Bond Korndyke, A. F. Matthews, Denfield.....	140
Clara Franklin De Kol, Jos. Woods.....	215
Princess Isosca Pietertje, W. A. Bailey, Thorndale.....	145
Princess Dorliska Hartog, H. Tout.....	155

Factors Influencing Milk Yield and Quality.

In the book Scientific Feeding of Animals, Kellner discusses factors influencing the yield and quality of the milk. The following paragraphs show the effect of work upon the cow. This work will correspond, to a certain extent, to cows being driven long distances to pasture, or having to roam over a considerable area in search of feed. It is evident that in order to secure the greatest flow of milk the cow should not have to take too violent exercise. The treatment and care which the foster mother of the human race receives also influences the yield. The following gives the results of Kellner's investigations. Amounts are given in grams and kilograms. A gram is .035 ounce, while a kilogram is 2.2 pounds.

As every kind of work done by an animal is associated with a corresponding utilization of material,

the influence of work on the milk yield of a cow will depend largely upon the amount of feed it has at its disposal. If the ration does not suffice for the full supply of milk as well as for the work, then under all circumstances it is the milk yield that will suffer, and this has been repeatedly proved. When, for example, a cow was made to turn a capstan for four hours in the morning and again for the same time in the afternoon, the milk decreased in quantity by 4.5 kilogram as a result of the exertion. The milk constituents also suffered, for there were 601 grams less dry matter given, 173 g. less protein, 184 g. less fat, 251 g. less milk-sugar, and 30 g. less ash or mineral matter. Where the same cow did lighter work of the same kind—less than two hours—the effect was the opposite, for the yield of milk was favorably influenced, there being the following increases in the constituents: 128 g. dry matter, 29 g. protein, 44 g. fat, 16.2 g. milk-sugar, and 8 g. ash, whilst the quantity of the milk was greater by 40 g. Moderate exercise in the open, with the avoidance of unfavorable influences of weather, is, as has often been shown, of considerable benefit to the secretion of milk, and therefore ought not to be neglected. A daily stay of two hours in the fresh air has a very beneficial effect on the health of the cows. The feeling of comfort and well-being has a greater influence upon the production of milk than in almost any other direction.

A moderate amount of work on a suitable diet does not, therefore, need to entail any diminution of production. It is true that the quantity of milk may be reduced, but it is then of better quality, so that generally as much dry matter and fat are obtained as when the animal is at rest in the stall. Where the work is fatiguing the milk is also poorer in water and richer in dry matter, particularly in fat. Often under these conditions the quantity of milk sinks so low that, despite the increased concentration, there is a considerable loss of each constituent of the dry matter, as the figures previously noticed will show. Hard work and a large milk yield cannot be combined, but the use of the cow for light work, provided the ration is correspondingly improved, can be carried out without lessening the quantity of milk or fat.

Treatment and Care.

The great extent to which the secretion of the milk depends upon the well-being of the animals is seen from an experiment in which ten cows were not groomed for fourteen days. When daily grooming with brush and currycomb was in operation the total milk yield was 2,087 kg., but when this was in abeyance only 2,007 kg. were obtained. In the first case the milk contained 11.77 per cent. dry matter and 2.99 per cent. fat, and in the second 11.44 per cent. dry matter and 3.14 per cent. fat. Everything that upsets the cow—rough handling, insufficient litter, a cold stall, and similar disturbing factors, all act unfavorably upon the production of milk.

Effect of Feed on the Secretion of milk.

On account of the powerful influence which the individuality of the animal exercises upon the production of the milk in general, and the effect which change of food also has, special care has to be taken in feeding experiments to eliminate individual influences by the use of a large number of animals. Further, the frequent and irregular jumps, which the yield of milk makes in course of the period of lactation must also be taken into account and be guarded against in the same way, viz., by taking a number of experimental animals.

If the quantity and composition of the milk remain constant for some time when the food is unchanged, it would not be difficult to estimate the effect of different kinds and quantities of food upon the milk production. The natural changes, though, which take place during the period of lactation require that in each investigation these must be separately ascertained. As milk is practically only changed mammary gland substance, it depends largely upon the development and activity of this gland what proportion of the nutrients flowing to it are converted into milk. There is, however, a limit to the development of the mammary gland as there is to all other organs, and adaptation and heredity determine this: The individuality and breed of the animal and the condition of the mammary gland, as influenced by the period of lactation, have the greatest effect upon the milk yield. The food, along with other factors, plays a less important part, and only exerts an influence within the limits of the capacity of the mammary gland. It is upon the feed, though, that the efficiency of the gland very largely depends.

In the above sentences a large number of the relations between feed and milk production find an explanation. The mammary gland is most active shortly after the birth of the calf, and it is here that the greatest latitude is left for the action of the feed. Later, when the gland from natural causes loses more and more of its activity, the most liberal feeding cannot maintain the milk yield at its former high level. Too much feed in the second half of the lactation period, therefore, causes the deposition of fat, and when the mammary gland is fat its capacity is reduced.

From the part played by the mammary gland in the process of milk secretion, it is easily explained why the food, as will be seen later, has such a slight influence upon the composition of the milk. The animal organs one and all have a very constant composition; the lime of the bones cannot be replaced by the other similar alkaline earths (barium or strontium oxides and magnesia), nor the potash in the organism by the very analogous soda. Further, the protein substances in the blood cannot be replaced by others of a similar kind, nor can the components of the mammary gland alter. An organ like the mammary gland which is always of the same composition, can, therefore, when it

liquefies, only yield products which are characterized by great similarity. So an explanation is afforded of why the proportion which the constituents of milk bear to one another cannot be appreciably altered by the food.

The Effect of the Quantity of Feed on the Milk Secretion.

When a change is made from a liberal to a scanty diet the lacteal gland, as a rule, does not immediately accommodate itself to the quantity of feed, but remains for a shorter or longer time at the old level. In this case a greater or less portion of the milk is formed from body substance (flesh and fat), and the cow may lose weight to the extent of 1 cwt. or more without the yield of milk undergoing any noticeable diminution. As a rule, though, there is a rapid fall in the quantity. It was noticed, for example, that a cow on a heavy ration (23 lbs. clover hay, 38½ lbs. mangels, and 8 lbs. coarsely-ground barley, per 1,100 lbs. live weight) gave 30½ lbs. of milk with 3.46 per cent. fat; whereas after being fed for a month on a poor ration (9 lbs. clover hay, 44 lbs. mangels, 11 lbs. barley straw) the animal only gave 20 lbs. of milk with 3.50 per cent. fat. A second cow which was fed in the same way gave 26 lbs. of milk with 3.92 per cent. of fat on the first ration, but on the poor one only 18¼ lbs. of milk with 3.80 per cent. fat. Calculated upon the basis of milk with 12 per cent. dry matter and neglecting the natural decrease in yield, there were 10¼ and 7½ lbs. less milk respectively on the poorer ration.

If, on the other hand, the change is made from poor food to richer by several large additions, the yield of milk increases where the ration is rich in protein and the cows are good milkers, in proportion to the extra nutriment.

In an experiment with crushed beans it was found that the addition of 3 lbs. gave a daily increase of 2 lbs. of milk, and when 6½ lbs. of beans were given there were 5¼ lbs. more milk; with another cow the increase was 1½ and 2¼ lbs. respectively for the above amounts of beans. In a further experiment with malt coombs, where 2 and 4 lbs. were added, the increase in milk was 1¼ lbs. and 2¼ lbs. respectively, and in another case .66 and .80 lb. respectively. In both experiments the cows which gave the highest increase were those which without the added food gave the most milk (26 lbs. and 26¼ lbs. daily), the cows with the smaller increase for the extra food only giving 16¼ lbs. and 12 lbs. The more freely milking a cow then is, the greater, as a rule, is the increase of milk which will follow an extra supply of food. This increase has, of course, a limit, and it is shown that from a certain stage the quantity of food required to produce a given increase of milk must be more and more, until finally a point is reached where, in spite of large additions to the ration, no extra milk is obtained. If the milk yield be raised by the use of more food, it is the last quart that requires the most nutriment for its production. How far the yield of milk can be raised cannot be stated beforehand, it can only be found by direct observation.

POULTRY.

Disinfect the incubator before putting eggs into it.

Do not allow the eggs for hatching to become chilled if a successful hatch is desired.

Select the best birds for a breeding pen rather than save eggs for hatching from the whole flock which too often contains birds of good, bad and indifferent qualities.

Dust the hen with insect powder before setting her. You shouldn't blame a hen for becoming restless, breaking eggs and leaving the nest if you neglect to assist her to fight vermin.

At the Dominion Experimental Farm, Fredericton, N. B., the annual report for the year ending March 1918, says that the flock consisted of 180 birds, as follows: Barred Plymouth Rocks, 26; Rhode Island Reds, 89; White Leghorns, 43; White Wyandottes, 22. During the year 17,670 eggs were laid, or an average of 97.6 per bird, with a selling value of \$3.23. The cost of feed per bird for the year was \$2.68, showing a profit of 55 cents per bird per year without consideration for labor or interest on capital invested.

Experiments With Poultry.

At the Dominion Experimental Farm at Cap Rouge, Que., for the year ending March, 1918, some interesting experiments were made with poultry. The result of two years' experiment comparing pullets with hens as breeders shows that there is practically no difference even if the late birds were included with the pullets. The difference though very small was against the hen. This work is, however, being continued. In order to determine the cost of production from pullets and hens of different ages during the months of November, December, January and February four pens of twenty-five birds each were used during these months for three years in succession. The average cost of production, counting that of the early-hatched pullets as 100 is as follows: Early pullets, 109; yearling hens, 118; old hens, 413; late pullets, 928. The result of two years' work shows that

the eggs from the heaviest layers produced the greatest number of living chicks. The number of eggs produced from four pens are as follows: 348, 143, 90 and 55 respectively, and the percentage of chicks hatched from the fertile eggs was as follows: 64.3, 62.7, 60.2, 59.5.

Feeding Experiments.

Two pens of birds were fed exactly the same, except that one received skim-milk and the other beef scraps. In the average of two years during the months of November, December, January and February the 25 birds in the skim-milk pen produced \$6.72 worth of eggs and meat above that produced by the pen fed on beef scraps. This merely goes to show that milk, especially sour milk, is a very valuable feed for poultry. There appeared to be practically no difference between the feeding of Swede turnips and dry clover leaves to the birds. The more

"Six—Poultry raising is an employment in which the farmer's wife and family can engage, and leave him free to attend to other departments.

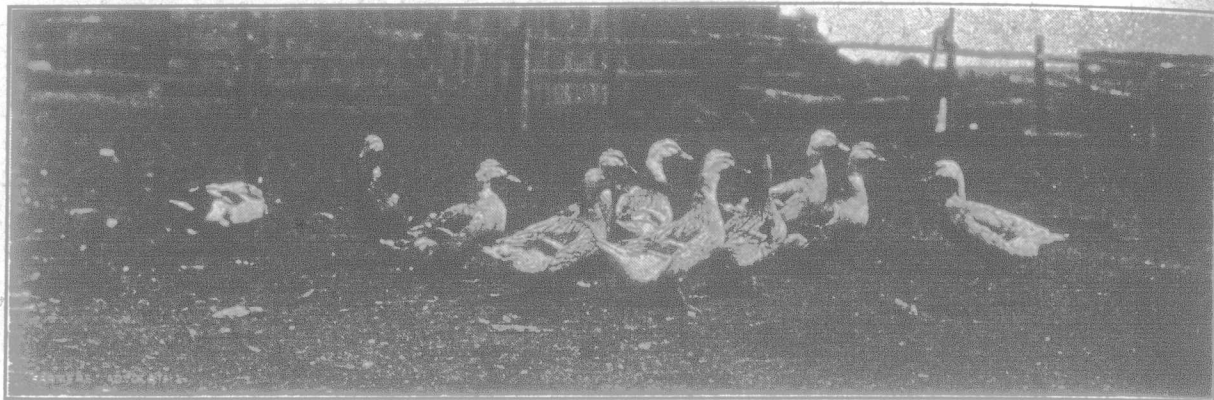
"Seven—It will bring the best results in the shape of new-laid eggs during the winter season, when the farmer has the most time on his hands.

"Eight—To start poultry raising on the farm requires but little capital. By good management poultry can be made, with little cost, a valuable adjunct to the farm.

"Nine—Eggs and poultry are necessities on the farmer's table, and consequently he should produce these as economically as possible.

"Ten—The poultry department can be made to pay better in proportion than any other department on the farm."

I would change number ten, from my own experience



Ducks, Properly Handled, Give Good Returns.

succulent turnips proved advantages to the extent of only 21 cents. An experiment was conducted also to compare commercial grain and screenings from the fanning-mill. For this purpose two pens of twenty-five birds each, about the same age, were fed alike except that one received the commercial grain and the other the screenings. The average of two years shows that, valuing the screenings at two-thirds the price of the commercial grain, the latter was \$5.82 ahead during the four winter months. A comparison of water with snow, was made with two lots of twenty-five birds each. In two years' time the pen that had water during the four winter months was \$1.72 ahead of the other.

Egg Preservatives.

For two years eggs have been preserved at the Cap Rouge station in different ways. After sending samples of each lot to the Chemistry and Poultry Division, at Ottawa, and testing them at Cap Rouge the following results have been secured. The best eggs, considering the quality of stored eggs, were those kept in water-glass; the second best lot was preserved in lime water; those kept in oats were all right for cooking purposes, while those preserved in sawdust and in paper were not fit for consumption.

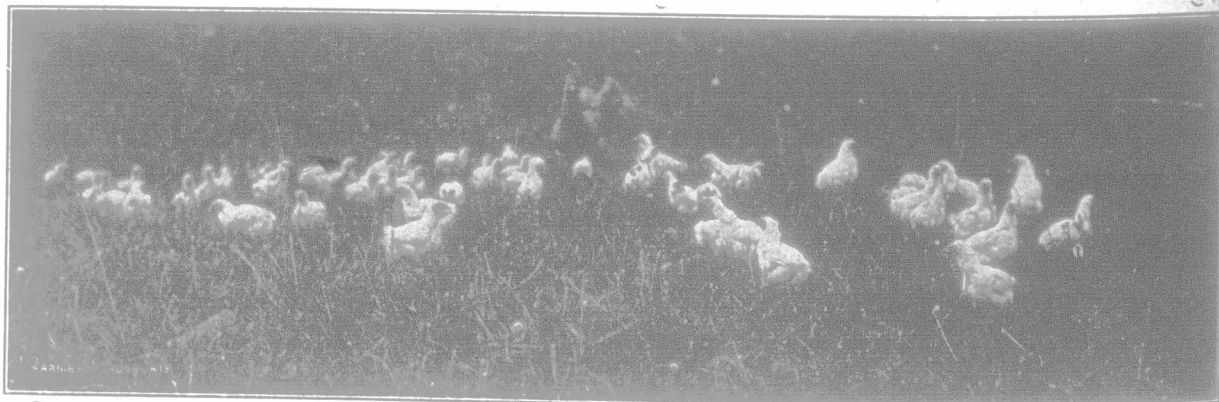
Farm Hens That Pay Their Way.

EDITOR "THE FARMER'S ADVOCATE":

I came across an article recently entitled "Why Keep Poultry?" that appealed to me so much I would like to pass it on, by means of your columns. Probably it suited me mostly because it puts my own convictions in better form than I have been able to put them myself, and it is always pleasant and encouraging to find other people agreeing with one's own ideas. The article I refer was tabulated as follows: One—The farmer will, by means of poultry, be able to convert a great deal of the waste of his farm into money in the form of eggs and chickens for market

to read thus: "The poultry department can be made to pay almost, if not quite, as well as any other department on the farm."

I have always contended that if the ordinary farmer gave as much care to the hens as he does to the calves and pigs, that they also would give him a worth-while profit every year, and I have had the courage of my convictions, keeping about 200 every year, even with feed as high in price as during the last few years. Several farmers in my neighborhood decreased their flocks to about one-half or two-thirds their usual number, and their arguments for doing so sounded so reasonable that I almost followed their example. Owing partly to a somewhat stubborn streak in my make-up, but mostly to the advice of farm papers and journals to keep the stock going as usual, I decided to keep about the usual number of hens and try it out. If they showed a failure they could be easily marketed at any time. I wondered how the egg supply could be kept up without the usual amount of wheat to feed in cold weather, but results show that ground barley and corn with oats and what milk there was to spare from other stock, kept the basket at least fairly well filled. In fact, there was an increase of about ten dozen eggs over the yield of the year before. Counting up costs, I found that in January the layers paid the feed bill for the whole flock, except for a matter of about twenty cents. In February the egg supply was doubled with the same feed cost as in January. March found the egg supply four times larger, with feed the same amount as in January. In April there were nearly seven times as many eggs and feed was cut down by a third when the hens were out on range. May, June, July and August saw a decrease on April's production, but still there was a good profit. November showed a small profit, and December left the flock in debt, with the smallest production of the year. In all, there were 1,435 dozens and 10 eggs laid during the year. If the average price was 40 cents, there is a fair amount for the work, and there were always fresh eggs for table use. The old hens and chickens sold realized about



Early Chicks on the Range.

"Two—With intelligent management poultry should be all-year revenue producers.

"Three—Poultry will yield a quicker return for the capital invested than any of the other departments of agriculture.

"Four—The manure from the poultry house will make a valuable compost for use in either vegetable garden or orchard. The birds themselves, if allowed to run in plum or apple orchards, will destroy many injurious insects.

"Five—While cereals and fruit can only be successfully grown in certain sections, poultry can be raised for table use or for egg production in all parts of the country.

\$150. There were between 40 and 50 head used on the table, and the flock still numbers about 200.

Now, there is no reason why all farmers should not have an all-the-year egg supply when I can, for I have not the up-to-date conditions I would like to have. I am only doing the best I can with very ordinary conditions, hoping always and working for improvement. It would be a great help to me and to others, too, if other farmers would write of their successful methods, and the results of the year's work. If accurate accounts cannot be kept, at least a rough estimate can be made by weighing a few days' feed in January, using the same feed pails for the remainder of the year (an easy matter), and as everyone gathers eggs,

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often since high prices pay for taking care to have them
fresh, the day's product can easily be put down in any
memorandum book, and the month's price or prices
can also be entered at the end of each month. Very
little time will be taken up doing this, and the profit
or loss of the flock can easily be told at the year's end.
We keep track of other stock—why not keep track
of the hens? And we try to improve other stock—why
not have the best hens?
Middlesex Co., Ont. A. C. B.

How Things Are Done in Prince Edward Island.

At one time Prince Edward Island had the reputa-
tion of selling the worst eggs between two oceans, but
now "The Island" leads all the provinces in advanced
methods as applied to the co-operative handling and
marketing of poultry products. At the recent Dominion
Poultry Conference, held in Ottawa, J. E. Sinclair, of
Prince Edward Island, told the delegates how things
were done in his Province, and we are reproducing his
address for the benefit of farm-flock owners and poultry-
men generally. The paper follows:

In taking up the subject of "Economic Production
Through Stock Improvement," I wish to deal with it
from the standpoint of the condition of the average
farmer's flock, as we have found it in Prince Edward
Island, through the working of the Prince Edward
Island Co-operative Egg and Poultry Association, now
known as "Canadian Farm Products, Inc.," and the
methods used to improve production by selection of the
laying hens and better methods of feeding and hatching.

We have in Prince Edward Island about 14,000
farmers, 3,500 of those are banded together co-operatively
in our Association. During the past year we handled,
through our Association, 843,004 dozens or \$345,027.53
worth of eggs.

The average flock of the patrons of the Co-operative
Association is about 60 hens, with an average yearly
production per hen of about 62 eggs or \$2.06.

When we consider that it cost \$2.00 a year to feed a
hen, we at once see the great need for improvement
in our laying stock before we can expect to produce,
with, at least, a fair margin of profit.

In providing ways and means to increase the pro-
ductiveness of the flocks from this low average, we have
received very valuable help from the Live Stock Branch
of the Federal Department of Agriculture, through the
Chief of the Poultry Division and his Maritime repre-
sentative. Perhaps the most effective work done to
encourage stock improvement is done by the travelling
inspector, who is working continuously among the
flocks of the farmers, thus giving them the benefit of
intelligent selection applied to the individual hens in
each flock. This work has been carried on for the past
two seasons and is divided into three distinct lines of
selection. First, the spring work consists of inspecting
and approving of all pure-bred flocks and selecting
from the flock the breeding hens for the production
of hatching eggs; and up to the present the only flocks
visited are those whose owners fill in and return the
application forms, which are sent to all members, for
inspection. When this work is completed a list of the
approved flocks is sent to every patron of the Co-
operative Association. Those desiring to get eggs apply
direct to the owners of the approved flocks. A price is
set on those eggs by the Association. The demand for
hatching eggs last spring was double the supply, these
were distributed with very satisfactory results.

The autumn work extends to all flocks whether pure-
bred or not that file their applications with the inspector,
and consists of a systematic culling for slaughter of all
hens not profitable for layers. The inspector had an
assistant in this work last autumn, and the two of
them could not nearly overtake the amount of work
that was applied for. The object of this work was to
get the unprofitable hen slaughtered while she is fat
and before she moults, when her season's production is
over, because if she is allowed to moult she comes through
thin and has to be refattened for the fall market, thus a
saving of 50 cents per hen is effected by getting her off
before moulting when there is a good market, besides
the greater advantage of having the house clean and
ready for the pullets and be able to get them started
producing before winter.

The third step consists of the selection and approval
of breeding males from the pure-bred flocks in the late
fall and early winter. Although this method of selecting
the male birds may not appeal to those who are specialists
in poultry breeding, as being the best method to get
increased production through stock improvement,
when compared with the selection of males from trap-
nested flocks, yet it has been a decided advance toward
that end in the flocks in which it has been practiced
by our travelling inspector in Prince Edward Island.

To give a better idea of the need of extending this
work, if possible to all farmer's flocks, let me here
mention a few figures to show you the small extent in
which this work has already been extended. These
figures are taken from the Inspector's Report for 1918.

Spring Work.	
No. of pure-bred flocks inspected.....	88
No. of pure-bred flocks approved.....	70
No. of hens inspected.....	4,560
No. of hens approved.....	1,017
No. of males inspected.....	140
No. of males approved.....	81
No. of eggs sold from approved flocks (settings).....	1,583

Autumn Work.	
No. of flocks culled for slaughter.....	190
No. of hens inspected.....	10,646
No. of hens discarded.....	4,425
No. of layers left in flocks.....	6,221
Average number of hens in flocks inspected.....	56

Selection of Breeding Males.	
No. of old males inspected.....	54
No. of old males approved.....	46
No. of young males inspected.....	1,208
No. of young males approved.....	228
No. of breeding males imported (1918).....	76
No. of breeding females imported (1918).....	168

A perusal of those figures reveals a startling condition
among what we refer to as our best flocks. We would
expect that when a farmer takes interest enough in
his flock to have it pure-bred, that he would be able to
give an intelligent selection to his own flock, but we find
that out of 4,560 hens inspected in the pure-bred flocks,
only 1,117 were approved, and out of 140 males only 81
were approved as breeders. This shows us the necessity
of getting farmers more interested in culling their flocks
and doing away with the individuals that are not paying.
Perhaps the one thing with us that is preventing economic
production most is the late hatching of the pullets.
To offset this drawback, we have this year started to
carry on artificial incubation co-operatively and dis-
tribute the day-old chicks at cost to those who apply
for them in advance. This scheme was launched
about three weeks ago, and, judging from the way it is
being received by the people and from the orders for
chicks that have already come in, we will have to dis-
tribute 20,000 chicks or more before June 1 to fill the
orders.

When we find this condition, in our 88 best flocks in
Prince Edward Island, what must the condition be in
the flocks of the 3,310 owners who do not take interest
enough in their poultry plants to even make application
to have their flocks culled, and when we find this
careless attitude obtaining among those who are mem-
bers of a co-operative association, which is operated by
them for their benefit, what must the condition be
among the flocks of the 10,500 farmers in our Province
who do not think it worth while to help in this great
work of co-operation, which is giving them a benefit
by increasing the value of their product almost as great
as it gives to its own members.

To show the field that is open for improvement in
connection with production, let me say that the average
production per hen of the approved pure-bred flock last
year was 78 eggs per hen, giving to the owner a return
of \$2.60 from eggs only. The production of the best
flock of the patrons of our co-operative association was
150 eggs per hen, giving to the owner a return of \$5.00
per hen.

As I mentioned in the beginning, the average pro-
duction of the average hen in the flock of 3,500 members
is 62 eggs per year, or \$2.06. I think I am safe in saying
that the average yearly production of the ordinary
dunghill hen is not over 40 eggs. And I am strongly
of the opinion that a campaign to urge farmers to
increase the yearly production of their flock per hen by
a systematic culling of the flock, a proper selection
of the breeding stock and early hatching with the best
methods of feeding will do more to increase the number
of eggs produced in Canada than we can ever expect
to do by simply increasing the number of hens without
a systematic culling and selection.

About Eggs and Early Hatching.

The pointers on egg selection and early hatching,
outlined recently by a United States poultry authority,
are worth noting:

- Early hatching means more vigorous chicks.
- Early hatching means more chicks raised.
- Early hatching means chicks less troubled by lice and disease.
- Early hatching means a longer growing season.
- Early hatching means better grown chicks.
- Early hatching means higher prices for the surplus and for cockerels marketed as broilers.
- Early hatching means well-matured pullets which begin to lay in the fall.
- Early hatching means eggs from the pullets while the hens are moulting.
- Early hatching means eggs in the fall and winter when prices are highest.
- Early hatching means larger profits.
- Set only good-sized eggs uniform in size.
- Set only good-shaped eggs uniform in shape.
- Set only good-colored eggs uniform in color.
- All this you can do with a little care in selection.
- It is worth while as eggs of good size, color and shape and uniform are a marketable product at higher prices than small eggs varying in color and all shapes.
- Eggs weighing less than two ounces should not be used for hatching. The large-sized egg hatches a larger chick.
- This larger chick grows faster than the smaller chick.
- This larger chick will be marketable as a broiler sooner.
- This larger chick matures younger.
- This larger chick begins laying sooner than the smaller chick.
- The income is received sooner and they are more profitable.

These facts apply to all breeds. The comparisons
are made between small and large chicks in the same
breed. Careful selection of eggs for hatching pays.
Don't neglect it.

Our First Poultry Show.

BY BEN LOMOND.

Someone suggested a poultry show, and the idea was
taken up with enthusiasm. It was the first show that
had been held in the district, and was quite a novelty.
Although it was got up in a hurry, there was quite a
good turnout. What did it matter if most of the hens
were in the pook? If you have enthusiasm that is the
main thing. There were half a dozen classes for the
different pure-breds, and to give everyone a chance, a
class for the pure-bred mongrels. Two of the local
men who had been at the Highland Society Show were
appointed as judges, and, as the papers said, their
awards gave general satisfaction. Of course, you can-
not please everybody, and the men who had got fourth
prize in the Ancona class for an Exchequer Leghorn and
thought he should have been first, said they didna
ken a hen frae a turkey. The winning cockerel in the
any-other-variety class had shed his tail feathers, and
a wag suggested that it was shown in the wrong class.
It should have been put in the selling class and retailed.
In spite of the critics, however, the show was voted a
great success, and it was decided to form a poultry
association, and hold a poultry show at the proper
time of the year. Everyone began to take an interest
in hens, and there was an increased sale of poultry
papers in the district. When the time came round for
the next show the enthusiasm was tremendous, nearly
everyone who kept hens had decided to show in some
class or other, and there was much discussion on the
proper methods of dressing poultry for exhibition.
Sandy had been in the habit of dressing the lye for the
cattle show, and he was put on to wash the hens. With
the liberal expenditure of soap and elbow grease, and
in spite of the struggles of the hens, Sandy made quite
a good job of it. Then he said he needed some whiskey
to rub on their combs, and borrowed some from the
mistress for the purpose. He went into the hen-house
to polish them off, but I had a suspicion that he polished
off the whiskey himself and blew his breath on the hens'
combs instead. Be that as it may, the hens were looking
in first-class order, and we were sure of getting into the
prize-list. With breathless excitement we waited the
verdict. Then the numbers went up, and we found
we had done better than we expected; two firsts, one
special and a second. Sandy was in great spirits.
"It was the whiskey that did it, Tam," he shouted,
and the maist o' the folk that heard him thought he had
been treatin' the judge, and wanted to report him, but
somebody said he was "T.T.," as he had offered him a
dram that mornin'. After that we met Angus, and he
was in good win'. He had got first for the best pair
o' mongrels, and third for a Leghorn hen. He said he
would have been first fleein', but couldn't catch his best
hen. He had chased her up and down the stockyard
that morning but never got near her. There was a
record entry, close on 300 exhibits, and the secretary
wore a smile that wouldn't come off. There was a
good deal of screechin' at the time of the judging, as
some of the hens objected to being handled. One of
them made its escape and flew up and down the hall
with half a dozen men after it, but it was eventually
placed in the pen minus a few tail feathers. It was a
pouring wet day, but that did not damp the spirits of
the crowd, and as most of the men were pretty dry
inside they made frequent excursions to the bar-room
to discuss the 'pints' of the hens. A discussion arose
as to what was the best kin' o' hen, and when Gordie
suggested "a roastit yin" most of us were inclined to
agree with him. The Hon. President provided most of
the prizes, and to encourage the keeping of pure-bred
poultry the prizes were given in kind—cockerels or
settings of eggs of any variety the recipient wished.
These were obtained through advertisements in the
papers, and some had better luck than others in the
way of prizes. To my share had fallen a Minorca
cockerel that had seen better days. It had rheumatism
or joint-ill, and shuffled along the ground in a comical
way. The other cockerels resented its appearance in
the yard, and it never ventured over the doorstep, but
sat there and looked out "with the tear in its e'e," as
Sandy put it. It was a droll beast, but evidently had
its place in the scheme of things. To prevent it being
injured it was taken round to the garden and left there
with a hen and chickens for company. The hen had
been scratching down the potato drills, so to prevent
this the mistress had tethered her by the leg outside a
barrel and the chickens would roam where they liked.
The cockerel was quite happy among the chickens, and
when the hen was taken away, having commenced to
lay, the cockerel adopted the motherless chickens.
He tended them with care, and they sat beneath his
wings at night and chirped away quite happily. To
see him shuffling along the potato drills after them was
better than a Charlie Chaplin comedy. He started to
"cluck" like a hen, and whenever any feed was put
down he called the chickens to the feast with great
enthusiasm and saw that their wants were supplied
before he would take anything himself. Truly he was
a wonderful cockerel and tried to make the most of his
opportunities. I was a gainer in the end, however,
as the Hon. President generously sent me another
cockerel—a winner this time.

It appears that now everyone is looking for wheat
to go down, yet everyone wants the price of some other
commodity than the one they are interested in to go
down first. They want for a time the privilege of buying
in a cheap market and selling in a dear market. As a
matter of fact, considering the amount consumed in
each home, the increased price has had less influence
than any other commodity on living costs.

HORTICULTURE.

The Training of Fruit Trees.

Generally speaking, we know much less about "pruning for fruit production" than some ardent speakers and writers would have us believe. Much of the advice and information advanced on the subject of pruning has little or nothing to do with this aspect of the use of saw and clippers, but refers almost wholly to the question of shaping and training the tree so that it can be conveniently handled during the growing and harvesting season. The result is that in spite of the fact that this advice, although fathered by the best of intentions and free as the very air, is really the product of ignorance in many cases. The result is very confusing and leads in effect to comparatively greater emphasis on the question of training than upon the more fundamental, if obscure, one of "pruning for fruit production."

It is, of course, quite apparent that these two aspects of the matter cannot be considered wholly independently of each other; and that the removal of limbs incidental to training must of necessity bear some relation to the behavior of the remaining limbs in the direction of actual fruit bearing. This interdependence is less important in the very early years of the life of the tree; but becomes quite important as the tree approaches the bearing age and arrives, say, within three or four years of the period of reproduction. In most cases, however, the importance of pruning at this particular time is almost altogether forgotten, with the result that so arduous are we in our efforts with the pruning saw that fruit bearing is often delayed for several years. This is particularly true in the case of varieties such as the Northern Spy and others which are rather late in bearing. We approve of the idea that fruit bearing is the natural habit of the tree or plant, and that pruning efforts should be directed towards making as much of this fruit as possible, marketable. This idea is in contrast to the rather common one of performing pruning operations upon a tree with more or less regularity and severity in order to make it bear fruit in abundance. If we accept in the beginning the idea that the tree will, if left alone, bear fruit abundantly, although perhaps of small size, we will naturally proceed along different lines than if we deem it necessary to prune so as to force the tree to produce more abundantly than is its natural habit. We will, therefore, endeavor to separate the questions of pruning and training, the purpose of this article being largely connected with the latter phase of the subject.

Training.

Training, therefore, has to do with the modification of the shape and appearance of trees so as to permit the grower to work conveniently and with the least expenditure of labor, and also so that the longevity of the tree, together with its ability to withstand climatic conditions, may not be impaired. There are, at the outset, but two general forms of trees to consider. These are known as the central leader and the open-centre tree, the former having been for many years the most popular, as it is undoubtedly the most natural form for the tree itself. By this method of training the trunk is allowed to continue straight up until the top of the tree is reached and branches are spaced more or less generously in all directions from it. The disadvantage of this type of tree to the practical or scientific orchardist is that it is inclined to grow too high and the fruit is usually found at a considerable distance from the ground. Moreover, the centre of the tree is likely to become filled with too much leaf and wood growth so that the maximum quantity of sunlight does not reach all parts of the tree. It must be said that trees of this type can be trained so as to provide fruiting branches near the ground and plenty of sunlight for the centre of the tree, but it is not so easy for the average grower to do this. It must also be admitted by even the most ardent advocates of open-centred trees that those of the central leader type are likely to suffer less from breaking down of the limbs, and this in itself is a most important consideration.

An open-centred tree is described by the very name applied to it. In other words, the central leader is absent and a more or less open space is provided in the centre of the tree for the circulation of air, the admission

of sunlight, and the growth of small fruiting branches. It is quite the usual thing to associate this form of tree with low heading, a very favored practice which the specialized orchardist who wants his trees within easy reach of the ground. As pointed out before, the main limbs of open-centred trees are much more likely to break off with the strain of a heavy crop than those of the central leader kind, and it is, moreover, much more difficult with this type of tree to get the main branches correctly placed, when the tree is first heading, so that the tree will be of proper form and symmetrical. There is this advantage, however, in the use of open-centred trees and that is that they are usually broader and permit of the building up of wider and lower heads, so that the general aim is to get the same volume of bearing wood much nearer the ground but perhaps with a greater spread of branches. When one stops

to consider the importance of economizing in labor, not only in pruning but in spraying and harvesting as well, the advantages of having the tree near the ground where the minimum of time is wasted in climbing ladders, etc., seem very marked.

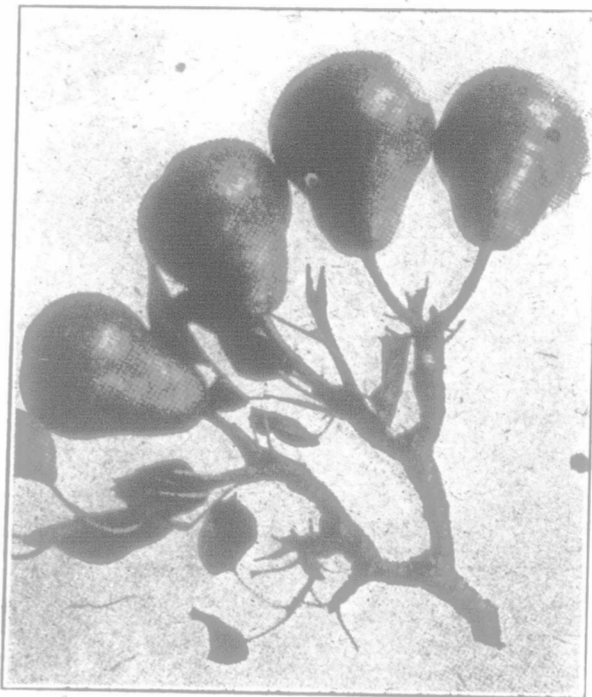
Low Heading.

The question of heading is very important, and for several years now growers of tree fruits have shown a marked tendency to head trees much lower than was previously the case. Peach growers have gone very much to the extreme and, in some cases, have headed whole orchards within three or four inches of the ground. These extremes are, however, giving way to a more rational application of the principle of low heading. On the other hand, the man with the small orchard is usually the person who professes the most profound conviction as to the value of high headed trees, and we have seen trees headed more than six feet high, the idea being of course to get the lower limbs so high that the heavy hames of the work harness will not injure the bark. The probability is that the man who was so careful of his convenience in this regard would watch these lower limbs so carefully that he would allow the plow or the whiffletree or the harrow to tear great jagged wounds in the bark at the base of the tree. Generally speaking, a height of from eighteen inches to two feet is fairly satisfactory for the commercial orchardist. It may be advisable for the man with the small orchard, who does not feel able to invest in special machinery for cultivating under low-headed trees, to increase this distance to from two to two and a half feet.

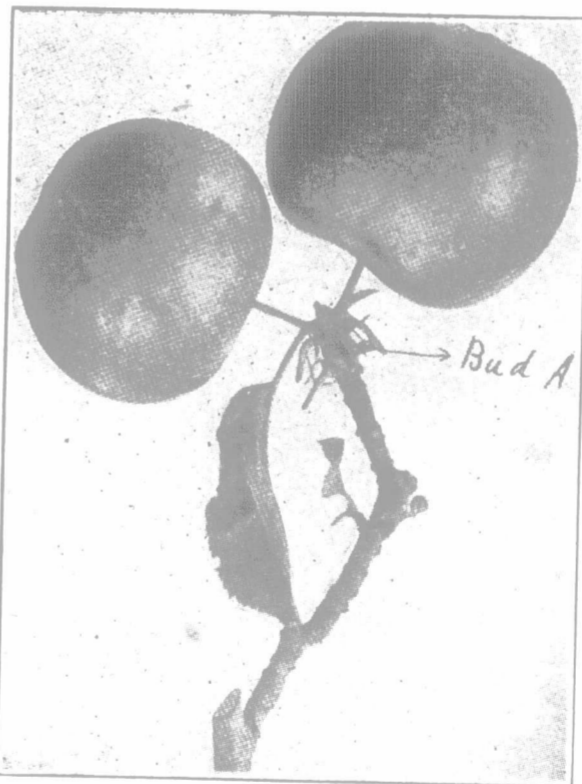
However, in spite of what may be said to the contrary, there is a decided tendency for low-headed trees to grow much more upright than trees which are headed high. This is largely a matter of air and sunlight. It is for this reason that low-headed trees can be cultivated with only slightly more difficulty than trees that are high headed. High-headed trees have branches that grow more or less straight out horizontally, while low-headed trees branch in an upward direction so that it is quite possible in the majority of cases to get just as close to the tree that is low headed as to the one that is headed extremely high. It does not necessarily follow, however, that because a tree has a short trunk that it is necessarily low-headed. We have seen men whose trees show only short trunks, but who had with every care and great precision cut off every branch that started to form for several feet above the top of the trunk. This naturally resulted in great inconvenience when these trees began to bear, the only fruiting wood capable of bearing a crop being found in the very top of the tree. The same condition is, of course, found with trees that have been allowed to go for many years without any pruning whatever. Nature in this case does just as good a job as the men above referred to. The lower limbs suffer from lack of sunlight, leaving a few fruiting branches in the very top of the tree, and long, bare limbs connecting them with the trunk.

Training, however, is not such a simple matter as might be supposed from a mere outline of two standard shapes or forms. Trees will become bent over from various causes, disease may destroy the symmetry of the tree, and, aided by severe winds, make it very lop-sided. Corrective measures are, therefore, needed and these must be applied with care. It may be necessary in severe cases to endeavor to turn back the direction of growth in the opposite way from which it tends to grow. This is done by rather severe pruning, perhaps, on the side that is heavy and cutting every branch that is headed back to a bud facing the desired direction. After a few years of this treatment, it is surprising what may be accomplished with a very lop-sided tree. It should be stated that those who train trees most successfully rarely remove large branches. It often takes longer to determine what branch to take out than to actually remove it, and once the dead limbs are removed, together with any that are crossing or interfering with the normal development of the tree, further shaping or pruning is best done from the outside in, working with small branches until it is found absolutely necessary to remove larger ones. This method of training undoubtedly takes more time, but its results will stand out in sharp contrast with the cut-and-slash methods of the average pruner.

Varieties, too, differ very much in their natural habits of growth. Certain varieties, like Northern



This Pear Fruit Spur is Doing its Bit.



An Apple Fruit Spur with Fruit.



Here is a young orchard showing the best of care. Note that the trees have been trained to an open centre so as to provide convenience and sunlight.

importance of economizing in labor, but in spraying and harvesting as of having the tree near the ground. Time is wasted in climbing ladders,

Low Heading.

Heading is very important, and for growers of tree fruits have shown a trend toward much lower trees than was the case a few years ago. Peach growers have gone very low in some cases, have headed three or four inches of the ground, however, giving way to a more liberal principle of low heading. The man with the small orchard is no professed expert on the subject of value of high headed trees, and headed more than six feet high, the lower limbs so high that the work harness will not injure the tree in this regard would watch carefully that he would allow the harrow to tear great jagged holes in the tree. Generally from eighteen inches to two feet for the commercial orchardist. The man with the small orchard, who invests in special machinery for headed trees, to increase this to two and a half feet.

What may be said to the tendency of low-headed trees is a matter of air and sunlight. Low-headed trees can be cultivated with less difficulty than trees that are headed trees have branches that grow out horizontally, while low-headed trees grow upward so that it is a majority of cases to get just as low headed as to the one that is headed. It does not necessarily follow, however, that a tree has a short trunk that it is better than a tree with a long trunk. We have seen men whose trees were headed but who had with every care off every branch that started above the top of the trunk. In great inconvenience when the only fruiting wood capable of being found in the very top of the tree is, of course, found with a view to go for many years with- out. Nature in this case does not seem to have referred to. The lack of sunlight, leaving a few very top of the tree, and long, thin with the trunk.

It is not such a simple matter as a mere outline of two standard trees will become bent over from the weight of the branches. It may destroy the symmetry of the tree, and make it very lop-sided. It is, therefore, needed and it may be necessary to turn back the direction of the way from which it tends to grow. Pruning, perhaps, and cutting every branch that is facing the desired direction. This treatment, it is surprising to find with a very lop-sided tree. Those who train trees most often have large branches. It often what branch to take out than once the dead limbs are removed that are crossing or interfering with the development of the tree, further done from the outside in, until it is found absolutely larger ones. This method of pruning takes more time, but its results contrast with the cut-and-slash method.

Very much in their natural main varieties, like Northern

Spy, naturally grow very dense tops with great numbers of small, slender branches produced each year. In contrast to these are varieties such as Tolman Sweet and Duchess in particular, which produce a minimum amount of leafy growth and consequently show very open centres. The treatment for these two types of varieties would be quite different. In the case of the Northern Spy the branches would have to be trained away from the centre, and the centre itself kept as open as may be thought desirable, while there would be very large quantities of small branches to remove in order to allow for the entrance of sunlight and fresh air. In the case of the Duchess, Tolman Sweet and Wealthy, the idea is to keep the tree from spreading more than it should, and to encourage the formation of more branches which, of course, necessitates a certain amount of heading-back and pruning to inside buds, so as to fill up the centre to some extent.

Pruning.

We need to have a much more accurate knowledge of the nature of trees and fruit bearing to prune a tree successfully than to train it. The object of pruning is really to regulate the quantity and quality of the fruit produced, and as we have already said that the natural function of the tree is to produce fruit, it can be seen that we are here interfering very seriously with nature herself. A tree will normally produce a large number of small fruits, the idea being to spread broadcast as many seeds as possible with just sufficient flesh around them for protection. Man does not eat the seeds of apples, and, therefore, desires the minimum of seeds with the maximum of flesh, combined with quality or flavor. He, therefore, attempts by pruning to bring about crops such as he desires, in combination with other orchard practices which are also known to be helpful in this regard. As indicated before, very little information is available with regard to the real subject of pruning. We do know that as a general rule a certain amount of pruning in the dormant season tends to increase the growth, and unhealthy, weak or decrepit trees are sometimes made vigorous by severe winter pruning. Some investigators, however, have found that severe pruning tends to retard growth and delay fruiting in the case of young trees. We know, also, that a variety which bears heavily every other year may in some cases be transformed into an annual bearing tree by heavy pruning the winter before it is due to bear the heavy crop. This heavy pruning thins the fruit for the coming season and tends to the production of fruit buds which will bear fruit the year after.

There is no best time for pruning. June pruning is probably entirely satisfactory for trees that are well fed and cared for so that they make an abundant growth, but the difficulty is connected with labor. June is too busy a season for all the advantage that can accrue from June pruning. March and April are probably the most satisfactory, all things considered. Winter months are probably quite satisfactory in many cases, provided the weather is mild enough to work, and provided also that no large limbs are cut off. The air in winter is usually rather dry and very cold and tends, therefore, to the evaporation of moisture from even dormant twigs, to say nothing of the exposed surfaces of wounds.

Little is known about the physiology of pruning; that is to say, the effect of the removal of a branch upon the remainder of the tree, the effect of pruning at different seasons, or the effect of using pruning implements on different parts of the trees. Pruning studies are still in their infancy, and of all the men who profess to be able to "prune for fruit" very few realize the importance of the fruit spur on an apple tree, nor can tell you the type of fruit bearing represented by any particular kind of fruit. It is important to know the age of the wood upon which fruit is borne, just as it is important to know whether the spurs on apples, pears, cherries and plums are valuable for fruit production; or whether the fruit of grapes, black berries; currants and gooseberries is borne on one, two or three-year-old wood; or whether peaches are produced from terminal or axillary buds. This question of fruiting habits in relation to pruning is, however, big enough to be worthy of another article, and will be taken up in a later issue under the heading "Types of fruit bearing."

Winter Injury to Fruit Trees.

A very comprehensive address concerning winter injury to fruit trees was delivered by J. A. Neilson, of the Ontario Agricultural College, at the recent convention of the Ontario Fruit Growers' Association Convention. Mr. Neilson made a survey last summer of the fruit-growing district in Ontario, and his remarks were based on what he saw while engaged in that work. The forms of winter injury, the causes of same and preventive measures are well covered in Mr. Neilson's paper, which is reproduced in the following paragraphs:

Forms of Winter Injury.

Nearly all the forms of winter injury noted by those who have studied this question, were seen by the writer during the past summer. These vary in degree from complete killing of the tree to bud killing and include root killing, collar rot, bark splitting, sunscald, black-heart, killing of bark on the trunk, crotch injury, killing of bark on large and small limbs, killing of fruit spurs, killing of fruit buds, and killing back of terminal growth.

Root Killing.—The roots of young fruit trees are sometimes killed in winter, while the trunk and branches are uninjured. Trees injured in this manner usually come out in leaf in the spring, but in a short time the leaves wither and die. If the roots are examined the bark will be found to be dead and brown. Root killing

is caused by deep freezing and is induced by the following factors: Tender root stocks used in propagation, absence of snow or other protective coverings, exposure to strong cold winds, late fall plowing and poor soil drainage. This form of winter killing is generally worse on light sandy or gravelly soils especially on ridges of the same soil types. Professor Macoun states that very little root killing has occurred at the Central Experimental Farm since the roots of the Siberian crab have been used as stocks for grafting.

Collar or Crown Rot.—Collar or crown rot is so-called because the bark near the collar or crown appears to be dead and brown. The injury may be found on a small area of the bark or it may extend all the way round the tree and for some distance above the ground. Certain varieties of apples such as the King, Ontario, Pewaukee, Duchess, Gravenstein, are susceptible to this form of injury. Cherry and peach trees are also occasionally affected by this form of winter killing.

Bark Splitting.—Bark splitting may be noticed on sweet cherry trees and on some varieties of apples. The bark is often split vertically from the ground up for several inches; in some cases almost up to the limbs. One or several splits may occur and in extreme cases the bark will split away from the trunk laterally as well as vertically. A few trees were seen on which the bark could be pulled entirely away from the trunk by taking hold of one of the exposed edges. In apples the Stark and Ontario are quite susceptible to this form of injury.

Crotch Injury.—Trees affected with crotch injury showed an area of dead bark in the crotch. This might be confined to the crotch or it might extend clear around the base of the limbs and, in some cases, also the trunk just below the crotch. Several trees were observed on which the dead area of bark extended down the trunk in a long V-shape or in an irregular form. The varieties most affected were young Northern Spy, Cranberry Pippin, Baldwin, Gravenstein and Scarlet Pippin.

Killing of Bark on Trunk.—On many trees the bark on the trunk was found to be dead and discolored. The dead area might be confined to large patches or, as was frequently noticed, nearly all the bark on the trunk above the snow line was dead.

Black-heart.—This is a common trouble on young Baldwin trees in many parts of Ontario, and is especially prevalent on trees growing in areas exposed to cold winds. One grower in Norfolk has lost several hundred Baldwins from black-heart. Black-heart may sometimes appear in the nursery but will also attack older and large trees. It is generally worse in trees exposed to strong, cold winds. The injury is thought to be due to freezing of the sap-wood, this causing a dark discoloration; hence the name "black-heart." The cambium layer, however, is not injured and continues to form new layers of sap-wood. In course of time if the injury recurs the injured sap-wood may decay and this often weakens the trunk or branches to such an extent that they break down or die.

Killing of Bark on Branches.—The bark on the larger branches was often found to be affected very much the same as that on the trunks.

Killing of Fruit Spurs.—The fruit spurs on many apple and some pear trees in the colder sections were frequently killed back to the branch on which they were borne. Some pear trees were observed where the spurs were killed as described, and from near the base of the spur strong, vigorous shoots had started to grow, when seen in June.

Killing of Fruit Buds.—This form of injury is not uncommon, especially on peaches and cherries. The buds are killed by extreme cold or through starting into growth in mild weather and being subsequently frozen in cold snaps.

Killing Back.—The terminal growths on young and old trees are occasionally killed by severe freezing. Injury of this kind is generally confined to the previous season's growth, but during the past winter it often extended into the older wood. Peaches and some varieties of apple trees are quite susceptible to this form of injury.

Factors Which Predispose Fruit Trees to Winter Injury.

The question may properly be asked, what are the factors which predispose our tree fruits to damage by low temperatures. As is well known, the primary cause of winter killing is a very low temperature, but along with this tree are several factors which may directly or indirectly increase the degree of injury. These are given herewith:

Cold Resistance of Varieties.—It is a well-known fact that there is a great difference in the hardiness of varieties, when grown in the same soil and under the same condition. The past winter has shown more clearly than ever before that certain varieties are more resistant than others. In Ontario the hardiest varieties are mostly those which originated in either Russia, Canada or the Northern States. The unfortunate thing in connection with those of Russian origin, is that while they are very hardy there are really no first-class apples amongst them. The good varieties of Canadian origin, while hardy enough for most winters, are not sufficiently hardy to stand exceptional winters, such as that of 1917-18.

Exposure to Strong, Cold Winds.—Trees growing on the sites exposed to strong, cold winds were invariably injured to a greater extent than those growing in well-protected areas. Examples were seen in Norfolk County, Prince Edward County and in York County.

Late Cultivation.—Orchards which were cultivated late in the season were generally more severely injured than other orchards in the same localities where cultivation was discontinued early or where but very little cultivation was given. Late cultivation causes the

trees to grow late in the season. In such cases the wood does not ripen properly, and hence may be injured by very cold weather. Killing back and bark splitting may be induced by late cultivation. I do not wish to depreciate the value of orchard cultivation by any means, as I think that judicious cultivation will produce good results, but I do think, however, a mistake has been made by cultivating too late in the season. Plowing the soil away from the base of the trees late in the fall is not advisable, as it may predispose the trees to collar rot. If fall plowing is done do not plow the soil away, close up to the trees. If the orchard is fall plowed, plow so that the soil is thrown toward the tree, not away from it.

Poor Soil Drainage.—Trees on poorly-drained soils were invariably injured more than those on well-drained soils. This fact was noticeable in all sections, but especially so in the peach-growing areas.

Lack of Soil Fertility.—Bearing trees growing on soils deficient in fertility were more severely injured than those growing on moderately fertile soils. Of course, it is possible to make some soils too rich especially in nitrogen, but seldom this occurs. My own observations and the observations of others who have studied winter injury justify me in stating that many of our bearing fruit trees are predisposed to winter killing by lack of food.

Heavy Production of Fruit During Preceding Season.—Trees which bore a heavy crop of fruit in 1917 were more severely damaged than trees of the same variety or of the same hardiness which bore a light crop or no fruit during 1917. In Prince Edward County the writer saw what appeared to be an example of the relationship of heavy fruiting to winter injury. A Pewaukee tree had the unusual habit of producing a crop of fruit on a central leader branch in one year, and the next year the lower lateral branches bore fruit. On this tree the central leader limb bore no fruit in 1917 and in consequence thereof appeared to be quite healthy, while the lower lateral branches which bore a heavy crop in 1917 were nearly all dead. In Northumberland County a Northern Spy orchard, which bore a heavy crop of fruit in 1917, was badly injured during the last winter, while another Spy orchard nearby on practically the same kind of soil escaped almost uninjured, due largely to that fact that but little fruit was produced in 1917. Prof. Macoun of the Central Experimental Farm, gives some interesting data on this question. Accurate records kept annually for twenty years show that the heavy-bearing trees are much more susceptible to winter killing than those which produce a light yield or no fruit at all.

Insect Pests and Plant Diseases.—Insect pests and plant diseases which attack the foliage of fruit trees often weaken the trees considerably by interfering with the growth processes, which are necessary for the proper maturity of wood, and thus predispose the trees to winter injury.

How Can We Prevent a Recurrence of These Losses?

Plant Breeding.—Fruit growers everywhere are asking the question, "What can we do to prevent a recurrence of the losses of the past winter?" This problem is not easy to solve, as we have no reasonable assurance that similar climatic conditions may not return and cause further losses. Until we can produce by plant breeding and selection, good varieties that are hardier than any we now have, we cannot hope to escape some loss by winter killing. This work is of necessity very slow, and cannot be undertaken with the hope of immediate returns by the fruit grower. Work of this nature is under way at our Federal and Provincial Experimental Stations, but in view of the losses which have been sustained during the past ten years, and especially during the past winter it should be carried on much more extensively than heretofore. The interest on the capital value of the fruit trees destroyed in Canada during the winter of 1917-18 would adequately finance an undertaking of this kind. It is quite true that the present generation of fruit growers would not derive much benefit from this work, but we should not forget that we are now reaping the benefit of the labor of horticulturists who have gone before, and if we are to do so for others as we have been done by, we should continue this excellent work and do something for those who come after us.

Good Cultural Practices.—In regard to cultural practices, I would suggest that orchard cultivation be started as early in the spring as the soil can be easily worked. The time when cultivation should be discontinued will depend upon such factors as latitude, soil and climatic conditions. As a general statement, I would say that cultivation should be discontinued earlier than is the usual custom, except in dry seasons and on light soils. In such cases it would be wise to cultivate later than on heavier soils or in seasons when rainfall was abundant. For apple orchards the range of dates for stopping cultivation would vary from early in June for the North to July 1 in the Southern sections. Peach orchards should be cultivated somewhat later than apple orchards, up to August 1 in most cases.

Use of Cover Crops.—Cover crops exert a beneficial influence in checking late growth, help to ripen the wood, hold the snow, and may prevent deep freezing on light soils.

Judicious Use of Manures and Fertilizers.—Bearing orchards should be supplied with plant food in sufficient quantities to keep the trees in good thrifty condition, but care should be exercised, however, to prevent forcing the growth of trees, as this would predispose the trees to several forms of winter killing.

Soil Drainage.—The drainage for soils intended for fruit growing is of the greatest importance as a

means of preventing winter killing. Soils which are not naturally well drained should be thoroughly under-drained. This will pay handsomely as trees growing on well-drained soils will invariably give much better results than those on the poorly-drained soils.

Thinning of Fruit.—In seasons when labor can be obtained at a moderate price it will pay to thin the fruit on heavily-laden trees. As previously mentioned, heavy bearing is a big factor in predisposing trees to winter killing, and it would seem that for this reason alone the practice would be profitable.

Thorough Spraying.—Professor Caesar and others have repeatedly pointed out the benefit to be derived from thorough spraying as a means of controlling plant diseases and insect pests. The experience of the past winter have shown very clearly that thorough spraying is of definite value in preventing winter killing by destroying insects and diseases which, by their attacks, weaken the trees and thus predispose them to winter killing.

Provision of Shelter.—A good wind break, properly located, will undoubtedly lessen the amount of winter killing. This applies especially to the colder sections of the province, but would apply equally well to any

section where the orchard was exposed to high, cold winds or was located on exposed sandy or gravelly ridges.

Proper Choice of Site.—A site for an orchard should have good air drainage as well as soil drainage. An ideal site is one on a gentle slope, (preferably to the north or northeast) where the cold air can flow down to the lower areas. One should not locate an orchard in a hollow where cold air settles, as such a site will favor injury to the trees in winter and to the blossoms during cold spells in the spring.

Hardiness of Varieties.—With the exception of most of the crab apples and American plums, very few kinds of fruit or varieties have proven absolutely hardy. At Ottawa some of the hardiest Russian sorts were injured. There is, however, a marked difference in the cold resistance of varieties. I am giving herewith a list of varieties which have proved somewhat cold resistant, and also a list of varieties which have been rather seriously injured.

Varieties least affected: Hibernial, Duchess, Patten's Greening, Dudley, McIntosh, Yellow Transparent, Wolf River, Wealthy, Haas, McMahon White,

Snow, Alexander, Baxter, Golden Russett, Scarlet Pippin, Spy.

Varieties most affected: Baldwin, Ontario, King, Cranberry Pippin, Wagner, Spitzenburg, Gravenstein, Hubbardston, Stark, Pewaukee, Ben Davis, Bottle Greening, R. I. Greening.

FARM BULLETIN.

New Buildings for the O. A. C.

Dr. G. C. Creelman, President of the Ontario Agricultural College, announces that nearly a quarter million dollars have been appropriated for enlarging the accommodation at the Institution. The building program includes a new boys' dormitory, an addition to Macdonald Hall, a new apiary building, and a memorial hall in memory of the O. A. C. boys killed during the war. The latter building will have a lecture room and chapel. Between 600 and 700 students and graduates of the College enlisted, and of this number more than 100 made the supreme sacrifice.

Business Drags in the House of Commons.

The debate on the Address still continues and apparently it is quite futile to prophesy further when the final end will come. All signs pointed to an ending by Tuesday, March 11, but there seem to be more speakers on the waiting list now than a week previous to that date, and so the speech making goes on. One should be thankful for small mercies, however, and one cause for thanksgiving lies in the undoubted fact that more meat can be gleaned from the husk now than earlier. Last week we spoke of empty seats, but it would be more fitting to speak now perhaps of an empty house. At least some more inclusive term than "seats" is needed to describe a condition wherein only three or four Government supporters are willing to listen to a speaker on their own side of the House and the House is forced to adjourn for lack of a quorum, as happened in at least one instance. The red tape and machine-like method of conducting the Commons may be responsible for such conditions, or it may be a wholesale attack of physical ennui. One must always remember, however, that it is a physical impossibility for any man, much less a group of two hundred and thirty-four parliamentarians to sit steadily through each sitting of the House and retain a clear idea of what goes on. The strain of night sessions is too severe for any man to stand it; even the Speaker must be relieved at times.

The outstanding event of the week has been the situation created by the action of the Government in throwing the Grand Trunk Pacific Railway into the hands of a receiver. This has brought Canada's railway problem more vividly before the Government and the people, and in all probability will provide occasion for much more discussion and possibly a longer session than would otherwise have been the case. According to the statement of Sir Thomas White in the House on Monday, March 10, and correspondence tabled by him, the Government was confronted with the problem of maintaining the Grand Trunk Pacific in operation without handing over more money to this Railroad for which no adequate security could be offered by the Company. By reason of the notification received by the Government from the Vice-President of the Company to the effect that operations could not be continued longer than until about March 10; the Government felt it necessary to add one more Order-in-Council to the long list already to its credit, and appoint Hon. J. D. Reid, Minister of Railways and Canals, receiver for the road, under power granted them by the War Measures Act. The order applies to the Grand Trunk Pacific Railway "and the other companies embraced in its system," including hotels, etc. The fact that the Government has been forced in the national interest to take immediate and effective action with regard to the G. T. P., brings to a head the negotiations, long protracted, with the Grand Trunk, so heavily involved in the failure of the G. T. P. that it must assume a reasonable attitude if the Government stands firm. That the Government is not disposed to further back up the G. T. P. with the money of the Canadian people is made clear by the following sentence in a letter from the Minister of Finance to Frank Scott, Vice-President and Treasurer. "It is not the intention of the Government to ask Parliament to provide a further vote for the Grand Trunk Pacific Railway Company while our negotiations with the Grand Trunk Railway Company remain in their present unsatisfactory condition." It is high time that the Canadian Government took some such stand with regard to so important a national utility as our railroads. Some real working basis fairer than a policy of land and money grants to railway corporations must be evolved and it is certainly to be expected of the Government that they will demand of the Grand Trunk that they live strictly up to their obligations where the Grand Trunk Pacific is concerned.

The matter of trade discrimination on the part of Great Britain toward Canada has been brought up several times in the House, but until March 10, the Government was apparently without satisfactory information on the subject. Trade discrimination undoubtedly did exist for a time, but recommendations made to Great Britain speedily brought about a change in import restrictions whereby "no import restrictions shall be or continue to be imposed on goods coming from any part of the Empire without the assent of the Cabinet,

which shall not be given unless some unforeseen necessity arises. It is not possible at present to remove all restrictions on imports from foreign countries, because of the state of the exchange, but all raw materials will be free from import restrictions."

Farmers throughout Canada have demanded that the Siberian Expedition be recalled and, especially, that soldiers drafted under the Military Service Act and sent to Siberia, be brought back to Canada. Major-General S. C. Newburn, Minister of Militia and Defence, explained the object and reason for the expedition on the grounds of Military expediency, made necessary by the fact that it was imperative to weaken the Military strength of Germany on the Western front, and to go to the assistance of the Czecho-Slovaks who had been promised assistance by the Allies. The Imperial War Cabinet arranged with all the other Allies to send small forces. Japan sent 70,000, the United States 8,500, France and Italy each from 1,000 to 2,000, Great Britain the 25th Middlesex Regiment stationed at Hong Kong, and the Canadian authorities decided to send a force not exceeding 5,000. The Canadian force was to be raised by voluntary enlistment and under the direction of the Minister of Militia in Canada. Whatever may have been the reason or the justification for the Siberian Expedition, the speedy return soon of all who want to come, is promised by General Newburn. "The majority of the troops now in Siberia will be returned at a very convenient date. I am not at liberty to give the date, but it will not be very far distant, and any who remain in Siberia after that date will remain there voluntarily." With regard to the sending of draftees going to France or Siberia, and the units that went to Siberia volunteered to go there instead of going to France.

One of the most interesting speeches during the past week was delivered by the Hon. N. W. Rowell, President of the Kings Privy Council in Canada. Mr. Rowell is a small man with a small voice, but he has a ready flow of language and can manage to make himself heard readily enough, because his speech is very vigorous. The speaker spoke of Canada's external affairs and unfolded the story of our newly granted right to participate in Empire affairs, at the Peace Conference as well as in the Imperial War Cabinet. It was pointed out that whereas the German and Canadian federations were given birth on the same day, a period of fifty years finds Canada represented at a Peace Conference of the important nations of the world for the first time, while Germany is absent for the first time in two hundred years. The reason, said Mr. Rowell, is that "The German mind did not understand the principle of liberty and self-government." Tribute was paid to the Late Sir Wilfrid Laurier for first bringing prominently before the British statesmen in 1897, the view that Canada is a nation and that there never could be permanent unity within the Empire unless its component parts were placed on a footing of equality. In 1911 a Canadian statesman, Sir Robert Borden, was for the first time in Canada's history, admitted to a meeting of the Cabinet of Great Britain, and permitted to learn the secrets of British foreign policies and relations.

In 1917, an Imperial War Conference was held from which resulted the Imperial War Cabinet. This body said Mr. Rowell, whether one calls it a cabinet, or a council, is made up of Governments rather than of Ministers, and in its deliberations Canadian representatives sit in absolute equality with those of the Imperial Government; without at the same time sacrificing any existing power of self-government within Canada. Mr. Rowell emphasized the statement that the Imperial War Cabinet does not deal with any questions formerly dealt with by the Government of Canada; and that whereas Canada was formerly a nation in name only, she is now a nation in very truth, by reason of the fact of the British Commonwealth, and her voice must be heard before the issues of peace or war are decided. Her rating is similar to that of the world's small, or secondary powers, such as Belgium, Serbia, or Holland; and no longer that of a British colony.

Evidently the matter of responsible government through the Imperial War Cabinet, the relations be-

tween, and readjustment of the component parts of the Empire, are to be made the subject of a special meeting of the Cabinet after the Peace Conference. It was argued that the formation of this cabinet is strictly constitutional and the necessity arose because of the exigencies of the war situation.

Much was also made of the fact that by her new status as a nation, the Prime Minister of Canada now has the right to communicate direct with the Prime Minister of Great Britain instead of through the medium of the Governor-General and the British Colonial Office as formerly, when Canada had only colonial status. "There is nothing like the British Commonwealth in all history," said Mr. Rowell. "It is the greatest experiment in free democratic government the world has ever seen—the new Anglo-Saxon league of nations." Not only has Canada a right to be heard at the Peace Conference as a part of the British Empire, said the speaker but she is also entitled to a voice as one of the secondary powers and, as such, will probably sign the peace document, thereby creating herself a charter member of the league of nations.

W. D. Euler, North Waterloo, in a speech on Tuesday, March 11, criticized the Government for withholding naturalization papers from ninety-two German-Canadians in his riding who have been in Canada from twenty-five to forty years and many of whom took the oath of allegiance, but through neglect in most cases, failed to complete the formalities of full citizenship before the war. Out of ninety-three applications made from Mr. Euler's riding as a result of an Order-in-Council passed primarily to deal with such cases, only one was granted, a man who had only been in Canada fifteen years, but who was recommended to the Secretary-of-State as "a good supporter of Union Government." At the same time that these ninety-two applications were not granted, said the speaker, applications were granted to four hundred and seventy-one Austrians, forty-one Germans, and two Turks.

Most radicals are sincere, and R. L. Richardson, Springfield, is a radical. It would be and is nice to think that Mr. Richardson is sincere, but it has become quite apparent to us in the last few weeks that to judge a man by what he says is not always safe. Mr. Richardson said a lot of things, but no one seemed to take him seriously. Why? Well, because what he said was chiefly directed against the degeneration in our Governments "from partyism to factions." He also brought out and exhibited all the skeletons that he had discovered and rather than look the grim things in the face, members chose rather to laugh at the way Mr. Richardson put them on view—because he certainly was funny. His chief complaint was that the working of party politics in Canada almost precludes the possibility of raising a statesman. If one does arise, he is the result of fortuitous circumstances. He thought that the Canadian people should get away from the idea that all the brains of the country are confined to any twelve men; that any Government going to the country on a platform should stand or fall by that platform; and that, "We need to cultivate the soil that will produce servants of the people. Men will not attempt to serve the people if they know they will be politically destroyed for so doing." Parties were developed to bring about reform, said Mr. Richardson, and when parties lose sight of principle they have degenerated into factions. It becomes "ins" versus "outs." He thought the Opposition should assist the Government in carrying out all measures that are for the good of the country and favored the French system whereby any measure is discussed on its merits and lives or dies according to the view of the House, untrammelled by partyism. Partyism should only enter in where the general policy of the Government is at stake; then it is plenty of time to call a vote against the Government "a want of confidence." The speaker bemoaned the fact that every measure in the Canadian Parliament is voted on either as for, or against, the Government. Now, everyone knows this perhaps and both the speaker and the writer may have wasted energy and valuable space. The thing has become commonplace and is as deep-rooted among the farming community in Eastern Canada as it can well get. It is the curse of politics, this playing the welfare of the people against political advantage, either of individual or of party. The West—

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BULLETIN.

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and when one speaks of the West, one thinks largely in terms of the farmer and the grain grower, because it is easily seen that the Western wheat man is the dominant factor in Western politics and near-dominant in some aspects of Dominion politics—has been forced to arouse herself and cast off partyism as far as may be in so short a time; and her singleness of purpose—the service of the people—is the cleanest thing about Canadian politics to-day. There is a lot of sordidness in the rest of it, just as there may be some bias in the views of the West. Mr. Richardson's plea to the House is worthy of being passed on to the farmers who cast the ballot, and it was this. "In God's name let us get on with the business of the country, regardless of party." Party politics, said the speaker, are responsible for the rottenness and waste of funds in the civil service; for the present strike in the Printing Bureau, one of the most notable "cesspools" to which he referred; and for the disgusting conditions brought about by patronage. Mr. Richardson did not exaggerate, although his language was forcible, and it is the duty of every farmer to see that conditions are remedied and that politicians have more time to spend in the service of the people and less to wallow through the muddy slough of patronage and the political game.

Colonel C. W. Peck, V.C., Skeena, British Columbia, replied to the statements made earlier in the debate by Sir Sam Hughes, Ex-Minister of Militia and Defence, to the effect that the lives of Canadian soldiers were needlessly wasted at Cambrai and Mons and imputing blame to General Sir Arthur Currie, Commander of the Canadian Corps. The member from British Columbia branded as false and malicious statements of this kind, and showed the importance of Cambrai as a point of strategical value, at the same time expressing grave doubts as to whether any of the seventy-five casualties at Mons actually occurred in the town. Col. Peck expressed a great appreciation of the character of Sir Sam Hughes, but claimed that his attitude regarding Sir Arthur Currie was entirely without foundation. The speaker lamented the fact that a certain section of the British press and people seemed to like to criticize the Canadian soldier. This attitude was also characteristic of some army officers, notably Sir Charles Ferguson, Military Governor of Cologne, and a former commander in the field who was responsible for the evacuation of Monchy.

The Hon. W. S. Fielding, Shelburne and Queen's, attacked the administration for a useless and petty interference in the affairs of the Peace Conference. That Mr. Fielding is an experienced parliamentarian and tactician can be readily perceived; as well as the undoubted fact that readiness in speaking, coupled with a simple but well-stocked vocabulary, makes him a pleasing and eloquent speaker. Mr. Fielding, as an imperialist, felt it entirely out of place for Canadian statesmen, who should be at home minding their own business, to meddle in the settling of territorial claims in Europe, with which we have and can have no concern. The fact that Canada is said to have representation at the Conference was treated very humorously by the speaker, who referred to a letter from Norman Lambert, Secretary of the Canadian Council of Agriculture, who recently returned from Europe, in which a Canadian Minister, a delegate to the Conference, was quoted as saying that the council of 25 is so much "eye-wash." Canada has no representation except such as is entirely ineffective, said Mr. Fielding, and even this was given as a sop to satisfy the ambition and desire of a few politicians who love to think of Canada as a great nation. Canada has no interest at the Peace Conference is Mr. Fielding's belief, that cannot be and would not be taken care of perfectly well by representatives of the Imperial Government.

Reference was made last week to the remarks in the House by J. W. Edwards, member for Frontenac, with regard to the enlistments in the Canadian Expeditionary Force from the several provinces of the Dominion. According to population, said Mr. Edwards, the enlistments should have been in the following proportion for each 1,000 recruits: Ontario 368, Quebec 275, Maritime Provinces 138, Manitoba 67, Saskatchewan 59, Alberta 47, and British Columbia 46. What each province did contribute is given in the accompanying table, according to Mr. Edward's statement.

	Number of enlistments	Number proportional to population	No. above or below proportional number
Ontario.....	241,258	217,330	23,928 (excess)
Quebec.....	80,097	162,407	82,310 (below)
Maritime			
Provinces.....	59,206	81,498	22,292 (below)
Manitoba.....	73,434	39,568	33,866 (excess)
British			
Columbia.....	53,765	27,166	26,599 "
Saskatchewan.....	37,666	34,843	2,823 "
Alberta.....	45,146	27,753	17,390 "

"What would it have meant to Alberta, for instance," said Mr. Edwards, "if they had had 17,390 men to help them produce and take off their crops?" "What would it have meant to Ontario to have had 23,928 men scattered throughout the province and among the industrial concerns?" Later on in the debate Joseph Archambault, Chambly and Vercheres, referred to Mr. Edward's inferences with reference to Quebec, and explained the figures relative to Quebec under four heads: First, that Quebec's agricultural population is much larger in proportion than in Ontario; second, that the male population under eighteen in Quebec is about five times as numerous, in proportion to population,

as in Ontario or the other English-speaking provinces; third, the number of married men between the ages of 18 and 35 is about five times as great in proportion to population as in Ontario and the other provinces; and fourth, that the British born in the English provinces are about twenty times more numerous than in the Province of Quebec. Referring to the matter of military votes at the last election, the member said: "The votes of the soldiers were placed at will by the agents of this Government in the constituencies where they would be most useful. The member for Kamauraska (Ernest Lapointe) informs me that a great number of the military electives of his constituency were forced to poll their votes in the constituency of Cumberland, N.S." The Speaker of the House holds this seat.

R. C. Henders, member for Macdonald, Manitoba, and President of the Manitoba Grain Growers' Association, spoke briefly last week. He expressed himself as "fairly satisfied with the conduct of the affairs of the country by the Government during the year that has passed and gone." Mr. Henders thought the Government that sent the soldiers overseas and equipped them, is expected by the people to be able to take care of the troops when they return; and that "the Government will not have discharged its full duty to Canada until it has accomplished that work." Touching upon the tariff, Mr. Henders spoke as only a very few members, including R. L. Richardson, of Springfield, and Dr. Michael Clark, Red Deer, have spoken and as representatives of rural constituencies might be expected to speak. He said: "The people in rural life believe that the economic burdens of this country have not been equally and equitably distributed. I am looking to the men of the Union Government, having completed the duties and responsibilities before them, to undertake the responsibility of framing a fiscal policy that shall be to the advantage of the people of Canada and as soon as they formulate that policy, then some of us who hold strong views on this question will declare where we are going to stand with regard to that policy."

J. E. Sinclair, Queens, P.E.I., and a farmer, criticized the Government plan for highway improvement. Mr. Sinclair spoke from the Opposition benches, "as a straight and staunch supporter of the principles of Liberalism, as known, announced and worked out under the leadership of the late Sir Wilfrid Laurier." In respect to the plan for highway improvement through provincial governments, the member felt that "the method employed in granting that assistance to the provinces is not being wisely considered," although he favored the idea of Federal assistance to the provinces, for road improvement. His objection was based on a probability that "the Federal Government will be interfering with and overlapping the work of the Provincial Governments." Mr. Sinclair stated that similar interference has, for many years, been causing "a great deal of waste of money and energy in the different departments of the Government." To bear out his point the speaker referred to the Department of Agriculture as an example, and claimed that there is no well-defined agricultural policy for Canada which will co-ordinate the work of both Federal and Provincial departments—all of which is only too true. Mr. Sinclair said: "Under the Department of Agriculture we have a condition of affairs which is not wholesome or conducive to getting the best results for the money expended. We have the Federal Department of Agriculture directing its energies to the marketing end of agriculture, while nine provincial departments are taking care of production. This may seem to the casual observer to be a fair distribution of labor, but in practice it is working out in a very different way. To attain a uniform standard of excellence for Canadian produce from the Atlantic to the Pacific requires a productive organization with a single purpose, with unity of action and kindred ideals everywhere. It must be truly Canadian and in all its departments it must have co-operation, co-ordination and unanimity. It must have one head and its activities in Canada must be directed from a common centre and towards a common end. In every province we have an agricultural policy that differs essentially from the policy of any one of the other eight provinces. Examples of overlapping of work, discord among officials, and clashing of policies may be found everywhere. It would seem that the haphazard hit-or-miss propaganda of the provincial departments depend largely on the initiative of a few individuals in provincial affairs. Provincial policies thought out by men trained to think in terms of a province are somewhat narrow and wholly provincial. It will be argued that precisely at this point the Dominion Department of Agriculture comes into operation, and takes up the work where it is laid down by the provinces. This is what was intended, but the intention is far from being realized. Our Dominion Department is failing in the duty it owes to the Canadian nation. Here we have the organization that should have scope and vision and power to achieve. We have also the men unhampered by provincial atmosphere and restriction, who ought to be able to stand out and give direction to the affairs of the country in a manner befitting the trustees of the nation. They should be able to co-ordinate the work done in the several provinces into a complete Canadian system. But upon analysis we find that the power which logically and rightfully belongs to these men and their organization has been vested in the representatives of the provinces. This leaves the Dominion Department to a certain degree powerless. It simply marks time and haggles away at the edge of things while provincial organizations without either the knowledge, the incentive, or the ideal, work along in a vain attempt to frame the policy of the country. It works out wrongly. It is like trying to dress a man in a boy's suit. Whole battalions of officials

are struggling to get Canada into a suit of clothes cut to fit Ontario, Quebec or any of the other provinces. The Dominion officials follow up, taking what is left for them to do, and very kindly see that nothing is left out or forgotten by the provincial brotherhood, while down in the country the public is asking questions that no one can answer.

This, then, is the kind of production policy that is in existence. It is upon such a superstructure that a system of selling associations is to be built that will emancipate the farming community from the dilemma of markets, and guarantee to both producer and consumer an efficient business system and equitable prices in the distribution and sale of the country's foodstuffs. That is a short description of the method employed to encourage agricultural production in our national agricultural policy, and I have given it simply to show the waste of money that such a policy entails.

The war has drawn public attention to the waste in production and marketing. The demand for food controllers has shown that when the nation is under stress, waste and profiteering are intolerable. As a sound economic principle, it may be stated that any public service that can be carried on by the people in the public interest should not be handled by private enterprise for private profit. In the past, deplorable waste has taken place, and the business of marketing has been carried on for private profit. The Markets Branch has undertaken to assist agricultural development by organizing the sale of farm produce on the co-operative plan as a means of eliminating these two evils. Until the system of co-operative selling organizations is complete, every production organization in the country will remain handicapped. Marketing is the final process of the farm, and is purely and essentially the farmer's business. This being so, the ultimate success of the whole agricultural machine depends on the Markets Division. The Markets Division in turn depends for its very existence on the disjointed efforts of a producing organization having nine different heads throughout the Dominion. Each of the nine organizations work independently of the others, and all work without a common ideal or a national viewpoint."

"Daylight Saving" Still Needs Attention.

A peculiar situation has arisen in regard to Daylight Saving. In the United States, Daylight Saving goes into effect on March 30, for the simple reason that the Act was not rescinded at the last session of Congress. So strong was the feeling against Daylight Saving in the neighboring Republic that a rider opposing the scheme was attached to the Agricultural Bill. Senate, however, "talked it out" and did not let the Bill come before Congress—the people's representatives. Consequently Daylight Saving will be in force in the United States through the coming summer, or until Congress meets again. In Canada, the Daylight Saving Act has to be re-enacted before it can become law, and there is talk now in the daily papers, and elsewhere, that if we do not have Daylight Saving in Canada confusion will be caused at the boundary line. The railroads, it is said, particularly object to any difference in time between the two countries.

While Canada and the United States should work in harmony in every regard possible, it seems ridiculous that we in this country should be inconvenienced on account of filibustering in the United States Senate. It is out of the question that we should make our legislation conform with enactments brought about in the United States in a manner such as has been condemned in the Canadian Parliament. Furthermore, the railroads do not own this country altogether, and have just as much right to suffer any little inconveniences as does the whole agricultural population which is responsible for the major part of the railroads' revenue.

Press dispatches have also carried hints that Daylight Saving has no chance at Ottawa, because the members are opposed to the re-establishment of the system. While this may be true in a general sense, there might be a deep-seated purpose in putting out just such dispatches. Agriculturists should not sit down when they see such news, for the opposing interests would then have their way. Farmers should continue to impress upon their representatives that Daylight Saving is not wanted and will not be tolerated.

Subscriptions Fakers Still Working.

Complaints are still reaching this office concerning the criminal actions of gangs and individuals throughout the country who have no connection with this paper but who are taking subscriptions to The Farmer's Advocate and Home Magazine and giving worthless receipts. Since our last mention of this fraud several fakers have been jailed and are now awaiting trial. They usually give themselves away by offering "The Farmer's Advocate" for less than the advertised price, and thus establish their guilt. Don't subscribe to any paper on compassionate grounds. The Government is providing for those who need assistance, and there are always plenty of known acquaintances who will appreciate your help. If we send out travelling agents they will carry our credentials which are on "Farmer's Advocate" stationery and signed by the Manager. Watch out for fakers, and don't give money away to strangers who tell a nice story or try to coerce you into subscribing for various publications. Let us know of these fakers who are working in your community and help us to rid the country of these criminals.

Toronto, Montreal, Buffalo, and Other Leading Markets

Week Ending March 13

Receipts and Market Tops

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

CATTLE							CALVES							SHEEP						
Receipts			Top Price Good Steers (1,000-1,200)				Receipts			Top Price Good Calves				Receipts			Top Price Good Lambs			
Week Ending	Same Week	Week Ending	Week Ending	Same Week	Week Ending	Week Ending	Same Week	Week Ending	Week Ending	Same Week	Week Ending	Week Ending	Same Week	Week Ending	Week Ending	Same Week	Week Ending			
Mar. 13	1918	Mar. 6	Mar. 13	1918	Mar. 6	Mar. 13	1918	Mar. 6	Mar. 13	1918	Mar. 6	Mar. 13	1918	Mar. 6	Mar. 13	1918	Mar. 6			
Toronto (Union Stock Yards)	6,341	4,478	7,349	\$15.25	\$12.00	\$15.75			1,018	916	883	\$19.00	\$17.00	\$19.25	856	429	1,113	\$18.50	\$19.50	\$18.25
Montreal (Pt. St. Charles)	553	491	602	14.00	12.00				1,202	1,166	1,062	13.50	16.00	15.00	103	43	108	15.00	17.00	15.00
Montreal (East End)	747	352	616	14.00	12.00				707	589	440	13.50	16.00	15.00	103	35	107	15.00	17.00	15.00
Winnipeg	2,217	1,623	1,544	15.00	12.50	15.50			81	61	39	12.00	14.00	12.50	194	33	133	15.50	17.00	15.00
Calgary	2,000	1,346	1,492	15.00	12.00	14.92			2	2				1,918	172	61	13.00		13.50	
Edmonton	516	317	530	13.50	11.50	13.50			85	41	43	11.00		1,917		194	13.00		*10.00	

HOGS						
Receipts			Top Price Selects			
Week Ending	Same Week	Week Ending	Week Ending	Same Week	Week Ending	Week Ending
Mar. 13	1918	Mar. 6	Mar. 13	1918	Mar. 6	Mar. 6
Toronto (Union Stock Yards)	4,922	479	4,493	\$19.00	\$20.15	\$18.50
Montreal (Pt. St. Charles)	1,412	1,568	1,135	18.50	20.75	18.00
Montreal (East End)	465	455	688	18.50	20.75	18.00
Winnipeg	7,218	6,168	4,238	18.75	20.10	17.25
Calgary	2,918	3,462	1,710	18.25	20.50	17.15
Edmonton	706	825	585	17.50	20.00	16.75

Market Comments.

Toronto (Union Stock Yards.)

An active demand prevailed for cattle throughout the week and although trading was a trifle slow and prices 25 to 50 cents per hundred lower on Monday, this weakness was overcome on the following three days when an active inquiry prevailed for all good grades of cattle. Although the demand from United States buyers was scarcely as good as during the previous few weeks, local abattoirs bought more liberally and of the sixty-five hundred cattle on sale but few were left over at the close of the week. The quality of the stock was only fair. Very few heavy cattle were offered, and many of those of lighter weights lacked the necessary finish. For the best heavy steers on the market from \$14.50 to \$15 per hundred was the ruling price, while a few head sold at \$15.25. Of steers weighing from ten hundred to twelve hundred pounds, one load of eleven hundred and fifty pounds at \$15 per hundred, several small lots were weighed up at an equal figure, two or three loads of ten hundred and fifty pounds sold at \$14.75 per hundred, numerous sales were made from \$14 to \$14.50, while stock of medium quality in this class moved from \$13 to \$14. Of steers and heifers under ten hundred pounds, several small lots weighing from nine hundred and fifty pounds to nine hundred and ninety pounds sold at \$14.50, one or two straight loads moved at \$14, and numerous sales were made from \$13 to \$13.75 per hundred; medium quality stock brought from \$11.50 to \$12.50 per hundred. Cows and bulls were in steady demand and several loads of bulls were bought for the American trade. A few bulls sold up to \$11.50 per hundred, while the majority moved from \$10 to \$10.50. A few choice cows sold as high as \$12 per hundred, numerous sales were made from \$10.50 to \$11.50 and lots of medium quality stock sold from \$9 to \$10. There was very little movement in stockers and feeders and prices were steady. Good weighty feeders sold from \$12 to \$13 and breedy stockers from \$10 to \$11. Calves were moving more freely and the market is inclined to be a little easier. Choice veal sold as high as \$18.50 per hundred, and medium veal from \$14 to \$16.

Lambs and sheep were in good demand. Lambs changed hands as high as \$18.50 per hundred, and sheep up to \$12.

The hog market gained considerable strength and an advance of from \$1 to \$1.25 per hundred was made, select hogs selling on Thursday at \$19 per hundred, fed and watered. Hog products are now moving overseas.

Of the disposition from the Yards for the week ending March 6, Canadian packing houses purchased 370 calves, 3,882 butcher cattle, 1,606 hogs and 673 lambs. Local butchers purchased 363 calves, 437 butcher cattle, 365 hogs, 50 sheep and 408 lambs. Canadian shipments were made up of 1 calf, 61 milch cows, 71 stockers, 207 feeders,

TORONTO (Union Stock Yards)					MONTREAL (Pt. St. Charles)				
CLASSIFICATION	No.	Avg. Price	Price Range Bulk Sales	Top Price	No.	Avg. Price	Price Range Bulk Sales	Top Price	
STEERS heavy finished	15	\$15.25	\$14.75-\$15.50	\$15.50					
STEERS good	203	14.54	14.00-15.00	15.25	31	\$13.90	\$13.50-\$14.00	\$14.00	
STEERS 1,000-1,200 common	15	12.56	11.75-13.00	13.75					
STEERS 700-1,000 good	1,455	13.28	12.75-14.00	14.25	49	12.50	11.50-13.50	13.50	
STEERS 700-1,000 common	679	11.19	10.00-11.75	12.50	88	11.00	10.00-11.50	11.50	
HEIFERS good	747	13.06	12.50-13.75	14.50	14	11.50	10.50-12.50	12.50	
HEIFERS fair	413	11.27	10.75-12.00	12.00	7	10.00	9.00-10.50	10.50	
HEIFERS common	65	9.50	9.00-10.25	10.50	41	8.00	7.00-8.50	8.75	
COWS good	540	10.22	9.75-10.50	11.50	24	10.25	9.50-10.50	11.00	
COWS common	1,134	8.28	7.75-9.00	9.00	85	8.50	7.50-9.00	9.50	
BULLS good	98	10.29	9.75-11.00	11.50	9	10.25	9.75-11.00	11.00	
BULLS common	134	8.54	8.00-9.00	10.00	94	8.50	7.50-9.50	9.50	
CANNERS & CUTTERS	216	6.25	5.75-6.75	6.75	76	5.50	5.00-6.00	6.50	
OXEN									
CALVES veal	1,002	15.26	14.00-17.00	19.00	1,189	12.50	11.00-13.50	13.50	
CALVES grass	16	7.21	6.00-9.00	9.00	13				
STOCKERS 450-800 good	225	10.34	9.75-11.00	11.00					
STOCKERS 450-800 fair	159	9.01	8.00-9.50	10.00					
FEEDERS 800-1,000 good	175	12.16	11.50-13.00	13.00					
FEEDERS 800-1,000 fair	68	11.15	10.50-12.00	12.00					
Hogs (fed and watered) selects	4,679	18.66	17.50-19.00	19.00	971	18.35	18.25-18.50	18.50	
Hogs (fed and watered) heavies	12	18.62	17.50-19.00	19.00	10	17.00	16.25-17.50	17.50	
Hogs (fed and watered) lights	117	16.24	15.50-17.00	17.00	145	16.35	16.25-16.50	16.50	
Hogs (fed and watered) sows	104	16.00	14.50-17.00	17.00	16	15.35	15.25-15.50	15.50	
Hogs (fed and watered) stags	10	13.85	13.25-14.00	14.75	2				
LAMBS good	650	17.68	17.00-18.00	18.50	19	15.00	15.00-	15.00	
LAMBS common	87	15.35	13.00-17.00	17.00	76	14.00	13.00-14.50	14.50	
SHEEP heavy	49	10.00	9.50-10.50	10.50	5	11.00	11.00-	11.00	
SHEEP light	68	11.05	10.50-12.00	12.00	3	10.00		10.50	
SHEEP common	2	7.00	5.00-8.00	8.00					

76 hogs and 40 lambs. Shipments to United States' points consisted of 155 calves, 2,701 butcher cattle, 58 feeders and 91 lambs.

The total receipts from January 1 to March 6, inclusive, were: 62,553 cattle, 5,701 calves, 67,059 hogs and 23,235 sheep; compared with 42,697 cattle, 5,217 calves, 78,038 hogs and 8,954 sheep, received during the corresponding period of 1918.

Montreal.

Owing to the lack of shipments of good beef steers from Western Ontario this winter to the Montreal market, there is scarcely any good cattle being offered. The best load on hand for some time was on the market Monday. This load consisted of an even lot of steers averaging about eleven hundred pounds, which were sold for \$14 per hundred, dressed five hundred and twenty pounds to the thousand, and were quite fat. A couple of smaller lots of lighter weights sold from \$13.50 to \$13.75, respectively. Lighter steers weighing nine hundred and fifty pounds, in fair flesh, sold for \$12.50, and the majority of the common steers at \$11. The best cows offered sold at \$11, the majority of good cows at \$10.50, and nearly all those of fair quality from \$8.50 to \$9.50. Calves were poorer in quality than those of the previous week and many of those offered were too young

prices were lower, the best individuals selling around \$13.50, while sales of car lots were made at \$11 to \$13.

Very few sheep and lambs are being received at present. Sheep are in most cases poor. The best sheep sell at \$15 per hundred. Some lambs quite fat sell at \$15.

Hogs advanced from \$18.50 for selects, off cars, on Monday, to \$18.75 on Wednesday. There are some prospects of a still further advance. With the western drovers off the market entirely there is a good opportunity for farmers in the eastern districts to market well-fattened stock.

PT. ST. CHARLES.—Of the disposition from the Yards for the week ending March 6, Canadian packing houses and local butchers purchased 1,062 calves, 134 canners and cutters, 112 bulls, 332 butcher cattle, 1,135 hogs and 108 lambs. Canadian shipments were made up of 24 milch cows. There were no shipments to United States points during the week.

The total receipts from January 1 to March 6, inclusive, were: 7,458 cattle, 3,892 calves, 11,463 hogs and 4,828 sheep; compared with 6,189 cattle, 3,022 calves, 11,630 hogs and 4,944 sheep, received during the corresponding period of 1918.

EAST END.—Of the disposition from the Yards for the week ending March 6, Canadian packing houses and local

butchers purchased 440 calves, 571 butcher cattle, 688 hogs and 107 sheep. Shipments to United States points consisted of 45 butcher cattle.

The total receipts from January 1 to March 6, inclusive, were: 8,924 cattle, 2,134 calves, 6,483 hogs and 5,280 sheep; compared with 6,873 cattle, 2,583 calves, 8,030 hogs and 4,633 sheep, received during the corresponding period of 1918.

Chicago.

Hogs.—Heavy-weight, \$19.30 to \$19.66; medium weight, \$19.20; to \$19.40; light weight \$18.60 to \$19.20; lights, \$17.25 to \$18.60; sows, \$17.25 to \$18.75; pigs, \$16.50 to \$17.50.

Cattle.—Compared with a week ago, beef steers and she stock mostly 25c. to 50c. higher; feeders strong; calves steady to 25c. lower.

Sheep.—Compared with a week ago, good and choice fat sheep and lambs, 50c. to 75c. higher; other killing classes mostly 25c. higher; feeders strong.

Cheese Markets.

Montreal, finest easterns, 24c. to 25c.; New York, specials 32½c. to 32¾c.; average run, 32c. to 32¼c.

Markets

Department of Agriculture Live Markets Intelligence Division

MARKETS
Top Price Good Calves

Week Ending	Same Week	Week Ending
Mar. 13 1918	1918	Mar. 6
\$19.00	\$17.00	\$19.25
13.50	16.00	15.00
13.50	16.00	15.00
12.00	14.00	12.50
11.00		10.00

MARKETS
Top Price Good Lambs

Week Ending	Same Week	Week Ending
Mar. 13 1918	1918	Mar. 6
\$18.50	\$19.50	\$18.25
15.00	17.00	15.00
15.00	17.00	15.00
15.50	17.00	
13.00		13.50
13.00		*10.00

MONTREAL
St. Charles)

Price Range Bulk Sales Top Price

\$13.50-\$14.00	\$14.00
11.50-13.50	13.50
10.00-11.50	11.50
10.50-12.50	12.50
9.00-10.50	10.50
7.00-8.50	8.75
9.50-10.50	11.00
7.50-9.00	9.50
9.75-11.00	11.00
7.50-9.50	9.50
5.00-6.00	6.50
11.00-13.50	13.50
18.25-18.50	18.50
16.25-17.50	17.50
16.25-16.50	16.50
15.25-15.50	15.50
15.00-	15.00
13.00-14.50	14.50
11.00-	11.00
	10.50

based 440 calves, 571 688 hogs and 107 sheep. United States points conifer cattle.

Receipts from January 1 to inclusive, were: 8,924 cattle; 33 hogs and 5,280 sheep; 8,873 cattle, 2,583 calves, 4,633 sheep, received corresponding period of 1918.

Chicago.

weight, \$19.30 to \$19.66; \$19.20; to \$19.40; to \$19.20; lights, \$17.25 to \$18.75; pigs,

ared with a week ago, the stock mostly 25c. to 28c. strong; calves steady

red with a week ago, at sheep and lambs, 50c. per killing classes mostly strong.

Markets.

easterns, 24c. to 25c.; als 32½c. to 32¾c.; to 32¾c.

Incorporated 1855

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Buffalo.

Cattle.—Cattle trade was rather an uneven affair at Buffalo last week. The week's start showed a weak market on anything in the steer line but before the close prices strengthened up somewhat and values regained the quarter to a half loss during the first part of the week. The supply of steers was the strongest for several weeks past, natives being in liberal numbers with quite a string of Canadians being offered. Best natives sold at \$18, with the most desirable Canadians—which were of not a very good kind—landing around \$15.75, being on the medium weight order. Butchering stuff sold about steady, including light and handy steers, heifers and cow stuff generally. Stocker and feeder trade was practically unchanged, bulls sold at the previous week's prices and no change was noted on milk cows and springers. Killers have been insisting that the general run of a medium kind of steers has brought good prices, in fact too high values, with dressed beef prices as at present. Anything carrying good finish, either in the shipping steer or butchering line, finds ready sale, a medium half fat class of stuff selling slowly. Offerings for the week totaled 5,375 head, as against 6,225 for the previous week and as compared with 3,450 head for the corresponding week a year ago.

Shipping Steers—Natives—Choice to prime, \$17 to \$18.50; fair to good, \$16.25 to \$16.75; plain and medium, \$12 to \$14; coarse and common, \$10.50 to \$11.

Shipping Steers—Canadians—Best heavy, \$15.50 to \$16; fair to good, \$13.50 to \$15.25; medium weight, \$12 to \$15; common and plain, \$10.75 to \$11.

Butchering Steers—Yearlings, choice to prime, \$16 to \$17; choice heavy, \$16 to \$16.50; best handy, \$14.50 to \$15; fair to good, \$12.50 to \$14; light and common, \$10 to \$11.

Cows and Heifers—Best heavy heifers, \$13 to \$13.75; good butchering heifers, \$12 to \$13.35; fair butchering heifers, \$10.50 to \$11; light common, \$8 to \$9; very fancy fat cows, \$11.50 to \$12; best heavy fat cows, \$10.50 to \$11; good butchering cows, \$9 to \$10; medium to fair, \$7.75 to \$8.50; cutters, \$6 to \$6.50; canners, \$5.25 to \$5.50.

Bulls—Best heavy, \$11 to \$12; good butchering, \$10 to \$10.25; sausage, \$8 to \$9; light bulls, \$7.50 to \$8.

Stockers and Feeders.—Best feeders, \$10.50 to \$11; common to fair, \$8 to \$9.50; best stockers, \$8.75 to \$9.25; fair to good, \$8.25 to \$8.75; common, \$5 to \$7.

Milchers and Springers—Good to best (small lots) \$100 to \$135; in carloads, \$90 to \$100; medium to fair, (small lots), \$80 to \$85; in carloads, \$70 to \$75; common, \$50 to \$55.

Hogs.—Prices last week were on the highest level since the forepart of October. Receipts were light and market was active all week, with prices on the advance. Monday the top was \$20, but the general market for better weight grades was \$19.75. Tuesday best hogs reached \$20.25, Thursday's top was \$20.30 and Friday the range was from \$19.75 to \$20.15, bulk going at \$20. Three decks of Canadian hogs sold Friday from \$19.75 to \$20.00. Monday pigs sold mostly at \$19.50 and the balance of the week they landed at \$19. Roughs ranged up to \$16.50 and \$17, with some up to \$17.50 and stags went from \$14

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WRITE OR CALL AT NEAREST BRANCH

down. The past week's receipts totaled 18,900 head, being against 18,954 head for the week before and 20,100 head for the same week a year ago.

Sheep and Lambs.—Trade was good all of last week. Receipts consisted largely of lambs and prices struck the highest level since last April. Monday, Tuesday, Wednesday and Thursday choice lots sold at \$20 and Friday the best lots brought \$20.50, with culls selling up to \$19. Thursday a load of fall clipped lambs made \$18.50, while fresh clips were quoted about \$3 under the best lots that carried fleece. Sheep and yearlings also sold higher than any previous time this year. A load of yearling wethers on the lamby order sold Monday at \$19, wether sheep brought up \$16 and ewes ranged from \$14.50 down. The past week's receipts were 17,800 head, as compared with 18,634 head for the week preceding and 15,700 head for the same week a year ago.

Calves.—Prices were on a very high level the first two days of last week. Tops sold up to \$22 and culls ranged up to \$18. After Tuesday, however, the demand was light and market was slow, with prices on the decline. Friday buyers got best veals down to \$19.50 and culls went downward from \$14. For the past week receipts were 4,200 head, being against 3,355 head for the week before and 3,100 head for the same week a year ago.

Toronto Produce.

Receipts at the Union Stock Yards, West Toronto, on Monday, March 17, consisted of 157 cars, 2,552 cattle, 588 calves, 2,659 hogs, 232 sheep and lambs. The trade in cattle was strong. Steers and heifers were 25 to 50 cents higher, the top being \$16.15 for twenty steers averaging 1,300 lbs. in weight. Cows were 50 cents higher, choice selling at \$11.50 to \$12. Bulls were 25 cents higher. Lambs were strong at \$18 to \$19. Sheep were steady, and calves \$2 lower. Hogs were \$19.50 to \$19.75, fed and watered.

Breadstuffs.

Wheat—Ontario (l.o.b. shipping points, according to freights)—No. 1 winter, per car lot, \$2.14 to \$2.22; No. 2, winter, per car lot, \$2.11 to \$2.19; No. 3 winter, per car lot, \$2.07 to \$2.15; No. 1 spring, per car lot, \$2.09 to \$2.17; No. 2 spring, per car lot, \$2.06 to \$2.14; No. 3 spring, per car lot, \$2.02 to \$2.10. Manitoba (in store Fort William.) No. 1 northern, \$2.24½; No. 2 northern, \$2.21½; No. 3 northern, \$2.17½; No. 4 wheat, \$2.11½.

Oats—Ontario (according to freights outside)—No. 2 white, 62c. to 64c.; No. 3, white, 60c. to 62c. Manitoba (in store, Fort William)—No. 2 C. W., 72½c.; No. 3 C. W., 67½c.; extra No. 1 feed, 68½c.; No. 1 feed, 65½c.; No. 2 feed, 62½c.

Corn.—American, (track, Toronto, prompt shipment.) No. 3 yellow, \$1.62; No. 4 yellow, \$1.59.

Peas (according to freights outside)—No. 2, \$1.75, nominal.

Barley (according to freights, outside)—Malting, 87c. to 92c., nominal.

Buckwheat (according to freights outside)—No. 2, 85c., nominal.

Rye (according to freights outside)—No. 2, \$1.37 to \$1.40.

Flour.—Manitoba (Toronto)—Government standard, \$10.75 to \$11; Ontario (prompt shipment). Government

standard, \$9.55 to \$9.75, in bags, Montreal and Toronto.

Millfeed.—(Car lots delivered, Montreal freights, bags included)—Bran, per ton, \$40.25; shorts, per ton, \$42.25; good feed flour, \$3.25 to \$3.50 per bag.

Hay.—(Track, Toronto)—No. 1, per ton, \$20 to \$21; mixed, per ton, \$18 to \$19.

Straw.—(Track Toronto)—Car lots, per ton, \$10.

Hides and Wool.

Prices delivered in Toronto. City Hides.—City butcher hides, green, flats, 18c.; calf skins, green, flats, 30c.; veal kip, 20c.; horse hides, city take-off, \$6 to \$7; sheep \$3 to \$4.

Country Markets.—Beef hides, flat, cured, 18c. to 20c.; green, 16c. to 17c. deacon and bob calf, \$2 to \$2.75; horse hides, country take-off, No. 1, \$6 to \$7; No. 2, \$5 to \$6; No. 1 sheep skins, \$2.50 to \$4; horse hair, farmers' stock, \$28.

Tallow.—City rendered, solids, in barrels, 8c. to 9c.; country solids, in barrels, 6c. to 8c.; cakes, No. 1, 7c. to 9c.

Wool.—Unwashed fleece wool as to quality, fine, 40c. to 55c. Washed wool, fine, 70c. to 75c.

Farm Produce.

Butter.—Prices again kept stationary on the wholesales, though quite firm, selling as follows: Creamery, fresh-made lb. squares at 56c. to 57c. per lb.; creamery solids at 54c. to 55c. per lb. Oleomargarine.—32c. to 34c. per lb.

Eggs.—Prices on new-laid eggs declined, selling at 42c. to 43c. per dozen, wholesale; selects in cartons bringing 45c. per doz.

Cheese.—Kept firm at unchanged prices—year-old Stiltons selling at 35c. per lb.; June cheese at 31c. per lb. and September at 28½c. to 29½c. per lb. (wholesale.)

Poultry also kept firm at stationary prices. The following prices being quoted for live weight to the producers: Chickens, crate fed, 30c. per lb.; chickens, 25c. per lb.; hens, under 4½ lbs., 25c. per lb.; hens, 4½ lbs. to 6 lbs., 30c. per lb.; hens, over 6 lbs., 32c. per lb.; roosters, 22c. per lb.; ducks, 35c. per lb.

Honey.—There is no demand for honey, which is being offered at 25c. to 25c. per lb. for 5, 10 and 60-lb. pails, respectively.

Wholesale Fruits and Vegetables.

Apples.—Prices kept firm on all lines of apples—some advancing slightly; offerings being very light—Ontario barrels selling at \$5 to \$10 according to variety and grade; boxes at \$2.50 to \$3.75—while Western boxed varieties brought from \$3.50 to \$5.

Grapefruit firmed slightly; Florida selling at \$5.50 to \$6.50 per case; Cuban at \$5 to \$5.50 per case.

Lemons did not vary in price at \$4.50 to \$5 per case.

Oranges advanced selling at \$5.50 to \$7 per case.

Rhubarb was not shipped in very heavily selling at \$1 to \$1.50 per dozen bunches.

Tomatoes.—Florida outside grown tomatoes came in freely and were of very good quality, selling at \$7 to \$9 per six-basket crate.

Beans.—Dried beans have been rather slow and drabby at \$2.75 to \$3.25 per bushel for prime whites and \$3.50 to \$4 for choice hand-picked.

Beets declined, selling at 75c. to 90c. per bag.

Cabbage kept stationary at \$2.50 to \$2.75 per bbl., and is quite scarce.

The Farmer's Financial Friend

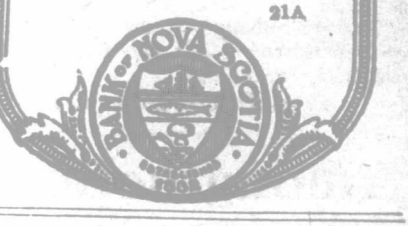
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Carrots advanced a little owing to being rather scarce selling at 75c. to 85c. per bag.

Cauliflower.—California cauliflower of choice quality arrived freely selling at \$4.50 to \$4.75 per standard crate (2 doz.)

Celery.—Florida celery arrived for the first time this season and proved an active sale at \$7 to \$8 per case (5 to 8 dozen).

Lettuce.—Leaf lettuce is still scarce selling at 35c. to 40c. per doz.

Onions maintained their high prices, but have been rather a slow sale, at \$2.50 to \$3 per 75 lbs. and \$3.50 to \$4 per 100 lbs.

Parsnips sold at 75c. to 90c. per bag. Potatoes advanced owing to the demand from the United States; Ontarios selling at \$1.25 to \$1.50 per bag.

Turnips kept stationary at 60c. to 75c. per bag.

Montreal.

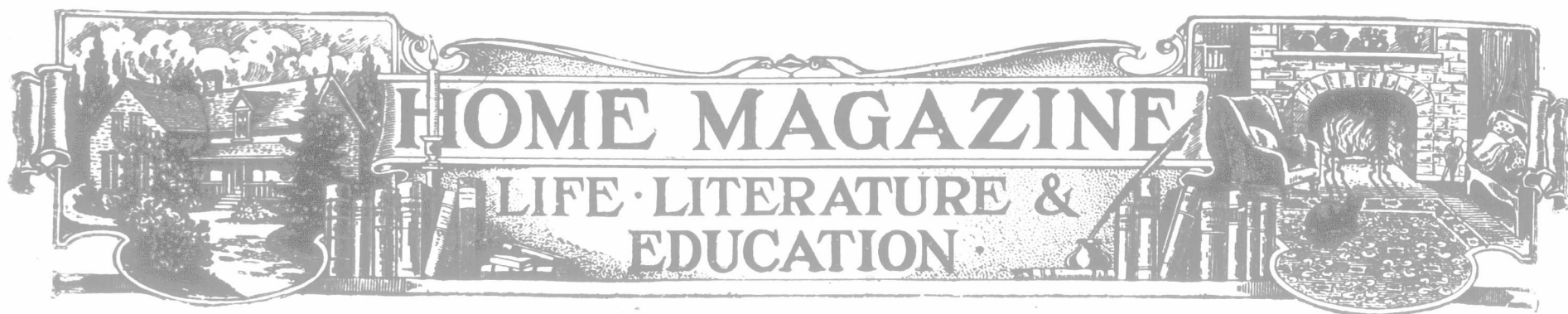
Horses.—Practically no change took place during the week in the market for horses. Some good animals were being taken by carters in anticipation of spring business, but otherwise very little was going on. An occasional purchase was made for shipment to the country, where good mares are in fair demand at \$150 to \$300 each. Heavy draft, weighing 1,500 to 1,700 lbs. were quoted at \$250 to \$300 each; light draft, weighing 1,400 to 1,500 lbs., are \$200 to \$250. Light horses \$125 to \$175 each; culls, at \$50 to \$75 each; fine saddle and carriage animals \$175 to \$250.

Dressed Hogs.—Dressed hogs were showing a rather firm tone, and abattoir fresh-killed animals sold at 25c. to 25½c. per lb., this being ½c. above previous prices.

Poultry.—Some export of poultry has been taking place to the United States, and some shipments have also taken place to outside points in Canada. The market was firm with choice turkey selling up to 45c. and chickens from 36c. to 42c., while fowl ranged from 30c. to 34c., and ducks from 36c. to 40c. Geese sold at 28c. to 30c. per lb.

Potatoes.—Milder weather brought out increased offerings and these have had

Continued on page 545.



Wings

EDWARD L. CARIENTER.

WINGS, wings!
I beheld the young leaves
breaking from the buds and
poised on the tips of the branches;
I saw a squadron of anemones in the
meadows all waving in the wind as im-
patient to take flight together;
I looked at the acorn buried in the
earth, and lo! it divided and put forth
two seed-wings;

And the starling like-shaped flew over-
head through the trees, and the lark
hung, a cross, in heaven;

And the butterfly flew by—emblem
of the soul—and the bee hung downwards
in the wind-flower cup;

And I stood in the great assembly and
marked how from the decisive lips of the
orator the winged words darted and
transfixed the audience;

And I saw on the Central American
savannahs the half-wild horses racing and
bounding together down to the rivers,
or resting in the shade of the trees;

The light-footed tireless wolf, I saw,
and the eagle soaring over the mountains;
and I watched the moth glide from the
entrails of the caterpillar, and the gnat
all perfect and stainless from its watery
case;

And within myself and under the skin
—deep down—I felt the wings of Man
distinctly unfolding.

From *Towards Democracy*.

Among the Books

The Twentieth Plane.

SHORTLY before Christmas a remark-
able book found its way from a Tor-
onto publishing house. It presented
—no less—the report of a number of peo-
ple in Toronto that they had had commu-
nication with people long gone from this
earth,—not only such fragmentary com-
munication as that set forth in Sir Oliver
Lodge's book "Raymond" but sustained
conversation, argument even, along with
somewhat definite information in regard
to the life lived by those who have
slipped "this mortal coil."

So astounding was this report—so pre-
posterous, if one look at it that way—
that, although a copy of the book was
presented to The Farmer's Advocate and
Home Magazine, the staff at first hesi-
tated about giving it a review. The
book, however, was not thrown aside in
the cities. It became at once the centre
and cause of more discussion and argu-
ment than has been aroused by any
volume published in recent times,—ap-
proval and delight on the one hand, dis-
approval and condemnation on the other.
A few of the "paper" critics frankly
endorsed it; a few seized upon it as a
fine chance for ridicule and fun; many
were merely non-committal, many more
considered "discretion the better part of
valor," and said nothing. One writer
called the whole "revelation hodge-
podge;" another accused it as "blasphem-
ous."

In private conversations approval was more generally expressed,
perhaps, than in the papers. While many
contended that "the whole thing was
but a trap to make money," there were
those, also, who declared that the book
had been a wonderful help. "Reading
it has wholly removed my dread of
death," said one. And another, "Why
should we refuse to believe that our dear
ones want to come back to see us just
because they have gone on ahead?"
And another, "To me it seems rather
nervy to declare that, just because we
have not had a certain experience, no one
else has. One feels like keeping an open
mind on the subject when one considers
the stand taken by such men as Lodge,
Celan Doyle, Crookes and Maeterlinck."

At the present time the reading and
discussion of the book promise to run
about the world, and there are signs that
it is becoming known out in the rural
districts. . . . Thus it is that the time
seems opportune for a notice in this paper.
Having read the following synopsis the
farm reader will know something at least
of what people are talking about when
they discuss *The Twentieth Plane*. If
he wishes to know more he will have to
procure the book itself.

At the very beginning may it be stated
that the writer of this article holds no
brief for exploitation of *The Twentieth
Plane*. The review given here states
only the purport and content of the book,
and the "revelation" (to some small
degree) as given in it and in subsequent
"meetings" held by those who tell of the
psychic experiences and revelations which,
they firmly believe, have come to them.

Only one opinion does the writer of the
review wish to express: viz., that, what-
ever be the explanation of the occurrences,
the compiler, Dr. A. D. Watson, must be
absolutely acquitted of any charge of
"fake." Those who know him best are
unquestionably assured of his integrity,
and that of others who attended the
meetings. Dr. Watson, by the way, is a
doctor of medicine in the city of Toronto.
He is a Canadian, and was born on a farm
in Peel County. For some years he was
President of the Royal Astronomical
Society of Canada, and at present he is
President of the Psychical Research
Society of Canada. In literature he has
won some renown through his books
Sovereignty of Character and *Sovereignty
of Ideals*, and his books of poems *Love
and The Universe*, and *Heart of the Hills*.

Of the medium, or instrument, through
whom the communications, as believed
by those who attended the meetings,
have come, more will be said at the end
of this article.

—And now to the book itself.
Briefly the story of its creation, as
given by Dr. Watson and his associates,
is this:

One evening Dr. Watson was called
to the telephone to speak with a young
Christian Jew fairly well known to him,
Louis Benjamin by name, a commercial
traveller by occupation and a man of
comparatively limited education due to
the fact that he left school when no
further than the third reader.—"A bright
fellow," says Dr. Watson, "and intelli-
gent, but not educated in the academic
sense of the term."

"May my wife and I go over to your
house this evening and take the ouija
board? We were fooling with it when
your mother gave a message on it, telling
us to take it to your house, as some peo-
ple who live where she is wish to speak to
you." It was in some such manner that
the experiences began.

As Dr. Watson's mother had been dead
for many years this message was rather
startling, and the doctor was somewhat
skeptical,—less so, however, than the ma-
jority of people would have been, since,
in connection with his work in psychical
research he had for some time been
keeping in close touch with the investiga-
tions and conclusions of those scientists
and investigators in England and else-
where who have for years past believed
communication with those who have left
this earth the possible, and even estab-
lished, looking upon such communication
as a perfectly natural thing, subject to
natural laws, and as feasible as the
operations of electricity if equally under-
stood. To this connection it is only
necessary to mention the names of: Sir
William Crookes; Alfred Russell Wallace,
who, concurrently with Darwin propo-
sited the theory of Evolution; W. T.
Stead, the well-known writer who met
his death when the "Titanic" went down;
Sir Conan Doyle, creator of "Sherlock
Holmes"; Camille Flammarion, the great

astronomer; and Sir Oliver Lodge, the
veteran scientist of Birmingham, whose
book "Raymond," written after the death
of his son "Raymond" on the battlefields
of France, caused such a sensation two
years ago.

But to return:
"Why, certainly," was the reply to the
request of the Benjamins.

Upon the arrival of the latter, the
Watson family—how curiously, may be
imagined—gathered about, and a message
purporting to come from the doctor's
mother was spelled out on the board. A
group of literary people who now live on
the *Twentieth Plane*, she said, wished to
talk with her son.

Immediately messages from these began
to come, and were continued at subse-
quent meetings,—at first on the board,
later spoken by Benjamin while in ap-
parent trance. Among those who "came"
were Wordsworth, Coleridge, Emerson,
Ingersoll and Hubbard from the Twentieth
Plane; Plato and Spinoza from the
Hundredth; then, at last, while the little
listening group sat with bated breath,
came a short message from The Carpenter
of Nazareth, from the Thousandth Plane.

The meetings recorded extended from
February of last year until August, and
at each a number of people in addition
to the members of Dr. Watson's family
were present. One of those very fre-
quently in the group was Dr. Abbott,
Associate Professor of Philosophy in
Toronto University, and one of the most
interesting portions of the book records a
lively tilt of argument between him and
Coleridge in regard to certain matters of
philosophy. Indeed, while some of the
conversations deal with descriptions of
things as they are "Over There" others
are given to discussion of topics utterly
beyond the range of thought or informa-
tion of the medium through whose lips
the words from the Visitors come. For
instance: In a conversation of especial
interest to students of ancient history
and sociology, Plato tells that his "Re-
public,"—which, as read on the surface,
eulogizes what is practically an oligarchy
—is really a satire, satirizing what he
calls "the damnable oligarchy that
murdered my master Socrates."

"Read between the lines," he continues,
"and you will see what I meant."

Giving but the merest outline, the
theory of the book is as follows:
The great Plan of all existence com-
prises much more than that summed up
in the old, elemental idea of earth, heaven,
and hell. On the contrary, there are
numberless "planes" of which earth is
the fifth. In going from each to the next
the human personality goes through some
sort of sleep such as death, and invariably
from the highest point achieved in the old
the one who has passed on begins a new
life. Progress is dependent, most of all,
upon development of character; intellect
helps, but, if unaccompanied by high
character-development does not count.
All existence, then, in the numberless
years making up the various lives, is
made up of continual development, useful
work, and continuous finding of new and
absorbing interests. People do not go
about just resting and playing on harps
for endless billions of years. They find
always something to do, and continue
learning things of which we on this earth-
plane can have not the faintest idea, and
which, since the things themselves do not
exist for us, we have not even the words
to explain.

There is really no death. As Long-
fellow long ago concluded, "What seems
so is transition." Five minutes after a
man dies he is the same as he was five
minutes before, only that his opportunities
are enlarged, and conditions are very
much bettered, and, of course, somewhat
different. He has a spirit body instead
of one of flesh and bones, but, because of
negative densities, it is just as real

to him as was the former one. He finds
himself on another plane, with numbers
of people about, and a landscape equalling
in some respects the most beautiful one
in this world and surpassing it in others.
People continue to talk and work, but
many inconveniences bound up with this
flesh are removed. If, for instance, one
wishes to see another at some distance,
the wish is sufficient to take him there;
he is not dependent upon our clumsy
means of locomotion. People can return
to lower planes at will, but cannot go on
to higher ones until they have attained
a certain development. Also, for the sake
of certain experiences necessary for
further growth, or for giving help to people
on lower planes, they may be reincarnated
and live again personal lives on lower
planes. Going on from this earth-plane
does not confer all knowledge at once;
neither does it give power to see exactly
what is going to take place in the near
future. The people who have gone on
have their opinions, just as they had here,
and sometimes the things they expect
do not happen. They are more likely
to be right in their prognostications, how-
ever, than we are here. Their vision has
been extended.

There is no literal hell-fire, but the
messengers speak of a "Valley" into which
they may descend for purification, and
which is, therefore, a place for helping
people to their feet rather than a spot in
which they may be tortured forever and
ever.

How do you account for the fact that
the revelation came especially to your
little group here?" the writer of this
asked Dr. Watson, in a recent interview.

"I think," he replied, "simply that I
have discovered a medium eminently
adapted for such work."—To the un-
initiated this answer will be clear when
it is explained that all investigators in
psychical research who think they have
established communication with those
who have gone on, have found that certain
people are, through some peculiarity of
constitution or temperament, media or
channels, through which the people
Beyond find it possible to speak. The
great trouble so far as the general public
is concerned, has always been that so
many unscrupulous folk, wholly fakirs,
have set themselves up as mediums, and,
by making a charge, have filched money
from the credulous.

"It is not my book," Dr. Watson con-
tinued. "I merely compiled it, edited
it. I was asked by the Twentieth Plane
people who came to us to give it to the
world." Speaking at a literary
club in Toronto some weeks ago, he
declared that he would rather be burned
at the stake than have failed to carry out
this trust.

"People are saying," was the next
query, "that subconsciously your thought
influences Benjamin, and that he gives
out your ideas. Might not this be
possible?"

"In that case," was the reply, "if so
much can be dug up out of my sub-
consciousness, then I am the most wonder-
ful man in the world, and worth a great
deal more digging into."—But he em-
phatically disclaims this possibility. "I
did not even know many of the things
they told us," he said. "Often things
were confirmed afterwards in the most
obscure ways and places. As for Benjamin,
he is always nosing about in bookstores
and libraries for confirmation of messages
of those who have used him as their
instrument to speak through."

"What is the greatest objection you
have met, so far?" was another question.

"Why," was the smiling reply, "some
people ask me if it isn't the devil or some
other evil spirit who has been coming to
us. I confess I can't quite follow their
line of reasoning. They believe it possible
for evil spirits to come, yet utterly deny

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the possibility that good or friendly spirits may come."

"Also," he continued, "many people sniff at the idea that great folk like Plato and Spinoza have come down to talk to our little company. These critics forget that the truly great are always the humblest and the most approachable. In connection with my work as physician and astronomer I have many times had occasion to write about something to great scientists. In every case the answer has come courteously, and the greatest pains have been taken to answer my questions and give me the information I sought."

Every two thousand years, Dr. Watson notes, a revelation has come to the world. Two thousand years ago Jesus came. "Just now, after the War," he said, "when many millions of the strongest and most alive of the world's young men have just gone out of earth-life, the time seems to be peculiarly ready for another revelation, and it seems to be coming in answer to the great loneliness and longing of millions of loving hearts." "We in Toronto are not the only ones to whom communications are coming," he continued, "I think, too, there will be many other and possibly greater revelations, according as we tear down the walls we have built against all such effort."

Such is, in brief, the story of the creation of *The Twentieth Plane* as told by those who know most about it. With your opinion, reader, this review has nothing to do. You will, of course, form it for yourself, for or against, as you should do, and in either case no harm will be done.

In closing it may be said that Dr. Watson rather advises against indiscriminate use of the ouija board. There is no magic in the board itself, he says, but the minds of those working with it may play strange tricks. During the first few meetings in Toronto it was used simply as a help to concentrate the mind of the medium, but it was soon given up, and does not now appear at all. Incidentally, the meetings still go on, and it is quite possible that another book may follow *The Twentieth Plane*.

[*The Twentieth Plane*, compiled by Dr. A. D. Watson. McClelland and Stewart, Publishers, Toronto. Price, \$2.00.]

Lawn and Garden Notes.

Sow spinach and sweet pea seeds as soon as the soil can be worked. Put the sweet peas in trenches, the bottom of which has been made into a rich seed-bed. The trenches must be filled in according as the plants grow.

Cover some rhubarb clumps—not deep enough to smother—with fermenting manure. This will force some early stalks.

Remove mulching and other coverings very gradually from strawberry plants, berry bushes, perennials, etc.

Make the perennial border straight, or in "bays," as suits your fancy and the situation. A straight border should be about 4 feet wide; one with bays much wider in places. Work the soil up into a deep, loose bed, adding enough well-rotted manure to make it rich. Do not use new manure.

Trees, Shrubs and Vines.

No imported tree can be as effective for home beautifying, so our own maples, beeches and evergreens, when massed or placed singly to suit the various situations. Some of our native shrubs are very effective also, if planted with an eye to the picturesque. Red berried elder, for instance, makes a fine "natural" hedge to screen a fence or bank along in front of evergreens. High bush cranberry and dogwood are also useful for the same purpose, while the wild briar and rose may occupy places where they will be effective. For a collection of shrubs (not native) the Forsythia or "golden bells" and Japonica, which flower in very early spring; weigelia and flowering almond (both pink flowered); the blue "Syringa" and snowball (white) and the snowy spirea, "bridal wreath," which is especially fine for massing about the foundations of a house. Roses are very beautiful, although somewhat troublesome. The hybrid perpetuals and double teas, which bloom all summer, are the best. Lastly the red and yellow dogwood bushes, which are so beautiful in winter, must not be forgotten. Among them are the barberries, red osage wood, yellow willow, and the

white berried "snowberry," beautiful in early winter.

Always the tallest shrubs should be placed at the back of a hedge or the centre of a mass, the lower ones such as deutzia lemoinei and deutzia gracilis, being placed along the edge. For covering the ground beneath shrubbery, such trailing plants as periwinkle, bearberry, euonymus radicans, etc., may be used. Pansies grow very nicely among rose bushes.

Vines.

Vines give the finishing touch to any home, softening harsh outlines, covering ugly walls, and making the whole blend with the landscape. If provided with trellises which permit the circulation of air beneath, they will not harm any wooden wall. For brick or stone walls the best vine, where it will not winter-kill, is the Boston ivy, which clings close to the surface, covering it with a mantle of green. For stone fences, unsightly walls, etc., the Virginia creeper and wild grape are useful. Do not cut down a dead tree, by the way; it may be made into a thing of great beauty by planting Virginia creeper, or flowering

branches which may be trained in place on the porch and made to do duty as a vine. Its yellow flowers, which come in May are very attractive. This bush must always be planted in full sunlight.

Hope's Quiet Hour.

After The Fire.

And, behold, the LORD passed by, and a great and strong wind rent the mountains, and broke in pieces the rocks before the LORD; but the LORD was not in the wind; and after the wind an earthquake; but the LORD was not in the earthquake; and after the earthquake a fire; but the LORD was not in the fire; and after the fire a still small voice.—1 Kings 19: 11, 12.

The prophet Elijah was a man of burning zeal for righteousness. His desire to free Israel from Baal-worship made him strong and brave. Fearlessly braving

and fire were only servants of God—not nearly as godlike as the man who was so weak in the midst of the raging storm.

After the fire came the silent voice which reached the prophet's soul and caused him to wrap his face reverently in his mantle.

Elijah had passed through many great adventures, but the greatest adventure for him—as for every human soul—was that quiet meeting with his Lord in the Mount of God.

Our world has been torn by the worst storm on record; and we thought that when millions of strong young men stood on the very edge of the river of Death they must—for very fear of consequences—turn from evil ways and seek the forgiveness of God. I asked a returned soldier whether his thoughts did not go forward to the life beyond death, when bullets and shells were flying overhead. He remarked calmly: "No, we never thought about dying at all." Of course he could not tell what his comrades were thinking about, and yet very probably they thought as little about death as we do in a violent thunderstorm.

When the influenza raged in our midst, and many of the young and strong were suddenly called to leave this life, I don't suppose many of their companions hurried to make their peace with God. In any case, the repentance caused by fear of death seldom goes very deep or lasts very long.

If we look for a great religious revival as the result of the Great War; and then find, as Elijah did, that all the outward manifestations of power seem to have made little change in men's hearts, let us not be discouraged. It was after the wind, earthquake and fire that the quiet Voice made itself heard. The storm was not thrown away, it prepared the way for the Word of God.

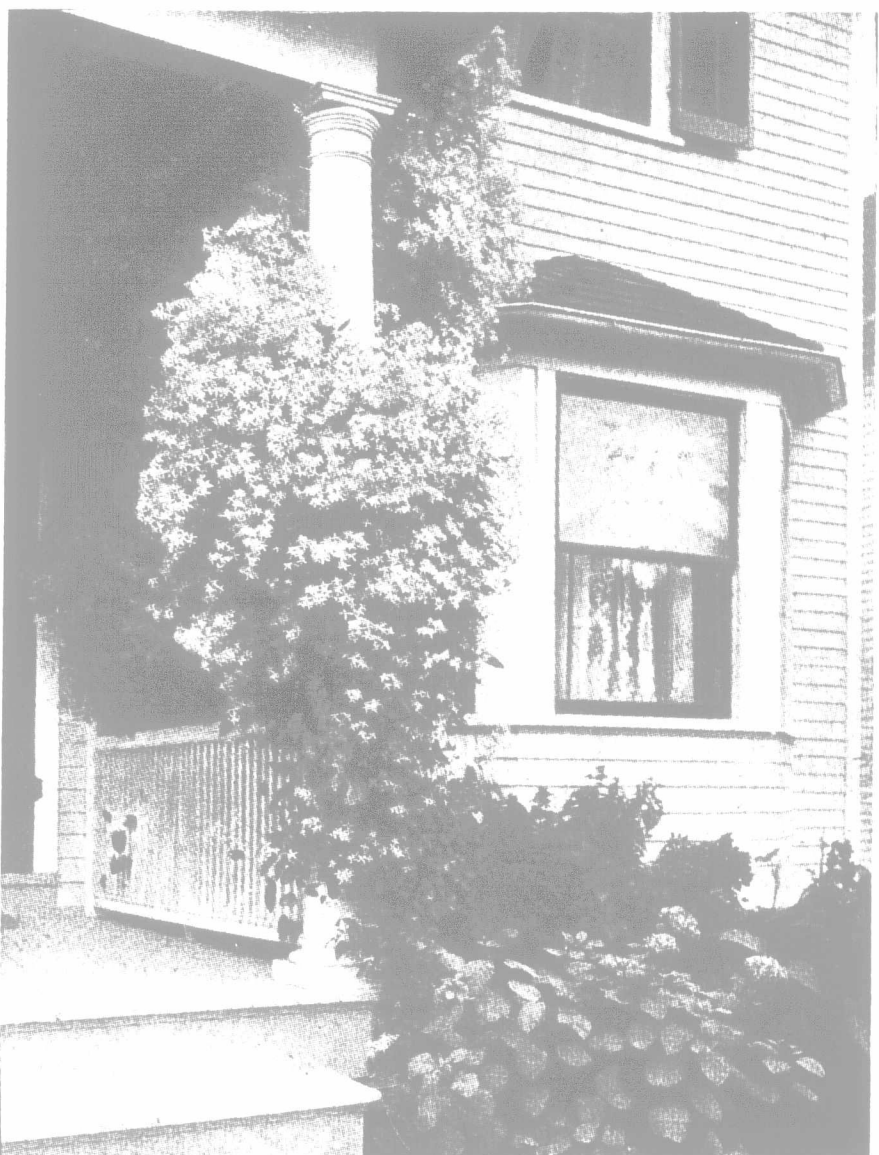
The roar of cannon is not the Voice of God, but many men have heard the still small Voice most clearly in the hush which has followed the roar of battle. Some heard God speak for the first time when they were called aside from active work to the quiet of a hospital. Some, who lived far from the actual roar of the guns, found God waiting for them in the silence of their room when they retreated to that refuge, staggering under an overwhelming weight of sorrow.

God understands the human heart perfectly, and He is always quick to make use of an opportunity. After a fire of hearth-breaking loss has ravaged a heart, leaving black despair behind it, the still small Voice (which has always been speaking) sometimes is heard in the dreary silence. Then light springs up in the darkness, and the invisible world becomes visible to the eye of faith.

In that mysterious Book which we find so hard to understand—"The Revelation"—a Book is seen in the hand of God. No one can read that Book (for it is sealed with seven seals) until the victorious Son of Man takes it out of the right hand of Him Who sits on the throne and begins to open the seals.

When the first seal is opened we see one going forth conquering, and to conquer. The breaking of the second seal takes peace from the earth. The breaking of the third seal results in scarcity of food. The breaking of the fourth seal shows a terrible vision of Death going out to kill the fourth part of the earth with war, famine, pestilence and wild beasts. The fifth seal is broken and we see the slaughter of the noblest of our race—the martyrs for truth, righteousness and freedom. When the sixth seal is opened all nature is torn in agony. The sun, moon and stars are darkened, the whole earth is shaken, and all the kings and captains are helpless and terrified before the wrath of the Lamb. The vision of horror is lightened by another vision of the great multitude of God's faithful servants, who are gathered out of every nation, sealed with their Master's own seal, and kept by the Lamb Himself from hunger, thirst or pain. God Himself stoops to wipe away their tears.

Then, at the opening of the seventh seal, there was silence in heaven about the space of half an hour. The praises of angels were hushed while the prayers of the saints ascended up before God. After the mild storm of war, famine and pestilence came the quietness in heaven responding to the appeal of men. It is in quietness and confident trust that we may gain strength for daily living. While we are hidden in some secret spot there is the voice of silence in heaven. God is not distracted by the anthems of ten thousand



Clematis Paniculata.

An exceptionally beautiful vine for the verandah.

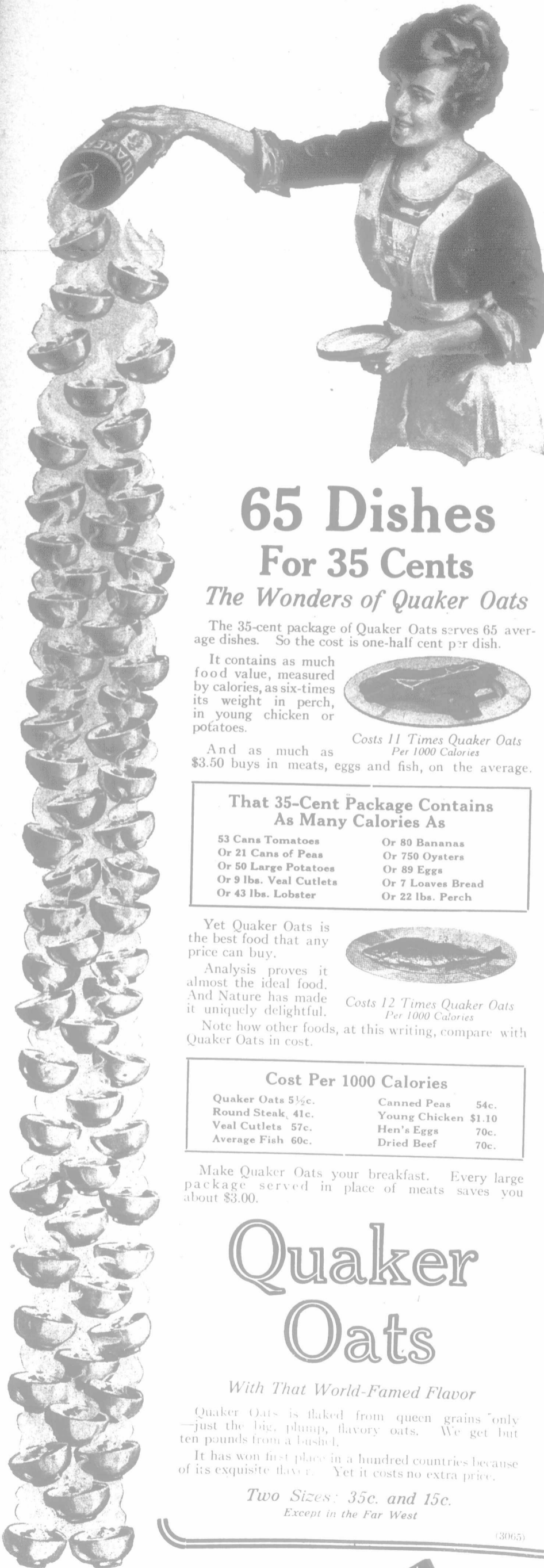
vines, such as trumpet flower, about it. The wistaria is very slow to establish itself, but when once established will cover a house to the eaves with beautiful blue, white or purple flowers. *Chinensis* (blue) is the best variety. Trumpet flower vine, with red, orange-throated blossoms, also is very effective. For verandah vines wild grape is fine, also the beautiful clematis paniculata and the wild clematis, which is almost as good. The Japanese honeysuckle, which is almost an evergreen, is also very fine. Climbing roses are beautiful when in bloom, but likely to be a nuisance the rest of the year because of the care needed to keep insect pests away. Most beautiful of all, perhaps, in autumn, is our native red-berried bittersweet, *Celastris scandens*, which becomes literally covered with brilliant orange-red fruit. It is not very common,—not nearly so common as its less beautiful cousin, *Suberona Dulcamara*, with its purple flowers that look like potato blossoms—but may still be found growing in some of our woods.

Among the vines sometimes planted *Forsythia suspensa*, which is not a vine at all, but a hardy shrub with very long

danger, he had proved conclusively to the king and people that Baal was helpless before the might of Jehovah. His self-forgetfulness was like that of a Russian patriot who said: "I am nothing; personal success, happiness, they are nothing; exile, Siberia, the Czar's bullet, they are nothing; there is just one thing, that Russia must be free."

The prophet had proved, by outward visible proof, that Jehovah was the true God; and yet he gave way to despair when he discovered that outward manifestations of God's power could not change men's hearts. He had failed to establish the kingdom of God upon earth—that kingdom cannot be established by force or outward signs. Then God led His discouraged servant out into the desert, so that He might meet him in the silence of the mountains and show him that all was not lost.

Then the rocks were torn to pieces by a terrific storm, the earth was violently shaken by an earthquake, and after the earthquake there was a fire—perhaps a severe electric storm. But all this display of force did not manifest God to His troubled servant. The wind, earthquake



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- | | |
|------------------------|-------------------|
| 53 Cans Tomatoes | Or 80 Bananas |
| Or 21 Cans of Peas | Or 750 Oysters |
| Or 50 Large Potatoes | Or 89 Eggs |
| Or 9 lbs. Veal Cutlets | Or 7 Loaves Bread |
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angels from your silent petition. As a sick man once wrote: "God is the one hope for a man who is ill. . . even when I couldn't see Him at all, I felt that He was there."

A woman was telling some boys about speaking to Christ, and a little Scotch laddie asked: "Do you ken enough to talk to Him?" evidently thinking that it required great learning to address the King of Kings. It was in order to get near people that the Son of God became the Carpenter of Nazareth. Intercourse with Him changed fishermen into Apostles but He was never hard to approach. The door of His audience chamber is always open for you, and it closes behind you as you enter so that no one else can overhear.

What a parable the telephone is! A voice speaks into your ear, and the person standing close beside you cannot hear the words meant only for you. You can't see the speaker, but you do not doubt his existence.

Lord Roberts was a soldier, yet he knew quite well that the Empire needed the help of God more than it needed guns and shells. He said that what we wanted was "a nation on its knees." What can it profit us to have beaten Germany in the awful game of war, if we bow down in our turn to the gods of force and materialism? God is not in the boom of the cannon or the scream of the shell. Outside culture is powerless to uplift men or nations—Germany has shouted that message from the housetops and the "wireless" has carried the news to all the earth. A real and abiding world-peace cannot be secured by force. Peace is a fruit of the spirit, one of the signs that the Prince of Peace is abiding in the fortress of "Mansoul."

If the storm and fire have been sweeping through your life, don't waste time and vital force in useless laments. Listen! God is trying to gain your attention. Elijah despairingly declared that true religion was dead in Israel, that he was the only worshipper of Jehovah left, and they were seeking his life to take it away. But the Voice, which roused him to hope and energy, told him that he was far from being alone in his faith. He had 7,000 comrades in Israel, and God Himself was the Leader of the host. Despair is not only wrong it is utter folly. God—and those who fight for God—must win in the end. Let us take to heart the great saying of General Foch during the battle of the Marne: "My right has been rolled up. My left has been smashed. I have ordered an advance from all directions."

The still small voice sent Elijah forward with renewed hope and courage, for he had learned that it was not his war but God's War. There is no possibility of defeat to one who fights on the side of God, who not only fights for the Greater Captain but with Him.

"While the war is yet unended,
Give me vigor for the fray,
Give me, when the fight is over,
Peace that passeth not away,—
Give Thyself to me, O Jesu,
As my one Reward for aye."

DORA FARNCOMB.

The Windrow.

A line of airplanes has been established between Folkestone and Ghent to carry clothing and foodstuffs to the people of Belgium. Plans are being made for extended air routes in Europe.

There is a possibility that airplanes may be used for scouting over Canadian forests, to give assistance to the fire-rangers.

Mr. Roy U. Conger has bought the entire equipment of the Canadian Royal Air Force, and will establish a regular air-express and passenger service across the continent, in Canada. The entire outfit is being assembled at the Leaside Airdrome near Toronto.

Our Serial Story.

The Forging of the Pikes.

A Romance Based on the Rebellion of 1837.

Serial rights secured by The Farmer's Advocate and Home Magazine.

CHAPTER XVI.

Preparations.

October 15th, 1837.

I cannot rest. Even yet at every opportunity I must be ranging the forests seeking for some clue of Barry, some little ribbon or shred of her dress that might indicate whither she has gone. Nor, between such times, can I settle to work on the farm, for even while my hands move it is with little spirit or intelligence, since always and always my mind, *myself*, is roving afar, on its fruitless quest.

Last Thursday, keeping to the high-ways, I rode farther than usual, asking many people by the way if they had seen or heard aught of our girl. Some of them had seen the inquiry about her that has been placed in the papers, but further than that knew nothing; so that now, it seems, if we can find no news from the Indians, who read no papers but carry their news by word of mouth, we can hope no further.

It was far past midnight when I returned to our settlement, and as I came opposite Red Jock's blacksmith shop I was surprised to see the door open and Jock himself standing in the doorway, hugely outlined against the dull glow of red light within.

"Hallo, there!" he called, and I drew rein and swerved my horse in.

"Whaur hae ye been this time o' nicht?" he said, coming close to me. "Ay searchin' an' searchin', Ah doot, puir laddie! Come awa' ben an' Ah'll fin' ye a bit o' scone an' a wee drappie tae wash it doon. Ye'll be sair needin' it, Ah doot."

And when I declined he insisted. He had something to show me, he said.

So I threw myself off and proceeded to tie Billy to the hitching-post, while Jock patted him on the flanks with his great, broad hand.

"Ah kent weel 'twas Billy," he said, "whan Ah heard him comin'. There's a click tae's canter that Ah cudna miss amang a score o' the beasties. Gin it hadna been fer that Ah doot ye'd ha' seen nae glint o' the fire thro' the mirk this nicht,—naught but the bit shop as silent an' glowerin' 's the tomb."

"That's what I'm wondering about," I said. "You're not often up as late as this, Jock."

"Ah cudna sleep," he said, "sae Ah just oot o' bed an' set tae a bit o' wark that's waitin'. The deil o't wis that wi the door an' window baith tight as drums, the place sune het up like the infernal regions, an' I swat till I wis fair reekin'." —Jock dearly loves to add to his vocabulary, especially words long and resounding, and odd enough the effect often is when they intermingle with his "braid Scots."

"But why did you let it get hot as the infernal regions?" I asked. "Why did you have the door and windows closed?"

"Juist tae haud the glimmer frae shinin' oot," he said. "Come awa' intae the smiddy an' see the why o't."

I followed him, and as soon as we had passed through the doorway he drew the door to and shot the bolt. "Gin a wanderin' buddy strays along," he explained, "it'll gie's a jiffy tae clean up a bit afore lattin' him keek in."

And then, by the side of the glowing forge I saw a pile of metal things that were new to me.

I picked one of them up and turned it over and over without finding enlightenment, while Jock watched me amusedly.

"Weel, what d' ye mak' o't?" he asked. "It beats me," I replied. "Is it—is it a new-fangled tip for a plough-point?"

At that he laughed gleefully, bringing the flat of his hand down on his "brecks" with a thwack.

"It's no that," he said. "Maybe it's teeth for a drag," was my next venture.

Again he laughed. "Ye're comin' on

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I declined he insisted. He was going to show me, he said. I drew myself off and proceeded to the hitching-post, while he stood behind him on the flanks with his hand.

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did you let it get hot as regions?" I asked. "Why ve the door and windows haud the glimmer frae he said. "Come awa' intae n' see the why o't."

him, and as soon as we had gh the doorway he drew and shot the bolt. "Gin buddy strays along," he 'll gie's a jiffy tae clean up tin' him keek in."

by the side of the glowing pile of metal things that ne. ne of them up and turned over without finding en- while Jock watched me

d' ye mak' o't?" he asked. "Is it—is it a up for a plough-point?" laughed gleefully, bringing hand down on his "breeks"

t," he said. teeth for a drag," was my laughed. "Ye're comin' on

10 Searching Questions About the Maxwell and 10 Frank Answers; Read Them, for They May Decide Your Choice of a Car

Q.—Reduced to one point what is the single greatest thing you can say about the Maxwell?

A.—It is reliable.

Q.—What makes it reliable?

A.—The chassis was designed five years ago to be extremely simple. Then we kept on making and making Maxwells all alike on this chassis year after year until now we have made 300,000 of them. Our policy is to do one thing well and thus obtain perfection.

Q.—Have you changed the original design any?

A.—Not in any single fundamental. We have added an improvement here and there from time to time—but no changes from our original program.

Q.—Have there been any great chassis improvements in the last 5 years?

A.—We believe not. There have been multi-cylinder cars and multi-valve cars; but in a car sold in Canada under \$1300 we do not believe them to be practical.

Q.—How much of the Maxwell car do you build?

A.—We believe that we manufacture more of the parts that go into our car than any other manufacturer.

Q.—Why do you do this—can you

not buy parts from others cheaper than you can build them?

A.—In some cases yes; but not so good as we can build them. In other cases no, for besides our 7 great plants in the United States—an investment that runs into many millions of dollars—we operate a big Canadian plant at Windsor, Ont., carry a tremendous inventory, have a rapid "turnover" and a large one. Besides, we make parts for cars other than our own including some that cost in excess of \$4000.

Q.—Has the Maxwell every modern equipment?

A.—Yes, even including the carrying of the gas tank in the rear.

Q.—Have you improved the appearance of the Maxwell any?

A.—Yes. We have made a vast improvement in the last few months—so much so that many persons thought we produced a new model. Note the illustration. This is drawn from a photograph without the slightest exaggeration.

Q.—How about parts?

A.—There are many hundreds of thousands of dollars in parts carried by our Maxwell dealers all over Canada.

Q.—Will you reduce the present price if I buy a Maxwell now?

A.—No. The present price is guaranteed until July.

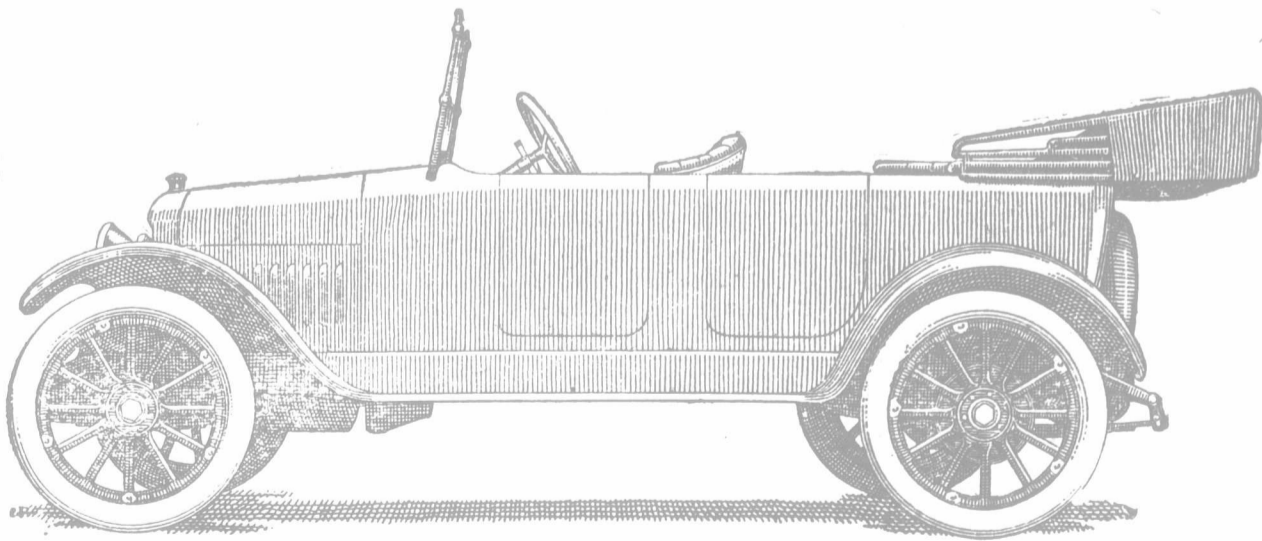
Price \$1275 f. o. b. Windsor, Ont.

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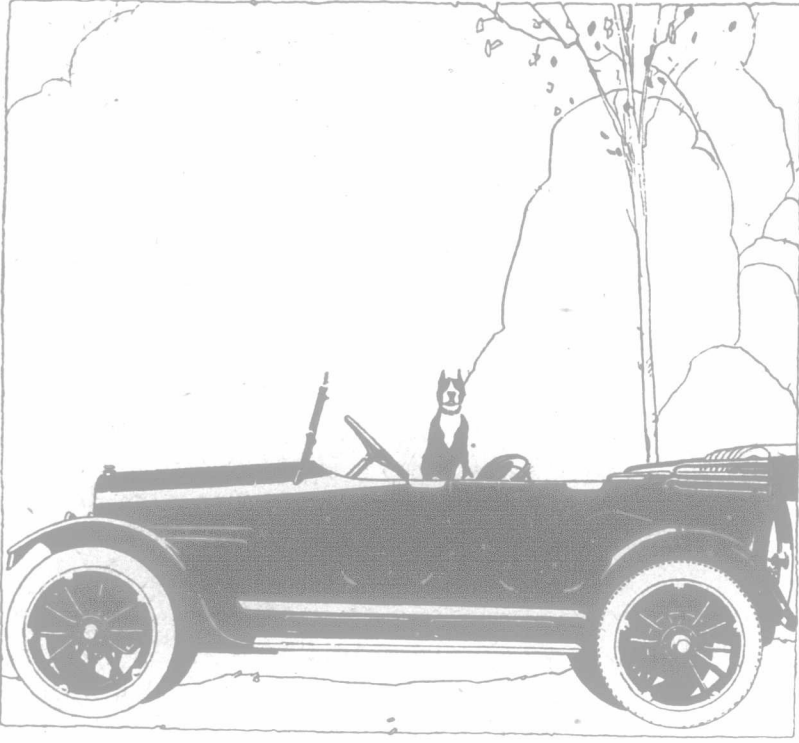
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 WINDSOR, Ont.



More miles per gallon
 More miles on tires



Overland
TRADE MARK



"Let's Go"

Under all weather and road conditions, the Overland Model 90 has won its present high reputation as a car that is easy to start, easy to run, and economical to maintain. This reputation is founded on ten years of constant effort to merit the appreciation of the public. The Overland car to-day is more deserving than ever of that prestige which has grown from the enthusiasm of thousands of owners.

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Willys-Knight and Overland Motor Cars and Light Commercial Wagons
Head Office and Works, West Toronto, Ontario
Branches; Montreal, Winnipeg and Regina.

Model 90 Touring, \$1460, Model 85-4 Touring, \$1495; Model 88-4 Touring, \$2575;
Willys-Six, \$2425. f. o. b. Toronto

fine! Sune ye'll be roun' a' the agricul-
tooral eempliments."

"Is it —is it— oh, give it up, Jock.
Tell me."

And then at once he became very
serious and came a little closer to me,
lowering his voice when next he spoke.

"Can ye no imagine what use ye cud
gar o't were 't at the end o' a cudgel?"
he suggested.

"Why—it might do for a crow-bar,"
I conjectured, "if the stick were tough
enough,—elm, maybe, or hickory."

He nodded quickly, watching me as
I still turned the article over, examining it
more closely.

"Noo ye've said it," he assented "elm
or hickory maybe,—but it's no fer a crow-
bar."

"Then what in the name of all curiosity
is it?" I said. "What in thunder are you
doing here in the dead of night making
trinkets like this?"

"Trinkets?" he repeated, smiling. "Aye,
it's no sae formidable on the surface o't
as a pleugh-point, is 't?"

Then he glanced towards the window
over which his coat had been hung,
as I now saw, in apparent carelessness,
and lowering his voice, said.

"No sae formidable on the first
glance o't as a pleugh-point, but, Alan,
what d'ye say gin Ah tell ye it 'is a head
fer a pike, laddie?"

"For a—pike?"

"Aye—fer a pike? Laddie, they're
bein' wrought by the score an' the
hunnerd i' the smiddies ower a' the kintra,
—awa' North at the Landin', an' South
ayont the Forks, an' awa' tae the West.
Noo, hae ye no idea o't, laddie?"

And then the light broke upon me.
"They're not for weapons, Jock!" I
exclaimed.

"Fer juist that," he replied. "There'll
no be rifles an' muskets tae gang roun',
an' sae thae pikes is i' the makin'. Laddie,
wi' yer grievin' ye've tint yer grip on the
times, an' that's wi' nature surely. But,
laddie, sinsyne the—the mishanter—
cam' tae 's a' the sair day a month or mair
synce there's been uncoss gae'n on a' ower
the kintra. The hale kintra 's juist
seethin', Alan, an' some day there'll
come the spate. Ah doot, laddie, cud
ye hae lookit doon frae aboon this night,
instead o' skelpin' along ower the high-
ways, ye'd ha' seen the forges glowin'
i' mony o' the wee smiddies, an' the
chiels gangin' thro' their paces i' the
glens o' the forest, an' the fields behint
the hills, an' far back frae the paths an'
roadways."

"I have heard about the drillings," I
said, "but I did not know about the
pikes.—" "They don't look very dangerous,"
I added, dropping the one I held in my
hand on the pile.

"Ye'd tell a deefereent tale gin ye got a
crunt wi' ane o' them," he bristled.
"But there's bullets, too, i' the makin'.
Aiblins cud ye keek intil the mill at this
vera meenute ye'd see Hank, an' Ned
Burns, an' Dick Jones, an' mair o' them
bizzys' bees i' the claver. They're
warkin' hard o' nights noo."

"They are!" I exclaimed.
"Aye. An' e'en i' the hooses the guid-
wives an' kimmers is helpin' wi' them.
But it's men no woves they're garin'
them for this time."

All this almost took my breath away,
for I had not known that affairs were
progressing so.

"Have they, then, decided to fight?"
I asked.—"It wouldn't need many
bullets for a 'demonstration'."

"Hoots, mon! ye wadna hae them
gang up wi' dummy rifles like a lot o'
weans on the Queen's birthday," he
said. "There'll maybe no be fechtin'—
yet— There's nae tellin'."

And then, finding me interested, he
continued: "The lads'll be tae Jimmy
Scott's again the morrow evenin', an'
'll be unco' fain tae see ye gin ye tak' a
notion tae be there."

"Perhaps I'll go, Jock," I said.—"I
think I've—looked everywhere."

He put his big hand on my shoulder.

"Ye've dune that, Alan, lad," he
said. "Aiblins the lass 'll come back
ae day frae somewheres ye've no thocht
of at a', nor wadna, nor ony of us. An'
ye're wearin' yersel' oot, laddie. Ye'd
better juist be content tae bide a wee,
noo, an' see what 'll come o't."

And then I looked away from him and
down at the little pile of iron pikes, and
it seemed to me that all the world was
full of pikes, and that the Universe itself
was forging pikes to enter my soul.
For no longer were there the old happy
care-free days. Would they never come

"I'll be roun' a' the agricul-
ments."
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again? Without Barry, for me I knew that they could never come.

So wrapped was I in the sad reverie into which I had fallen that for the moment my ears were deaf, and then I realized that Jock was saying.

"But ye're fair forfairn, laddie, an' Ah've been haudin' ye frae yer bed tae hearken tae ma clash. Noo juist sit ye still an' Ah'll get ye a bite an' sup."

He went "ben" and in a moment came back with a bannock and a cupful of good ale which I drank gladly enough, for indeed I was "fair forfoughten."

On the next evening I mentioned to my father the advisability of my joining the boys at Jimmy's, and to my surprise he did not object. Perhaps he thought the diversion of the drilling might take me somewhat from the melancholy which had taken possession of me and place me again on my feet among men.

So it was that, with little enough interest, I must confess, I made my way through The Block, pondering as I went on how strange are these affections of ours, which, for the sake of one beloved, can blot out so large a part of the horizon of the world. He must be a great man, I thought, who for the welfare of the great whole can turn aside from a beloved one; and yet this is what men have been called upon many a time to do.

Near the clearing I fell in with some of the boys converging towards the little spot which has assumed such unwonted significance, and soon our little body was afield, "going through our paces under The Schoolmaster's instruction, while Hannah sat on the doorstep knitting. Inside, someone said, Mistress Jones and one or two more of the women were moulding bullets, which may have been so, since we did not see a sign of them all evening save, now and then, through the doorway, the flit of a skirt.

Already, I found the boys were marvelously facile in forming fours, and standing at attention, and wheeling right and left, and all the rest of it; and before it got too dark there was some banging with rifles at a target. In this some of our lads have long been very proficient, for food-getting in the woods demands quickness of sight and motion, so that it is considered no great thing at all to notch a bull's-eye in a stationary target.

This evening Hank's father dropped in for a while, and he and my father talked long about all these things, sitting on the bench by the door, while my mother, in her Sunday gown, sat near them, and I too on the door-step.

My father thinks the whole affair looks ugly. When men begin to shake their fists, he says, it's a short way to using them, the same being true of mobs and nations; and he always ends by observing that actual rebellion in this Province, at this time, could result only in disaster, since a few bush-men, poorly trained at best, and worse armed, could have no chance whatever against trained militia and perhaps heavy guns. Moreover, failure, he holds, would be but the preface to conditions much worse than before, since the Government, by way of punishment and example, would consider itself justified in resorting to extreme measures.—With his experience of real war, it seems to me, this opinion might be worth listening to, but when I observed that to The Schoolmaster one day he said: "What if the immediate attempt does meet with disaster? What can it matter if conditions are worse than before?—In the end the things for which the attempt is made must be granted. That has nearly always been the way with forward movements. First there must be sacrifice.—We want things done in a day, or a month, or a year. But all great progress moves slowly, so far as man is concerned. We cannot hurry it greatly, it seems, and yet if we do not move at all neither will it move, and all posterity must suffer."

This, I think, reveals a far vision, which sometimes I catch sight of, and yet I cannot but feel, as my father does, for the women and children who are here with us now,—aye and for the men and lads too, for it is a sore thing to fail, when one has thought one has done right, and even be compelled to suffer for it.

Hank's father is inclined to pooh-pooh the whole matter. The plan will scarcely come to a head, he thinks, and he passes

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IT is now universally admitted that chocolate is a food—a sustaining food.

During the war millions of tons of chocolate were sent to the Front.

Our Canadian soldiers early found that eating chocolate was not only pleasing to the taste, but restored vitality and gave renewed energy.

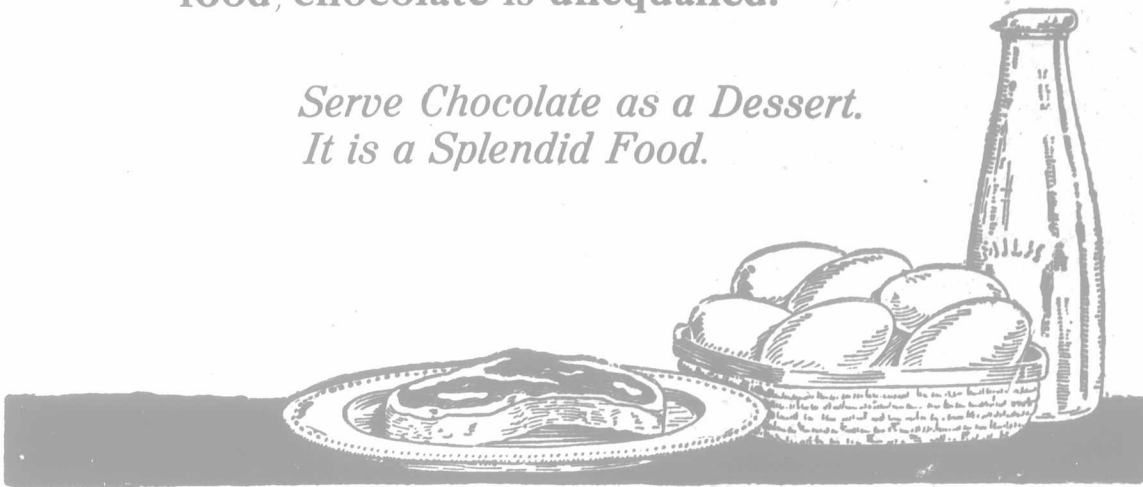
Brigadier-General L. W. Waller of the U. S. Marines, referring to the food value of chocolate, said—

"I never went into a campaign without chocolate. I always have a few cakes in my haversack when I go into action. Men fight like the devil on chocolate. Seasoned soldiers take it on the march with them."

It is a matter of actual scientific demonstration that one pound of chocolate produces the same amount of body-building nutriment as six eggs, a pint of milk and one pound of steak.

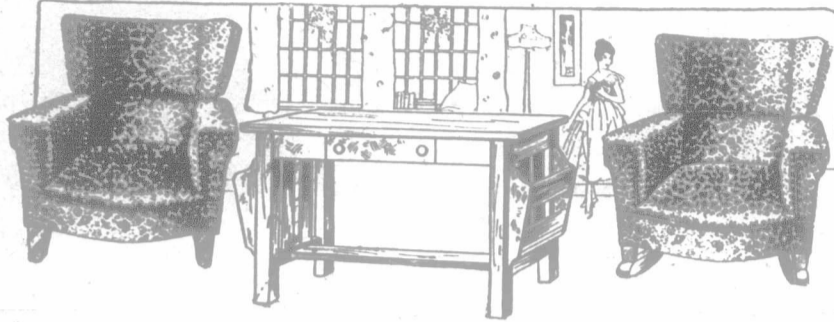
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papers; size of table top is 22 by 36 inches and the rich, nut brown fumed finish is pleasing. The Armchair and Rocker are a new design and have a fine appearance; notice how the front and back is shaped; oil-tempered coil spring seats; width over all is 30 inches; height of back from seat 23 inches; depth of seat 20 inches; covered in brown Fabrikoid leather substitute. Price for the suite of 3 pieces **\$39.80**

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Current Events.

A policy for Government financial aid towards the construction of consolidated schools in Ontario is to be introduced into the Legislature by Hon. Dr. Cody, Minister of Education.

The Grand Trunk Pacific Railway was declared bankrupt and taken over by Hon. J. D. Reid, Minister of Railways, acting on behalf of the Government.

All restrictions on imports from all parts of the British Empire to Great Britain have been removed.

A bill to regulate public utilities in British Columbia, through a commission is to be introduced into the Legislature.

A "middle-class" union, of professional and salaried people, has been launched in England.

Field-Marshal Sir Douglas Haig has been appointed to succeed Gen. Sir William Robertson as Commander-in-Chief of the Home forces. Gen. Robertson is to be Commander-in-Chief of the Army of the Rhine.

The new British naval airship which is to fly across the Atlantic is nearing completion at Barrow. It will carry a crew of 16 and a number of passengers.

The Greeks and Armenians, probably under guidance of Venizelos, are joining to form a new "Near East."

Viscount Ishii, Japanese Ambassador, to the United States, is urging that country to support, at the Peace Conference, a movement against racial discrimination.

The revolt of the Reds is almost at an end in Berlin, where the severest measures have been put in force against the Spartacists; only in Saxony are the disturbances still serious. Julian Grande writes that women and children in Germany are dying by tens of thousands of starvation, and Canadian soldiers also are protesting against seeing women and children dying about them for want of food. Speedy assistance, it is urged, is the one security against Bolshevism and all its dangers.

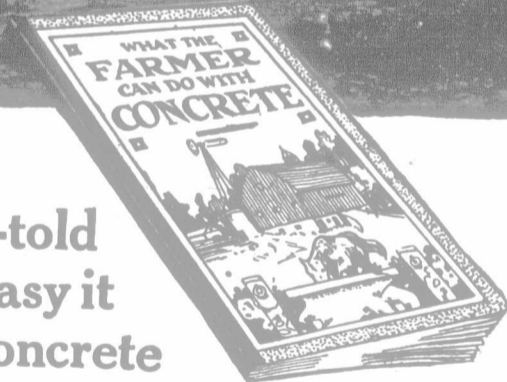
All neutral nations in Europe, Asia and South America have been asked to attend an unofficial Conference in Paris on March 20. The draft of the measures recommended by the Conference will be ready, it is estimated, by March 22. Among those decided upon during the past fortnight are the following: All creeds that do not contravene public morals to be free under the League. The Labor proposals recently outlined not to be enforced, but recommended by a permanent International Labor Bureau which shall make recommendations for all labor problems, trusting to discussion and public opinion to bring about results.

All German airplanes to be delivered to the Allies at once and no more to be constructed until the conclusion of peace; after that no military airships to be constructed in Germany, but only those to be devoted to commercial use. The German fleet to be limited to 6 battleships, 5 cruisers, 12 800-ton destroyers, and 26 smaller destroyers—these to be used chiefly in policing the Baltic. German armies to be reduced to a mere police force of 100,000 men, by voluntary enlistment, all artillery and other equipment in excess of the needs of the reduced army to be surrendered; munitions in Germany to be curtailed; certain important fortifications to be destroyed; the Imperial General staff to be abolished. The Supreme War Council also proposes to take over German merchant ships in return for a food supply until the next harvest. It is understood that payments for war damages will come from: 1. Products such as coal and potash. 2. German credits in neutral countries. 3. Foreign securities held by Germany. Germany is also to be required to relinquish her leasehold of Tsing-Tao and all properties and concessions in Shantung.

It has been decided that Peace shall be signed before the Adriatic problem and League of Nations have been settled. In the United States a certain clique in the Senate, opposed to President



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over Hank's enthusiasms by laughing at them, as he has always done. "Hank was always an excitable youngster," he says, "He'd run a mile any time to be in at a dog-fight."

While he talked thus my mother's face brightened, and she brought out a letter from my Uncle Joe, which arrived this week from Toronto, and which seems to corroborate his opinion in regard to the unlikelihood of an outbreak,

stating that the Government is well aware of the on-goings, and that prominent Tories at the Capital merely laugh at them, thinking very little of would-be soldiers who would come up with pikes. "There aren't any little Davids nowadays," wrote my uncle, to which my father rather dryly observed, "But there are plenty of Goliaths."

My mother has been anxious and

nervous about what may come. I have observed, however, that women have a tendency to try to cross their bridges before they come to them.

—And now I must go to bed, for I am very tired. This month of worry seems to have filched my strength as well as my spirits.

To be continued.

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Write for circulars on how to do your whitewashing.

Desirable Stock Farm in Western Canada For Sale

Owing to business reasons demanding my attention in Scotland, I have decided to offer for sale by private treaty, the well-known KILALLAN STOCK FARM, operated for the past ten years as a pure-bred Clydesdale breeding establishment. This farm is situated in the great mixed farming belt of Central Alberta, close to the main line of the C.P.R. with convenient station half mile distant, and is 60 miles from Edmonton, the Capital of the Province of Alberta. TOWN STORES and SCHOOL at Ohaton, two to three miles; and larger educational centre of Camrose 14 miles distant. FARM CONSISTS OF 900 ACRES, in one block, good level land; 500 acres under cultivation, balance pastures, well fenced with ten miles of fencing, 6 1/2 being heavy woven wire, and well sheltered and watered. SOIL, BLACK LOAM WITH CLAY SUBSOIL, BUILDINGS, Frame House, 8 rooms, pantry, bathroom, etc., hot and cold water, and hot-air furnace, Long Distance telephone, BARN-HORSE STABLE, 72 x 68 feet, holding 31 head of horses, 7 loose boxes, loft, harness room, feed room, water tank, engine room, modern granary with elevator, 4 loose boxes, 40 x 36 feet fitted with stanchions, 4 loose boxes, Shop, Hen-house, also Implement Shed, Blacksmith Granaries and TWO-ROOMED BUNK HOUSE FOR MEN, TWO WELLS WITH WINDMILLS, and four large tanks, three in pastures, one in barn. This farm is eminently suited for the breeding and raising of pure-bred live stock. It is close to the best market centres of Western Canada, has the best of shipping facilities and is considered a most desirable proposition for anyone wishing to go in for high-class stock raising. The present can be taken over, if so desired by purchaser, at mutual valuation. For full particulars and attractive terms apply to **NORMAN A. WEIR, Ohaton, Alberta.**

Wilson politically, are raising a propaganda against the League of Nations constitution approved by him. Returning American soldiers keenly resent this attempt of the Senators, and President Wilson trusts to them, and to public opinion generally, to approve of the stand he has taken. In the meantime, Socialists everywhere are insisting that, if war is to be stopped forever, the fleets and armies of all countries and not of Germany alone, shall be done away with. Premier Lloyd-George, it is understood, is in favor of general disarmament, but France objects.

The Ingle Nook

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

Feeding An Infant.

An Ingle Nook friend asks how to prepare cow's milk for a baby. The following formulas have been taken from Dr. Dr. Emmett Holt's book on *The Care and Feeding of Children*.

A quart bottle is taken as the measure, and it has to be kept in mind that the milk of cows varies in fat. A healthy baby with good digestion can take more fat than one of weaker digestion.

For healthy infants with good digestion use milk containing 10 per cent. fat. This is got by using the top milk in the bottle; (1) From a rather poor milk (containing 3-3 1/2 per cent. fat) by removing the upper 8 oz. from a quart or one-fourth. (2) From good average milk (4 per cent. fat) by removing the upper 11 oz., or about one-third. (3) From rich Jersey milk (5-5 1/2 per cent. fat) by removing the upper 16 oz., or one-half.

The top-milk is best when one can get milk fresh from the cows, as on a farm. In cities milk and cream, bought separately have to be mixed.

Formulas for the early months from 10 per cent. milk are as follows:

	I.	II.	III.	IV.	V.
	oz.	oz.	oz.	oz.	oz.
10 per cent milk.....	2	3	4	5	6
Milk sugar.....	1	1	1	1	1
Lime water.....	1	1	1	1	1
Boiled water.....	17	16	15	14	13
	20	20	20	20	20

It is best to make up 20 oz. at a time. One should not make the mistake of taking from the top of the bottle only the number of ounces needed in the formula as this may give quite a different result. The whole fourth, third or half of the bottle should be poured off and mixed up to make the fat even.

For a baby that cannot digest 10 per cent. milk, a 7 per cent. milk is better. To get it: (1) From a rather poor milk remove the upper 11 oz. or about one-third, from a quart. (2) From good average milk remove the upper 16 oz., or one-half. (3) From rich Jersey milk remove the upper 22 oz., or about two thirds.

Formulas for the early months from 7 per cent. milk:

	I.	II.	III.	IV.	V.
	oz.	oz.	oz.	oz.	oz.
7 per cent. milk.....	2	3	4	5	6
Milk sugar.....	1	1	1	1	1
Lime water.....	1	1	1	1	1
Boiled water.....	17	16	15	14	13
	20	20	20	20	20

Proceed as for 10 per cent. milk in preparing. In both cases as the milk sugar dissolves in the water the total in each column will be 20 ounces. The food is strengthened, when necessary, by gradually increasing the milk and reducing the water.

Usually Formula I may be used on the second day; II on the fourth day; III in a week or 10 days; after that make the increase more slowly. A large infant with a strong digestion will bear a rather rapid increase, and may be able to take V by the time it is 3 or 4 weeks old. A child with a feeble digestion must go much slower and may not reach V before it is 3 or 4 months old.

Dissolves "trouble" too!

Grease and dirt are very real household troubles.

But don't worry!

Gold Dust dissolves grease quicker than soap—also more thoroughly and more economically.

Have you ever used such a gentle cleanser as Gold Dust? It never scratches nor mars the finest surfaces. Gold Dust is the "soapiest" of cleansers.

Ask your grocer to send you a large or small package of Gold Dust—and make sure the Gold Dust Twins and the words "Gold Dust" are on it.

THE FAIRBANKS COMPANY LIMITED MONTREAL

GOLD DUST
The Busy Cleaner

MADE IN CANADA

Let the Gold Dust Twins do your work



Partridge Tires

Game as Their Name Wear Down All Road Resistance

Made by The E.E. Partridge Rubber Company, Limited, Guelph, Ont.

This Engine Has Proved Its Value

—it has demonstrated itself as an indispensable part of the equipment of the up-to-date farm. It has proved that its low first cost, its more-than-rated-power record, its economy of upkeep, its simplicity and its low fuel cost make it the logical farm engine.

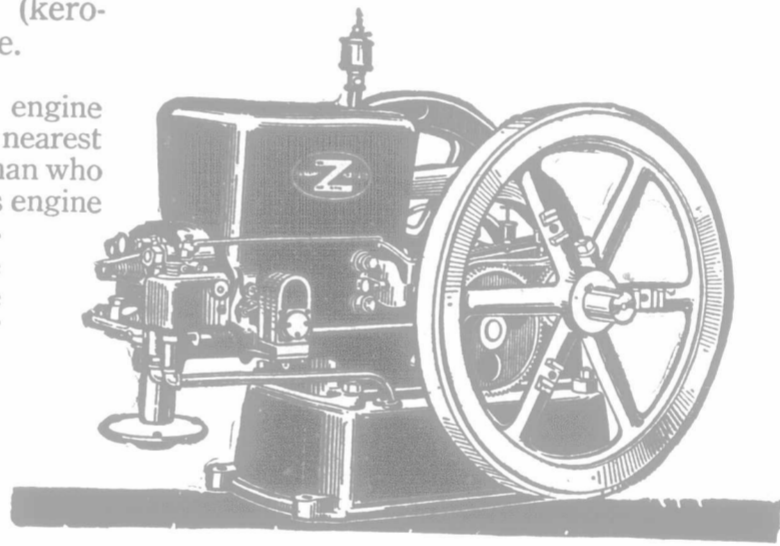
The 6, 3 or 1½ H. P. "Z" Engine

were designed and have been built to meet every requirement of the farmer. Over 200,000 have proved this to their satisfaction.

This is the engine you need on your farm—the engine that has been proved up, that will save you money, worry and labor.

The "Z" Engine burns either coal oil, (kerosene) or gasoline.

Investigate this engine today. Ask your nearest dealer; he is the man who stands behind this engine as a direct representative of the manufacturer. He is always at your service to see that you are satisfied.



The Canadian Fairbanks-Morse CO., LIMITED

St. John, Quebec, Montreal, Ottawa, Toronto, Hamilton, Windsor.

The ten per cent. milk should be used for strong infants for 3 or 4 months. After that preparations should be made that are stronger chiefly in proteid rather than in fat. For this a 7 per cent. milk should be used.

Formulas for the later months from 7 per cent. milk:

	I.	II.	III.	IV.	V.
	oz.	oz.	oz.	oz.	oz.
7 per cent. milk	7	8	9	10	11
Milk sugar	1	1	1	1	1
Lime water	1	1	1	1	1
Boiled water	12	11	10	9	8
Barley gruel	0	0	0	5	5
	20	20	20	20	20

Beginning with I of this series, which should usually follow V of the First

or Second Series, the increase may generally be made in a week or 10 days to II; in about two weeks more to III, now more slowly to IV and V. When IV or V has been reached the same formula may sometimes be continued for 3 or 4 months with no other change than an increase in quantity.

Usually about the 6th or 7th month barley gruel takes the place of part of the water and part of the sugar. At 10 or 11 months the proteids may be still further increased, and the sugar and lime water reduced until plain milk is given. For instance, at first one feeding a day of plain milk and barley gruel may be given; later two feedings; then three feedings, etc., the changes being made at intervals of about 2 weeks. The quantities of the milk and barley gruel should be about 5½ oz. milk, 2½ oz. barley, 6 oz. milk, 3 oz. barley;

still later 7 oz. milk, 2 oz. barley, until finally plain milk is given to drink and the cereals given separately with a spoon. This point is reached at from 12 to 15 months. Other farinaceous foods, well cooked may of course be used in place of the barley. If the infant objects to the taste of the milk when the milk sugar has been omitted, a small quantity of granulated sugar may for a time be added to each feeding, then gradually reduced.

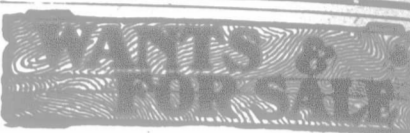
For a sickly child of very weak digestion none of the above formulas may be good. In that case it is best to consult a physician.

Milk sugar, it may be noted, is better than other sugar because easily digested. It can be bought at a drug-store.

And now a few words "off my own bat" (Junia speaking). For the past 4 months I have been living in a house

Sure Cure for HEAVES

Archie Forbes, of Dublin, writes: "The CAPITAL HEAVES REMEDY I received from you before has done wonders for me. I had a horse last spring which I had given up for a goner. Your Heave Remedy made a new horse of him and I work him every day since."
24 years of success is our reason for selling CAPITAL HEAVES REMEDY under our money back guarantee.
TRY IT FREE
We will send a full week's trial for 50¢ to cover postage and wrapping.
Veterinary Supply House, 750 Cooper St., Ottawa



Advertisements will be inserted under this heading, such as Farm Properties, Help and Situations Wanted and Pet Stock.

TERMS—Four cents per word each insertion. Each initial counts for one word and figures for two words. Names and addresses are counted. Cash must always accompany the order. No advertisement inserted for less than 60 cents.

COLLIES FOR SALE—LITTER PEDIGREED puppies. Parents both splendid workers. B. Armstrong, Morganston, Ont.

DAIRY MEN WANTED.—APPLY C. C. Dawson, Military Hospital, Guelph, Ontario.

FOR RENT, OR WORK ON SHARES, 100 acre dairy farm, fully equipped, good soil, adjoining the village of Thamesford. J. D. Lawrence, Thamesford, Ont.

FOR SALE—200 ACRE FARM, FIRST-class condition, buildings included. Apply F. H. Orris, Box 142, Springfield, Ontario.

MAN WITH FOUR SEASONS' EXPERIENCE wants job of handling stallion for coming season. Wages, sixteen dollars per week. Dan Weir, R. 3, Belmont, Ont.

SINGLE MAN—WHO UNDERSTANDS working around cattle and on farm. Please state wages by year. Apply A. J. Fox, Harrow, Ont., R. R. No. 3.

TEACHERS OF WESTERN CANADA, professional teachers, normal and model, schools open March, April and May, continuing till Christmas. Salaries ninety to one hundred and twenty per month. Write for particulars, state qualifications. Western Teachers' Bureau, Winnipeg.

WANTED—MARRIED MAN—OR—MARRIED man and son, understanding general farming—good milker and good horseman—best of wages, house, garden and milk supplied—yearly position. Apply Box 449, Trenton, Ont.

WANTED—SINGLE MAN, UNDERSTANDING general farming, good milker and good horseman. State wages per month; board furnished. Yearly position, if desired. Apply Box 449, Trenton, Ont.

WANTED—EXPERIENCED MAN TO operate Buckeye Traction Ditching Machine. Steady work, good wages, or wages and percentage. Bell's Limited, Grimsby.

WANTED—GIRL TO ASSIST IN GENERAL housework. Give references and state monthly wages you think you can earn. Mrs. James G. Lorrimer, Preston, Ont.

The Hawthorn Shorthorns

Just 1 extra good red bull left, 11 months, by our, herd sire. Priced to move. Females all ages, Clydesdale fillies and Leicester Sheep.

ALLAN B. MANN, The "Hawthornes," Peterboro, Ont., R.R. 4.

Seed Oats and Barley

O.A.C. 72 and O.A.C. No. 21. First Prize in Field Crop Comp. and winner of many firsts at local and Winter Fairs. Sample and prices on request. Oscar Klopp, Zurich, Ont. Seed Grower

WINTER EGGS

My pen of 20 bred-to-lay White Wyandottes laid from Dec. 1, to Feb. 28 1,368 eggs. Get your foundation from one who keeps records. A limited number of settings from Barred Rocks or White Wyandottes \$2 per 15. Book your orders at once. Baby chicks after April 20.

I. HAMMOND, Perth, Ont.

Eggs and Poultry Wanted

We have a big demand for eggs. Also for good poultry, either alive or dressed. We prefer to receive heavy hens alive, and young cockerels either alive or dressed. It will pay you to sell to

C. A. MANN & CO. 78 King Street London, Ontario

where there is a baby now 10½ months old. When she was 3 months old, her mother, a trained nurse, besides nursing her, gave her every 4 hours half an arrow-root biscuit, well boiled with a very little cow's milk added to it and some milk sugar. This was continued for 2 weeks, then a whole biscuit was given at each feeding for 4 weeks. After that a biscuit and a half was put in, and at the end of 6 weeks increased to 2 biscuits, the milk all the time being slightly increased. In addition, from she was 3 months old, orange juice was given every morning, increasing from 2 teaspoonfuls gradually until the juice of half an orange was given at a time. Always time was given for the orange juice to digest (say half an hour) before feeding. The 'babe' was not, however, thriving as well as she might have, and so a physician was consulted. He thought

Sure Cure for HEAVES

Forbes, of Dublin, writes: "The AL HEAVES REMEDY I received before has done wonders for my horse last spring which I had given up. Your Heave Remedy made a horse of him and I work him every day."

Success is our reason for selling THE HEAVES REMEDY. Our money back guarantee.

SEND A FULL WEEK'S TRIAL FOR 50c. to Postage and wrapping.

Supply House, 750 Cooper St., Ottawa.

Choosing Pictures.

ONE of our Ingle Nook friends writes us asking advice about buying pictures for her home. She wants "good" pictures, she says, and has decided she can spend the amount of money at her disposal better on good prints than in any other way. We are delighted to refer her to the Perry Pictures Co., Boston, and the Copley Prints Co., Boston, both noted picture firms. Write to them for a catalogue. Quite famous pictures that afford a selection are the following:

The Mona Lisa, by Leonardo Da Vinci.
Study of Christ Head by Leonardo Da Vinci.
Sistine Madonna—Raphael
The Cornfield—Constable.
Flight Into Egypt—Claude Lorraine.
The Lake—Corot.
 Pictures by G. F. Watts, Rosetti and Burne-Jones.
The Water Wheel—Hobbema.
Boy Blue—Gainsborough.
Duchess of Devonshire—Gainsborough.
Lady Hamilton—Romney.
On the Beach—Alfred Stevens.
The Broken Vase—Greuze.
A Landscape—Inness.
Carnation, Lily, Rose—Sargent.
The Prophets—Sargent.
A Nocturne—Whistler.
The Athlete—Michael Angelo.

OF WESTERN CANADA, teachers, normal and model, March, April and May, continuing 18. Salaries ninety to one hundred per month. Write for particulars, Western Teachers' Bureau.

MARRIED MAN—OR—MARRIED, understanding general farming, and good horseman—best of wages, and milk supplied—yearly position, 19, Trenton, Ont.

SINGLE MAN, UNDERSTANDING farming, good milker and good state wages per month; board fully position, if desired. Apply Box 10, Ont.

EXPERIENCED MAN TO Muckeye Traction Ditching Machine, good wages, or wages and per cent. Limited, Gimsby.

GIRL TO ASSIST IN GENERAL housework. Give references and state monthly ink you can earn. Mrs. James G. Weston, Ont.

withorn Shorthorns
 good red bull left, 11 months, by our, bred to move. Females all ages, Clydesdale Leicester Sheep.

MANN, The "Hawthornes,"
 Ont., R.R. 4.

and Oats and Barley
 and O.A.C. No. 21. First Prize in
 amp. and winner of many firsts at
 ter Fairs. Sample and prices on
 Kioopp, Zurich, Ont. Seed Grower

ENTER EGGS
 bred-to-lay White Wyandottes laid
 to Feb. 28 1,368 eggs. Get your
 in one who keeps records. A limited
 ings from Barred Rocks or White
 2 per 15. Book your orders at
 hicks after April 20.

IOND, Perth, Ont.

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 demand for eggs. Also for good
 alive or dressed. We prefer to re-
 ens alive, and young cockerels either
 l. It will pay you to sell to
 A. MANN & CO.
 London, Ontario

is a baby now 10½ months
 she was 3 months old, her
 rained nurse, besides nursing
 every 4 hours half an arrow-
 well boiled, with a very
 milk added to it and some
 This was continued for 2
 a whole biscuit was given
 ing for 4 weeks. After that
 a half was put in, and at the
 ecks increased to 2 biscuits,
 the time being slightly in-
 addition, from she was
 id, orange juice was given
 ng, increasing from 2 tea-
 gradually until the juice of
 e was given at a time. Al-
 as given for the orange juice
 y half an hour) before feed-
 babe was not, however,
 well as she might have, and
 was consulted. He thought

that probably she was not getting enough fat, and advised weaning her and adding cream to her food. This began about 6 weeks ago, the cream being added to the well-boiled arrow-root biscuit, while the orange juice was still to be given. At once the change began to be noticeable. From the very moment the use of the cream began the little Miss began to gain, and now boasts cheeks as red as two rosy apples, and is so active that her mother thinks she has the career of a circus acrobat ahead of her. This example surely shows the importance of food, and of consulting a doctor when there is any doubt. A child is so precious that it should not be permitted to start life handicapped by a weak or stunted body.

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Lady Hamilton—Romney.
On the Beach—Alfred Stevens.
The Broken Vase—Greuze.
A Landscape—Inness.
Carnation, Lily, Rose—Sargent.
The Prophets—Sargent.
A Nocturne—Whistler.
The Athlete—Michael Angelo.

COWAN'S PERFECTION COCOA

START THE DAY RIGHT

with a cup of this delicious Cocoa for breakfast. It makes a splendid foundation for the day's work.

Retains the Natural Flavor of the Cocoa Bean.

Made in Canada
 THE COWAN COMPANY Limited
 Toronto

When writing advertisers will you kindly mention The Farmer's Advocate.

Portrait of a Lady—Franz Hals.
The Wise and Foolish Virgins—Piloty.
A Reader—Menzel.
The Lute Player—Hunt.
The Card Players—Caravaggio.

When the Fruit Jars are Empty.

At this time of year, when the fruit supply is running low, and before rhubarb is in, more or less recourse must be made to substitutes, and to filling the jars with such fruit as can be procured. Grapefruit, oranges and lemons can be made, singly or mixed, into marmalade; dried fruits can be utilized, and even made into jam; while custards can be made to fill a place very nicely.

English Marmalade.—This recipe was sent by a kind Ingle Nook reader some time ago. It will bear repeating: 8 Seville oranges, 1 sweet orange, 8 pints water, 8 lbs. sugar. Cut each orange in half then in quarters, then in eighths, then cut in the smallest possible slices, using up skin, pulp, everything but the seeds, which must be removed as you go. Place in an earthen or granite dish and cover with the water and let stand 48 hours. Now bring to a boil, and boil 40 minutes. Next add the sugar and boil hard for another 40 minutes.

Amber Marmalade.—Shave very thin 1 orange, 1 lemon, 1 bitter orange, and 1 grapefruit. Measure, and add 3 times the quantity of water. Let stand overnight, then boil 10 minutes. Let stand another night, then add pint for pint of sugar and boil until it jellies. There will be enough to make 12 glasses. When cold cover with melted paraffin.

Dried Fruit.—Dried fruit—peaches, apricots, prunes and apples—is never good unless well soaked. First wash well, then put in warm or cold water, cover and let stand overnight, in an earthen or granite vessel. Cook in the same water, very gently, and when nearly done add sugar to taste. Put a dash of nutmeg or vanilla in stewed dried apples and serve with cream, and they will be a dish fit for a king.

Date Custard—Dates need to be washed

The Time Tried Cultivator

A Vital Point in Seeding

SEED must be deposited in a well-opened, finely pulverized, well-aired soil with plenty of moisture. The young plants and roots must have a well prepared seed-bed, else they cannot stool out and form a strong system. Fail at this vital point and your chances of a good crop are gone. The roots cannot spread out, the crop will be stunted in growth.

Peter Hamilton Spring Tooth Cultivator

will work your soil into a good seed-bed. It is designed to cut every inch of ground and thoroughly pulverize it to an even depth.

The arrangement of the sections to which the teeth are attached is such that the front and back rows act independently. There is no danger of one set of teeth cultivating deeper than another or vice versa. Furthermore, having so many sections gives the teeth more freedom of action, and when one tooth catches on a stone or root only two or three are jerked out of the ground instead of one half or all of the teeth. The teeth are made from very high grade steel and are reinforced with our patented helpers. The points of teeth are reversible, giving double wear. There is no chance of clogging when the teeth are in three rows.

The frame is strong, well braced and firmly trussed and cannot sag in the middle.

Write us to-day for illustrated booklet and make sure of having a Peter Hamilton Cultivator on hand for preparing a good seed-bed.

THE PETER HAMILTON CO., Limited
 PETERBORO, Ontario 43

What is a double acting baking powder?

A double-acting baking powder is one that starts its action in the mixing bowl and finishes it in the oven.

Ordinary baking powders develop their full strength in the mixing bowl and you have to hurry your cakes into the oven. Then, you are always afraid that the oven is not just hot enough, or that a door will slam or something else happen to cause the cakes to fall.

You don't have to hurry or worry when Egg-O Baking Powder is used. Egg-O rises only partly in the bowl. You may let the dough stand 15 or 20 minutes or longer—doing so will give better results. When put into the oven, Egg-O continues its action—this second action being so steady and strong that a cake is not likely to fall even if it does get an unexpected jar.

EGG-O Baking Powder

is double-acting and just what is needed to make a light baking with the heavy Government Standard flours.

Egg-O Baking Powder Co., Limited, Hamilton, Canada

POULTRY AND EGGS

Condensed advertisements will be inserted under this heading at four cents per word each insertion. Each initial counts for one word and figures for two words. Names and addresses are counted. Cash must always accompany the order for any advertisement under this heading. Parties having good pure-bred poultry and eggs for sale will find plenty of customers by using our advertising columns. No advertisement inserted for less than 60 cents.

AFRICAN GUINEAS, (WHITE) TWENTY choice imported pairs. Indian Runners. Muscovy ducks. Barred Rock Cockerels. John Asseser, Tilbury, Ont.

BRED TO LAY—BARRED ROCK EGGS FOR hatching. Three dollars for fifteen. W. R. Goff, Route 1, Glencoe.

BARRED ROCKS—O. A. C. BRED-TO-LAY strain, eggs one fifty for fifteen. J. Acres, Thornbury, Ont.

BABY CHICKS—BRED TO LAY, S. C. WHITE Leghorns. Catalogue. Cooksville Poultry Farm, Cooksville, Ont.

BARRED ROCK EGGS, FIFTEEN TWO dollars, thirty, three fifty. Few good cockerels for sale, three to five dollars each. Order direct from this advertisement. Satisfaction guaranteed. Walter Bennett, Box 43, Kingsville, Ontario.

BABY CHICKS AND HATCHING EGGS. Barred Rocks, White Rocks, White Wyandottes, Golden Wyandottes, Rhode Island Reds and White Leghorns. Purebred Utility stock. Incubator capacity 5000. Satisfaction guaranteed or money refunded. Write for prices. Tay Poultry Farm, Perth, Ontario.

BRED-TO-SHOW LAYING STRAIN BARRED Rock eggs for hatching. Write for catalogue. Chas. Barnard, Lenington, Ont.

BARRED ROCK SPECIALIST TWENTY years. Eggs from choicest matings \$3.00 per 15. Earl Bedal, Brighton.

BUFF ORPINGTON PURE-BRED COCKER-ELS and pullets for sale. James McGregor, Caledonia, Ont.

COCKERELS IN REDS, ROCKS, WHITE Orpingtons, White Leghorns, Brown Leghorns, Anconas, Blue Andalusians bred from two hundred to two forty egg dams. White Chinese Gander. Day old chicks. Correspondence solicited. M. Shantz, Ayr, Ontario.

CLARK'S BUFF ORPINGTONS FOR SALE—30 strong vigorous cockerels, good type and color. Same breeding as 1st and 2nd Ontario 1918, at \$4. \$5. \$8. each. 50 pullets and hens good breeders, \$3. \$4. \$5. each. All good laying strains, a good breeding pen of 5 birds properly mated at \$20. \$25. Will start you right and please you. Mating list, free. J. W. Clark, R.R. 1, Cainsville, Ont.

CANADIAN RINGLET BARRED ROCKS—Trapped daily for 5 years. Send for records. F. J. Coldham, Box 12, Kingston, Ont.

EGGS FOR HATCHING—BRONZE TURKEYS Barred and White Rocks, Pekin, Rouen and Indian Runner ducks, White Wyandottes, White Leghorns and Rose-comb Brown Leghorns. Write for prices. J. H. Rutherford, Albion, Ont.

FOR SALE—MUSCOVY DUCKS \$5.00 PER pair. Eggs for hatching \$2.00 per setting. Apply J. A. Tancock, 96 King Street, London.

FORTY BARRED ROCK COCKERELS from yearly trapped stock. Three, four and five dollars each. W. J. Johnson, Drawer 246, Meaford, Ontario.

LIGHT BRAHMAS—CANADA BEST STRAIN Exhibition Cockerels \$5 each, hens and pullets \$4 each. Eggs from my best \$4 per 15. Chas. Gould, Glencoe, Ont.

PUREBRED SINGLE COMB WHITE LEG-horns. Rose Comb White Wyandottes. Bred-to-lay and prizewinning stock. Eggs \$2.50 per fifteen. Extra Stock, Woodstock, Ontario.

PURE BRED ANCONAS SHEPHERD STRAIN, Eggs for setting 5c. each, John A. Pollard, R. R. No. 2., Dashwood, Ont.

REGAL DORCAS WHITE WYANDOTTES America's Finest Strain, winners at New York and Boston, splendid layers of dark brown eggs. Official records 200 to 255 in North American laying contests. Vigorous matured cockerels \$4.00 and \$5.00 each. Eggs \$3.00 and \$5.00 per setting. FREE illustrated catalogue. John S. Martin, Port Dover, Ontario.

SINGLE COMB WHITE LEGHORN BABY chicks from our celebrated laying strain, for sale. Utility Poultry Farm, G. O. Aldridge, Mgr., Lt. Col. T. G. Delamere, Prop., Stratford, Ont.

S. C. WHITE LEGHORNS—230-264-EGG strain, or O.A.C. Barred Rock eggs, \$1.50 setting; \$8 hundred. Selected egg-producers that cannot be beaten. A. B. C. Dickinson, Port Hope, Ont.

TILT STRAIN—PURE-BRED ROUEN DUCK eggs \$1.50 per eleven. A. F. Thornton, Thamesford, Ont.

TWO YOUNG BRONZE GOBBLERS FOR sale, good size. Apply James Baskerville, R. No. 4, Thornedale, Ontario.

TURKEYS AND GEESE—WE HAVE THIS spring 40 healthy Bronze turkey hens, mated to husky young toms. Eggs in season, \$5.00 per 10. 30 choice Toulouse geese, also well mated; eggs now ready, \$4.50 per 9. Few toms and ganders on sale. Everything in pure-bred land and water fowls. Write us first. Stamps for early reply. Yamaska Poultry Farms, St. Hyacinthe, Que.

WHITE WYANDOTTES, BRED FOR TYPE, size, vigor, and production. Eggs for hatching, \$2.00 per 15. Frank Morrison, Jordan, Ont.

WHITE LEGHORN COCKERELS (PEDI-GREED), from trap-nested stock, trapped by myself, from heavy producers. To improve your flock nothing else would do you. Bab y chicks and egg orders booked. Write to-day. Bradley W. Linscott, Brantford.

WINTER LAYING BARRED ROCKS FROM O.A.C. bred-to-lay stock mated with cockerels from C.E.F. bred-to-lay stock. Eggs 10 cts. each. Mrs. A. J. Reesor, R.R. 1, Markham, Ont.

well but do not require soaking. Take 1 lb. dates, 3 eggs, 1 cup water, 1 1/2 cup milk, dash of grated nutmeg. Stone the dates and cook in the water until quite soft. Put through a ricer and add to the pulp the beaten eggs and milk. Mix all well, and bake in small individual dishes set in a pan of hot water in the oven. Grate a little nutmeg over each before baking.

Banana Pie.—Line a pie-tin with crust, fill with sliced bananas, add 1/2 cup sugar and juice of half a lemon. Bake with two crusts.

Banana Cream Pie.—Mix 1 cup sugar with two tablespoons corn starch. Add 1/2 cup butter and 1 pint hot water, to make a thick custard. Beat the whites of 3 eggs stiff and stir into the custard, with the pulp of bananas pressed through a ricer or colander. Bake in one crust and cover with a meringue of whipped cream.

Baked Bananas.—Peel and cut in halves lengthwise as many bananas as desired. Arrange on a flat earthen baking dish. Pour over them a mixture of 2 tablespoons butter, 2 tablespoons hot water, and 1 teaspoon lemon juice to each banana. Sprinkle well with sugar, and add a dash of nutmeg or allspice, if liked. Bake for 20 or 25 minutes.

Dishes for Lent.

Cod With Cream Sauce.—Boil fresh or dried cod and when cool shred it. If the dried cod is used it should be soaked over night and drained before boiling. Make a sauce as follows: Boil 1 quart milk with one onion and a little finely chopped parsley if you have it. Mix a piece of butter (about 1/2 cup for 2 lbs. fish) with enough flour to absorb it, add to the milk, and boil, stirring constantly, until it is the consistency of custard. Season with a dash of cayenne and salt to taste. Put a layer of the shredded fish in a baking-dish, cover with a layer of sauce, then a layer of fish, and so on until the dish is filled. Have the last layer sauce. Cover with buttered bread-crumbs and bake in the oven until nicely browned. Buttered crumbs are made by rolling the crumbs in melted butter.

Baked Herring.—Take 6 fresh herring, 1/2 cup vinegar, 1/2 teaspoon salt, 1 bay leaf, 1/2 teaspoon pepper, 1/2 cup water. Take scales and heads off the fish and wipe with a damp cloth. Split the herring up the back and lay it open; cut it in half, then take the bone out, beginning at the head. Now roll each half up firmly, having 12 rolls in all. Put them in a small pudding-dish, with the backs uppermost. Now pour in a mixture of the water and vinegar, slip in the bay leaf and sprinkle with the pepper and salt. Cover and bake for half an hour. Serve in the dish in which they were cooked.

Boiled Salmon.—Rub the piece of fish with salt, tie in cheesecloth and boil slowly for 3/4 hour. Serve with a milk sauce to which chopped hard-boiled egg has been added. If any fish is left over it may be placed in a deep dish, sprinkled lightly with salt, and a cup of boiling vinegar poured over. Cover closely and it will make a nice dish for next day. Any fish intended for boiling should be washed in plenty of cold water, salty if the fish is fresh. Put the fish into warm water, adding a little salt and vinegar. Allow about 10 minutes for each pound of fish, with 15 minutes over if large. Putting a little vinegar in helps to keep the fish firm and of good color.

Bean Loaf.—Press boiled beans through a ricer or colander and season to taste with salt and pepper. Add enough cream to enable you to mould the mixture into a small loaf. Place in a baking-pan, sprinkle the top with buttered crumbs and bake until browned. Serve very hot with gravy or tomato sauce. When greens are in a border of boiled greens may be placed around the loaf. Beans are a good substitute for meat.

Poached Eggs to Perfection.—Put plenty of water in the pan and add a little salt and vinegar. Let come to a boil, then draw back where it will just simmer. Break in the eggs very carefully, cover closely and leave until the eggs look lightly cooked, semi-transparent and delicious. Serve on hot toast, sprinkling a little pepper or paprika on top of each egg. Some use a tin poacher for cooking the eggs.

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Oba, Ont., Feb. 7, 1919.

I used one of your machines last year and had good success as I had never used one before. They keep the heat well considering that the temperature drops to 56 degrees below here at times.

E. V. Lewis.

Satisfied customers prove the worth of our Incubators and Hovers and they cost so little. A postcard brings our catalogue, which will convince you. Don't delay—write to-day.

The Collins Mfg. Co., 411 Symington Ave., Toronto, Ont.

MARCH

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THE v you. beat for Victory Stamps an to sustain Catholic F every kno not least, Without y rible Hun on the r am proud you have war. I, too, best I cou serve you a Carhart O Master Clo erment tes

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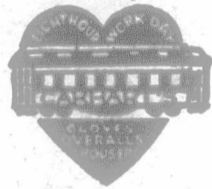
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March 20, 1 Groves, R. R. —Holsteins.

March 20, Low Banks, O

All Glory to the Canadian Farmer



THE world takes its hat off to you. You gave your sons to beat the Huns. You subscribed for Victory Bonds. You bought Thrift Stamps and gave of your store freely to sustain the Red Cross, Y. M. C. A., Catholic Huts, Salvation Army and every known charity, and last, but not least, you fed the starving world. Without your sacrificing aid, the terrible Hun could not have been put on the run. Here's my hand, I am proud of you, and the noble part you have played in winning this war.

I, too, served our Government as best I could, and now I am ready to serve you again with the same reliable Carhartt Overalls, made from Carhartt Master Cloth, which stood every Government test.

Remember, there is no substitute for Carhartt Overalls. There is none "just as good." Be sure, therefore, of getting the genuine Carhartt by looking for the odd heart-shaped button, which is my trade mark and your guarantee of satisfaction or a new pair; and, my word for it, you will confer a favor on your pocket book.

If your dealer will not sell you Carhartt's, write to my nearest factory for samples and prices, I will supply you direct—all parcel post charges prepaid, until I can establish an agency near you.

Write for a free copy of my Farm Stock and Crop Account Book, which will be off the press shortly. One farmer wrote me saying he would not take \$10 for his if he could not get another.

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HAMILTON CARHARTT, Dept. L.F., TORONTO :

Please send me sample swatches and prices of your Carhartt Overalls, made from your Carhartt Cloth, also prices of Carhartt Work Gloves.

I will appreciate the Farm Stock and Crop Account Book.

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Putting Furs Away.

Put furs out of doors on a bright sunny day and beat gently, then tie up in a thick paper bag so tightly that a moth cannot get in. Before putting white furs away "wash" them thoroughly in hot cornmeal, which will make them clean and white as when new.

Cleaning Egg Stains.

Rub egg-stains on spoons with a little common salt, and they will disappear as by magic.

Gossip.

Sale Dates.

March 20, 1919.—W. B. Poole and A. Groves, R. R. No. 5, Ingersoll, Ont.—Holsteins.

March 20, 1919.—Ira Minor & Sons, Low Banks, Ont.—Scotch Shorthorns.

March 20, 1919.—Senator Robt. Beith, Bowmanville, Ontario.—Clydes and Hackneys.

March 25, 1919.—Mrs. S. A. Moore, Caledonia, Ont.—Shorthorns.

March 25, 1919.—J. T. Lethbridge & Sons, Glencoe, Ont.—Lincoln Sheep, etc.

March 26, 1919.—J. W. Waters, Moorefield, Ont.—Ayrshires.

March 26, 1919.—Brantford Holstein District Club, Brantford, Ont.—N. P. Sager, Sec., St. George, Ont.

March 26, 1919.—Western Ontario Consignment Sale, London, Ont.—Short-horns.

March 27, 1919.—Elgin Holstein Breeders' Club Sale, St. Thomas, Ont.—E. C. Gilbert, Sec.

March 27, 1919.—W. F. Blanchard, Dorking, Ont.—Herefords.

April 1, 1919.—J. J. Merner, M.P., Seaforth, Scotch Shorthorns.

April 1, 1919.—Norfolk Holstein Breeders' Sale, Hagersville, Ont.

April 2, 1919.—Belleville District Holstein Breeders, Belleville, Ont.—Jas. Caskey, Madoc, Ont.

April 2, 1919.—Laurie Bros., R. 1, Agincourt, Ont.—Ayrshires.



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We pay freight on orders of \$25.00 or more in Ontario and Quebec.

Clover.

(Gov't Standard.)

	Per Bus.
No. 1. Red Clover "Sun".....	\$30.00
No. 2. Red Clover (Almost No. 1 for Purity).....	28.00
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No. 2. Timothy (Special) (No. 1 for Purity).....	6.50
No. 1. Alsike "Ocean".....	21.00
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No. 3. Alsike and Timothy Mixed No. 1 for Purity.....	16.00
No. 2. Alfalfa—Ontario Variegated (No. 1 for Purity).....	27.00
No. 2. Alfalfa—Ontario Variegated.....	24.00
No. 3. Alfalfa—Ontario Variegated.....	22.00
Sweet Clover—White Blossom—(Biennial) hulled seed.....	13.00
Alfalfa and Sweet Clover scarified bus. extra.....	\$1.00

Cotton Bags for Clover and Timothy 65c. each.

Seed Grain.

These are the varieties which increase yields.

Oats—Bag Free.

O. A. C. No. 8.—Very early, good straw, spreading head, white grain, exceptionally thin in the hull, good yielder.....	1.50
O. A. C. No. 72.—Late, vigorous grower, good straw, spreading head, white grain, comparatively thin hull, high yielder of grain. REGISTERED SEED.....	2.00
Good Sample.....	1.30

Barley

O. A. C. No. 21.—Early, stiff straw, six-rowed head, grain bluish under the hull, good quality, heavy yielder. Grown from registered seed.....

Spring Wheat.

Marquis—Early, good straw, beardless head, white chaff, red grain, excellent quality for bread production, good yielder.....	2.85
Wild Goose—Fairly early, tall straw of medium strength, compact bearded head, hard grain, particularly suitable for the manufacture of macaroni; high yielder.....	2.75

Field Peas.

	Per Bus.
Arthur—Medium late, medium straw, white blossom, medium-sized white grain, large yielder.....	3.50
Canadian Beauty—Late, heavy straw, white blossom, large white grain, large yielder.....	2.75
Golden Vines—Late, heavy straw, white blossom, small white grain, medium yielder.....	2.60
Buckwheat.....	
Rough or Rye—Early, medium yield of straw, grain with rough, thick hull, very heavy yielder.....	2.30
Silver Hull—Medium early, heavy yield of straw, grain with smooth hull, fair yielder.....	1.80
Flint Corn on Cob.....	
Longfellow—Early, medium yield of stalks, yellow, eight-rowed ears, good yielder of grain, suitable for silage in more northerly districts of older Ontario.....	4.25
Salzer's North Dakota—Medium early, heavy yielder of stalks, white eight-rowed ears, crop suitable for husking or for the silo in central Ontario.....	4.00
Dent Corn on Cob.....	
White Cap Yellow Dent—Medium early to medium late according to strain, grown for grain in southern Ontario and for fodder and silage in central Ontario.....	3.25
Wisconsin No. 7—Medium in earliness, usually matures in the extreme southerly parts of Ontario, suitable for the silo in the warmer parts of the Province.....	3.75
Millet.....	
Siberian—Early, red seed, medium producer of both seed and fodder.....	3.60
Hungarian Grass—Early, light and dark seed, medium producer of both seed and fodder.....	4.00
Rape.....	
Dwarf Essex—Average yield more than corn, used as pasture or as green fodder, relished by cattle, sheep and hogs, very fattening, tains milk when fed to dairy cows. Per lb., 16c.....	
Mangel Seeds.....	
Prizetaker, Giant Half Sugar, Yellow Intermediate, Yellow Leviathan, Mammoth Long Red, A. 1 Seed. Germination 112 to 160%. Price 60c. per lb. Post paid, 65c. per lb.....	
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Prizetaker, Canadian Gem, Lord Derby. Price, \$1.00 per lb. Post paid, \$1.10 per lb.....	

Garden Seeds

Get your wife to make up her garden seed order now, from our catalogue. Our seeds are highest quality (tested for germination), but our prices are lower than other seed houses. Do not buy until you have seen our prices. We are in the market for "Early Britain" Peas; also Emmer or Speltz. Send samples.

GEO. KEITH & SONS SEEDS

124 KING ST. E. TORONTO

April 3 and 4, 1919.—Western Canada Shorthorn Show and Sale, Brandon, Man.
 April 3, 1919.—Menie District Ayrshire Breeders' Club, Cambellford, Ont.—W. E. Tummon, Sec.
 April 4, 1919.—Wm. J. Haggerty, R. R. 3, Stirling, Ont.—Ayrshires.
 April 10-11, 1919.—Canadian National Holstein Sale.—Toronto.

Markets

Continued from page 533.

a weakening effect upon the market. Sales of Green Mountains were reported at \$1.65 per 90 lbs., carloads, ex-track, and Quebec whites at \$1.30, 25c. to 30c. being added to these prices for smaller lots, ex-store. Quebec turnips sold at \$1.50 and onions were quoted at \$2.25 per bag of 70 lbs., ex-store.

Eggs.—Very little change took place in the market during the past week. Strictly new laid stock was still quoted at 45c. and cold storage at 36c. to 39c., according to quality. It is stated that some sales of Canadian fresh eggs have taken place for export to Great Britain at from 42c. to 44c., f. o. b., seaboard. Receipts from the U. S. have almost ceased.

Butter.—Very little change took place in the market during the past week. Finest creamery was quoted at 54c. per lb. and fine at 53c., while dairies range from 44c. to 46c. per lb. The statement

was made that some foreign creamery is in the market.

Cheese.—Cheese was unchanged at 25c. for No. 1; 24½c. for No. 2 and 24c. for No. 3.

Grain.—No. 2 Canadian Western oats were quoted at 86c. per bushel; No. 3 at 81c.; extra No. 1 feed at 78c.; No. 2 feed 74c.; Ontario No. 2 white 76c.; No. 3 white, 74c. per bushel, ex-store. No. 3 Canadian Western barley was quoted at \$1.10 per bushel; No. 4, at \$1.04; extra No. 3 Ontario at \$1.11; No. 3, at \$1.10 and sample grades at \$1.04.

Flour.—Manitoba Government standard spring wheat flour was unchanged at \$11 per barrel, in jute, ex-track, Montreal freights, and to city bakers, with 10c. off for spot cash. Ontario winter wheat flour was \$1.20 to \$1.30 per barrel, in cotton. White corn flour \$8.50 to \$8.70; rye flour \$8.50 to \$9 per barrel, in bags, delivered.

Millfeed.—Bran was \$40.25 per ton in car lots, including bags, and shorts \$42.25, ex-track. Pure grain mouille was \$64, pure oat mouille \$60 to \$62; barley feed \$52 to \$54; mixed mouille \$47; dairy feed, \$43, including bags, delivered.

Hay Seed.—Timothy was quoted at 8c. to 12c. per lb.; Red clover at 37c. to 45c. and alsike at 22c. to 27c. per lb., these being prices offered to farmers at country points.

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Attend the Blanchard Dispersal for Choicely Bred, High-class

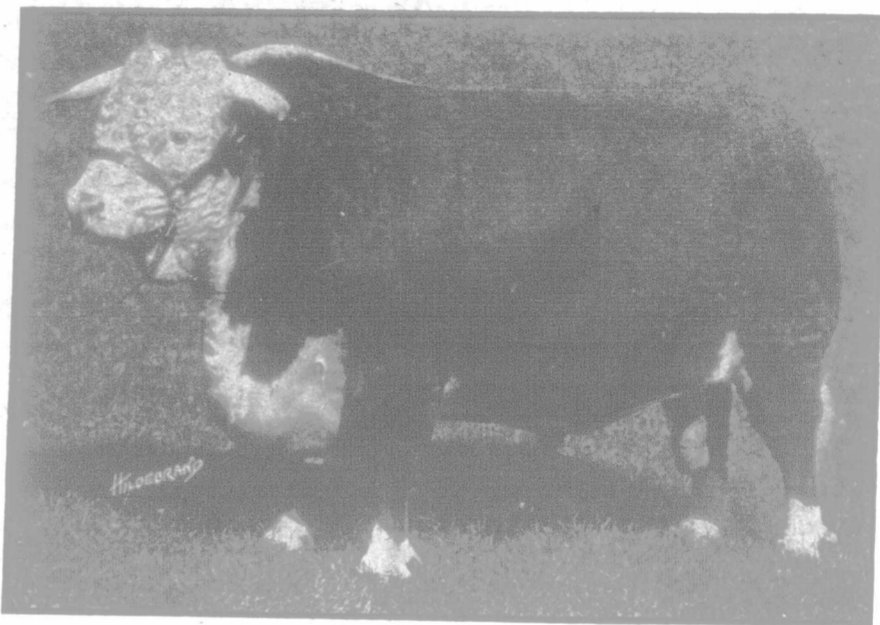
HEREFORDS

Listing thirty-one lots, and selling at the farm, Lot No. 13, Township of Maryborough, Wellington County, near the Village of

Dorking, Ont., Thursday, March 27th, 1919

Nineteen cows
due in April
and May.

Three bred
heifers.



Six 1918 heifers.

Three young
bulls.

The herd sire.

An Entire Herd of Thick, Rugged Fellows Selling in Excellent Condition

Breeders will find this one of the most select small herds in Western Ontario. The cattle are not only a choice lot of well bred individuals, but they are selling in splendid condition. Among the breeding cows will be found the best representative families of the breed, combining the blood of both American and Canadian champions. It will be noted that with three exceptions the females of breeding age will all be within a few weeks of calving—several being due the first and second week in April. They offer foundation material of the best.

The younger things are all sired by the herd sire, Prince Clayton, who also sells. This sire will be much appreciated when his get are seen on sale day. He is got by Prince Donald, a son of the good breeding bull, Clayton Donald, while his dam was Downie Lass, and she by the great bull, Bonnie Brae. The six 1918 heifers by this sire offers a splendid opportunity to younger breeders to start a herd should they feel they were not in a position to buy more mature cows. The three young bulls mentioned are of the herd sire sort. Don't miss them if you need a sire.

THE TERMS OF SALE ARE: Six months' credit without interest. Five per cent. per annum off for cash.

NOTE: At the same time there will also be sold the farm machinery, implements, horses, hay, grain, etc., on which the above terms also apply.

TRAINS: C. P. R. trains leaving Toronto at 8.10 a.m. arrive at Dorking 10.30 a.m., and leave after sale same evening. All trains met at Dorking on morning of sale. Lunch at noon.

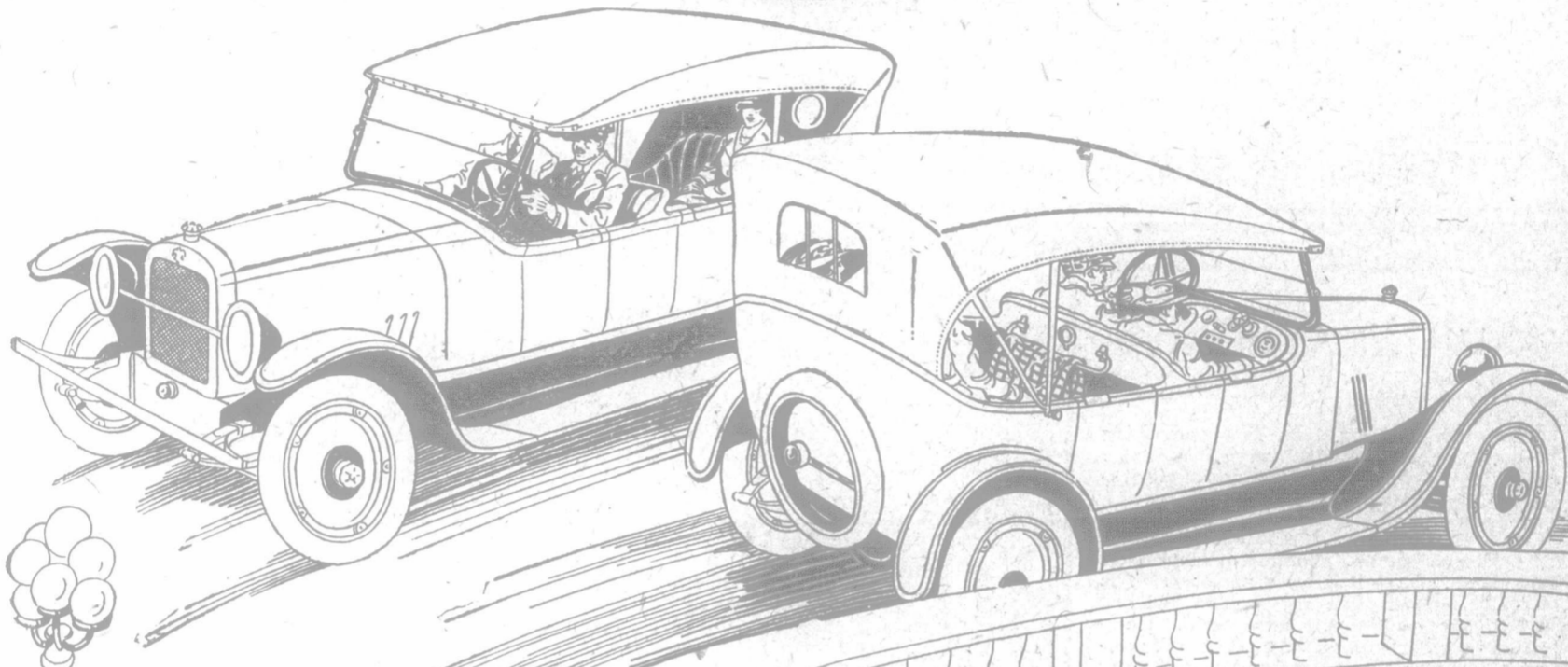
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Less Gas—More Mileage

The addition of the new and stunning Special Touring model rounds out the Briscoe line.

Whatever model you may select, your Briscoe will more than "hold its own" with cars of much higher price.

Cars of enduring stamina—so constructed as to give absolute ease of control.

Cars of true economy—proven economy—with a record of 29.35 miles per gallon of gasoline on a 10-day non-stop run.

The following Briscoe prices (f.o.b. Brockville) are subject to war tax:

Sedan, \$1,950; Special Touring, \$1,350; Standard Touring, \$1,225; Roadster, \$1,225.

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TORONTO AGENTS
 Bailey & Peer Motor Company, 497 Yonge Street.
 HAMILTON AGENTS
 Livingstone Bros., 97 King Street, West.
 LONDON AGENTS
 Binder & Morrison, 174 Fullerton Street.

What Agriculture Colleges are Doing for Agriculture.

EDITOR "THE FARMER'S ADVOCATE":

It is a common experience in human life to possess and enjoy benefits, and yet to know nothing, or, knowing, rarely or never, to think kindly of the benefactors. It seems to me, that agricultural colleges and the farmers provide a case in point.

Certainly in the beginning of these colleges it was a case of not kindly contemplating these institutions. But when thought of at all it was to hold them up to ridicule. The attempt to assist farming by the study of books, delivery of lectures and the holding of examinations were pooh-poohed by the great majority of those who tilled the soil. Because of this prejudice the more

enterprising legislators, who pleaded the cause of these colleges and secured public funds for their establishment were looked upon with suspicion. They were commonly regarded as "faddists", for who other than men of this calibre would seriously advocate the improvement of farming by college training of men for it the making experiments on soil and seed by the application of chemistry and the teaching of ways and means of checking fungus and other growths inimical to the maturing of useful plants on the farms.

In consequence of this attitude, the publicists were seriously handicapped. The money asked for from the public treasury was, at most, too limited to permit of the employment of more than a few skilled teachers who could handle only a few subjects in the lecture room. The early students were also few in number and in their student career met with little encouragement outside

the college. Wherever they went, during vacations, they were met by such cries as: Have you learned to plow? Can you milk? Do you know the difference between a potato and a turnip? Can you tell a sheep from a calf, etc.?

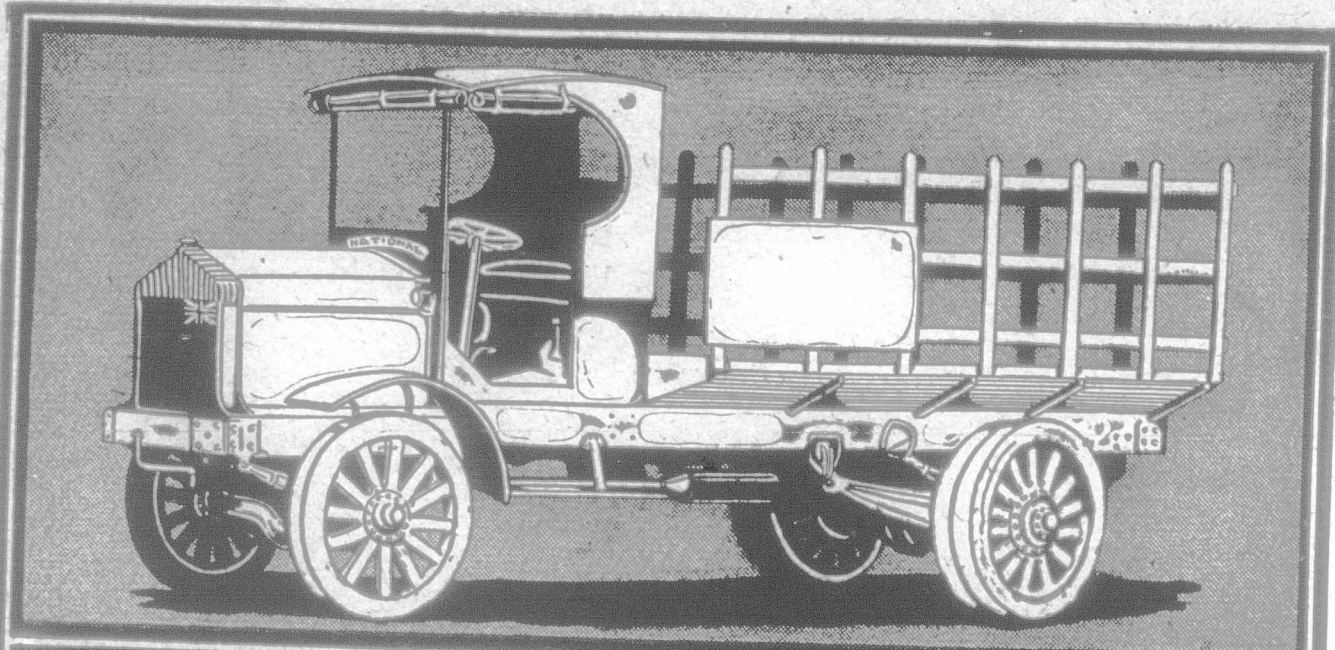
Gradually, however, as the colleges went on with their work the shadow which prejudice had cast over them was removed and reasonable men on the land came to perceive that the college of agriculture was their best friend among all the institutions of learning, and hence worthy of a appreciation.

To merely tabulate all the advantages accruing to farmers from agricultural colleges would form a long list. But a few of the more widely recognized benefits may be stated here.

1. A large number of young men have been educated in agricultural colleges, and have gone out, some to farm on their own account, and others to become

directors of the farming industry, each with a circumscribed area for whose development he was responsible. And in both instances the benefits were most marked. The improvements affected by those who personally farmed and by those who acted the part of instructors to farmers became object lessons, seen and pondered by men of the communities. These lessons soon became effective. When men saw that the soil, when subjected to certain treatment produced greater yields, and that seed under certain conditions brought forth more abundantly, they adopted the new methods. And thus the greater number profited by the application of the scientific knowledge of the few in their midst.

2. In the college, however, the instruction was not confined to soil and seed; it covered all subjects in any way related to the improvement of all useful



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For Canadian Conditions.**

Day by day National Motor Trucks are wiping out old notions of what motor truck service ought to be—establishing new records of efficiency, reliability, and economy.

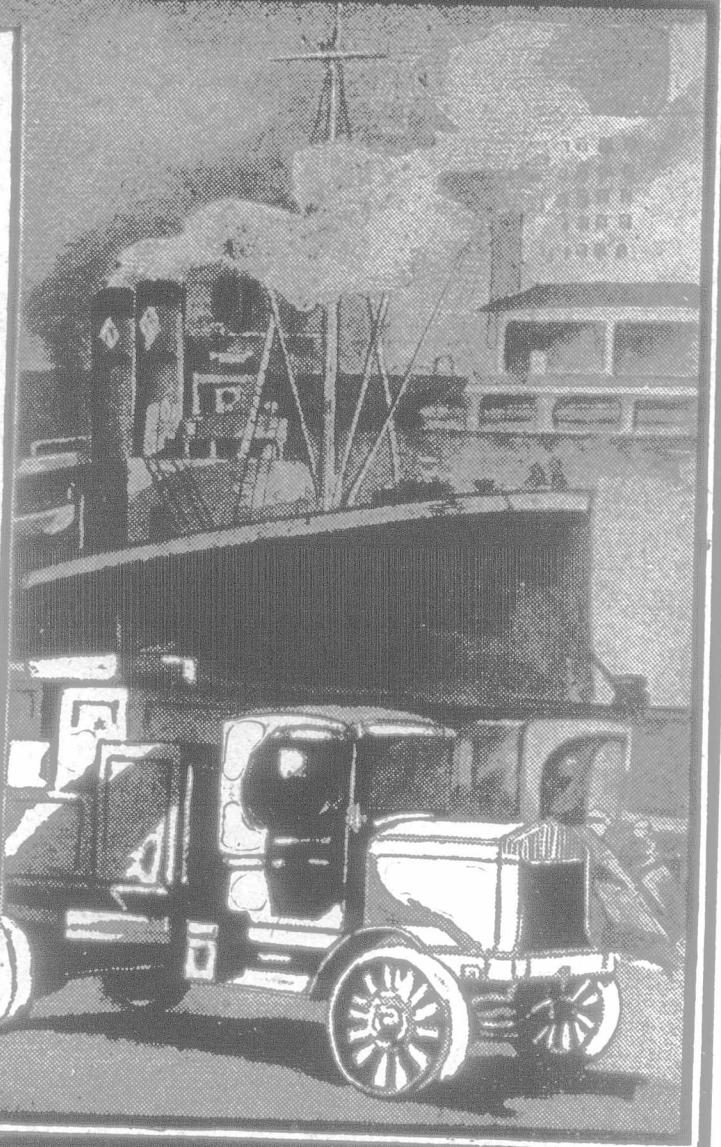
And here's the reason. National Motor Trucks in their entirety are the product of specialists. Each part, in turn, is built by a specialist. The National engineers have drawn upon the best "motor truck brains" of the entire world. Combining standard features with the scientifically correct National designs produces a maximum of motor truck value which, we believe, has never been equalled. Put National side by side any other truck—and choose. That's our challenge to you!

Familiarize yourself with the standard of value by which you can make comparisons. You can't afford to buy on hearsay, guesswork, or sentiment. National facts and figures are convincing. Ask for them.

Five Models—1 ton, 2 ton, 3½ ton, 5 ton trucks and 6 ton tractor.

NATIONAL STEEL CAR CO., LIMITED.
HAMILTON - CANADA

"Write for illustrated catalogue and name of the nearest National Dealer."



**NATIONAL
MOTOR TRUCKS**

HALDIMAND GROWN

Red Clover Seed

Gov't Standard

**No. 1 Purity, No. 1 quality
at \$25.00 per bus.**

F.O.B. Caledonia Station, G.T.R. bags extra 50c each. Terms:—Cash must accompany order. Seed guaranteed satisfactory or return at my expense

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CALEDONIA - ONTARIO

First Prize O.A.C. No. 72 Oats in field competition for two successive years. Winners of several firsts and one second at Toronto and other shows. Stood second place in field competition in Ontario, 1918. Samples free. Price, \$1.40 per bus. Sacks free and freight paid in Ontario. Marquis Wheat, \$2.40 per bus.

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It shows that a suitable Life Policy offers the surest way of providing a competence for old age—while at the same time assuring the comfort of dependent ones—should untimely death occur.

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BUY WAR SAVINGS STAMPS Head Office: WINNIPEG

ESSEX SEED CORN

Wisconsin No. 7 on the cob, germination guaranteed, \$2.50 per bushel (70 lbs.) F.O.B. Bags free.

LEONARD WIGLE, R. No. 1,
Kingsville, Ont.

Choice Clover Seed

Red Clover grown in Haldimand County \$24.00 a bushel. Write for sample. Govt. grading.

PRESTON L. BARTLETT
R. R. No. 1 Nanticoke, Ontario

forms of life on the farm—animal as well as vegetable. The students were taught how to feed and care for live stock, so as to secure the greatest possible gains from them. And, as none of the grades of cattle, horse, sheep or swine had attained the highest possibilities of development, the students were urged to work for a higher degree of perfection and were given the methods to be pursued in these efforts. Consequently at the close of their college careers, they went out, and began to actively employ their time and knowledge towards securing the desired object, with the result that much of the improvement in live stock of the past fifty years has been owing to the knowledge imparted and the impulse given in agricultural colleges.

3. The dairy industry, has, in particular, benefited by the presence and work of agricultural college trained men. Attention was directed in these institutions to the need for better dairy herds, and the great possibility of this attainment was pointed out. Hence the dairy industry was gradually lifted from the low and unsatisfactory levels, when it was confined to the farm, and placed on higher altitudes where science dictated what kind of animal the dairy cow would be, and what the character of the product of her butter-fat, whether in the form of cheese or butter. The bettering of both the quality of the dairy cow and her output have led not only in a larger consumption and higher values, in the home countries where the product was made, but also in securing a larger demand and more remunerative prices for the export trade.

4. In addition, those who desired enlightenment on the subject of poultry-keeping, had placed before them in the college classes the most advanced knowledge. The merits and demerits of each breed were canvassed and the best methods of feeding and housing were explained. Hence a larger output in eggs to the benefit of the poultry-keepers themselves, and also to those who live in urban centers.

5. Bee keeping, though a minor industry, taking the country over, yet it is industry well worth the most intelligent effort bestowed on it. And to this end, the agricultural college has directed its efforts. In all well-appointed colleges there is a department devoted to the apiairy.

6. During the past few years machinery has come to play a larger part in agricultural operations. The gasoline engine, has in part, displaced horsepower in the preparation of the soil for seed, and the cutting of the grain and shares with the steam engine the power to drive the thresher and silo filler. When the grain is in the bin, the gasoline furnishes the force which runs the grinder. Much of the transportation of persons on the farm, from point to point, on the country roads, is done by gasoline agency in the automobile engine. Hence, a working knowledge of the various mechanical motors is of much value on the farm. When the machine is out of order it is expensive and causes a loss of time to have to order an expert from town to repair the injury. To avoid this the farmer must know the parts of the machine and how to set them and keep them in motion. This knowledge is now given by agricultural colleges, in their regular courses or short courses or in connection with extension work, or on the Better Farming Trains.

Nor is the art of home-making neglected by the modern agricultural college. Properly qualified teachers give instruction in domestic science in the regular college classes, in extension work, notably on the "Better Farming Train" this subject is kept well to the front during the itinerary.

The labors of the agricultural colleges are not, however, confined to the college walls or campus. But these are extended so as to cover a wide area. This wider scope is known by the following terms: namely, "Agricultural Extension," "The Better Farming Train," "Boys and Girls' Clubs and Short Courses.

The extension program embraces, plowing matches, standing crop competitions, seed fairs, poultry shows and horse and cattle exhibits. The judging in these is by men carefully selected and who are themselves expert in the different lines of endeavor in which they decide as to the merits of the work done or the things shown.

At the short outside courses lectures are given by college professors on "Field

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Top Dress with Nitrate of Soda

It does not Sour the Soil

Nitrate of Soda leaves no mineral acid residue behind to injure your soil. It makes bigger crops—and keeps the land sweet.

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Top dress 100 lbs. per acre for seeded crops; 200 lbs. cultivated in thoroughly for cultivated crops. These light dressings, evenly spread over an acre, will work for your profit.

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Grown in the County of Haldimand. Our county took first prize at Guelph Winter Fair this season on Red Clover, Alsike and Alfalfa.

These prices good until next issue of this paper.

Alfalfa—Ontario Variegated \$23.00
grown here on fields, lots of which have been down ten and fifteen years without breaking up.

Red Clover—No. 1.....\$28.00
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This is a good clean grade.

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Seed Peas—Golden Vine.....2.50
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Bags are 60c. each.

These prices are per bushel, freight paid on purchases of three bushels or over. Cash must accompany order. If seed does not satisfy on arrival ship back at our expense. Ask for samples.

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Japanese Buckwheat \$1.80 per bus. Bags free. We make a specialty of growing pure seed grain.

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Wisconsin No. 7 and White Cap, grown in Essex County, \$2.25 per bushel F.O.B. Essex.

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Haldimand Grown Alfalfa Seed for sale of both the Variegated and Grimm varieties. Send for prices and Samples.

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Kiln dried improved White Cap Yellow Dent. Government test eight-five per cent in four days, one hundred per cent in ten days. Write for Bondy's Seed Annual dated Feb. 12th, 1919.

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Choice Field Peas, variety Sappino, \$3.00 per bus. Apply
FRED POOLE, R. 1, Lambeth, Ont.

Husbandry," "Animal Husbandry," "Poultry Keeping," and farm accounting.

The work on the better farming train, embraces all the more important phases of agriculture, such as, animal husbandry, field husbandry, agricultural engineering, farm building, dairying, poultry and household science. The fitting up of these trains is an elaborate undertaking. In the West the train has sometimes fifteen coaches. Of these five are fitted up for lecture purposes. On two others are displayed the live stock. One contains machinery for demonstration purposes, and another is made into a nursery in which younger children are taken care of while the mothers view the exhibits and attended the lecture. These, with a refrigerator to carry the supplies, two sleepers and a diner, complete the train, bearing to the people along the Railway, a travelling agricultural college.

The latest attempt of the agricultural college to render itself more serviceable to the farming interest, is in the formation of Boys' and Girls' Clubs. Young people on the farms are formed into clubs for the purpose of special contests in pig and poultry raising, potato growing, and cattle and sheep production. The animals and vegetables must be owned, fed and cared for by the juvenile competitors. The ownership is secured by the borrowing of money either from friends or banks. Where the money is gotten from the bank, notes are given, bearing interest and endorsed by responsible adults. The money is to be paid back when the animals and vegetables are marketed. By this means, a large number of boys and girls have become more interested in the living things raised on the farm and the interest thus created will, it is hoped, result in a larger number than hitherto remaining on the farm.

Sask. J. R. BLACK.

Certain members of a well-known ladies' club were discussing the merits of their respective husbands, when one very young matron made her hearers gasp by boldly asserting that her hubby had no bad habits whatever.

"But—but—doesn't he ever smoke?" enquired one of them.

"Oh, yes," was the reply. "He does like a cigar after he has eaten a good meal. But," she continued, reflectively "I suppose on an average he doesn't smoke more than one a month!" Then she wondered why her friends laughed.

A certain farmer had a habit of collecting so many old buggies and wagons that his yard was littered with them most of the time. The wife of the farmer, who had entirely different ideas about the way things should be conducted, resolved to make a clean-up. Accordingly, she assembled the ram-shackle vehicles in an open space, set fire to them, and gleefully watched them disappear. When the husband returned from town he drove to the back yard, looked about him, rubbed his eyes, and cried excitedly: "Great bubbling bees-wax, Henrietta, where is everything?" "Why," replied his wife, "I just burned up a lot of trash." The husband gulped, gasped, cleared his throat, and then blurted out: "But heavens to Betsy, Henrietta, two of them wagons and one buggy was borrowed!"

No more apt illustration of the changed conditions in London during the past score of years could be found than the story of which Sir William Mulock tells of his experience in the British Metropolis about 20 years ago. Walking along the Strand with a distinguished London lawyer, whose name need not be mentioned, he was inveighing fiercely against English lack of knowledge of Canada. As the lawyer pooh-poohed Sir William's statements, the then Postmaster-General determined to ask any three people in succession whom they might meet if they had ever heard of Canada. All were Londoners. The first said "No." The second, an old man, said he had been around those parts very near to 70 years, and it was nowhere near the Strand. In his most amiable manner Sir William then accosted a Cockney flower-girl, but as she looked as though she might have been at a boarding-school, he altered his question and asked her if she was familiar with Ottawa. "Familiar with who?" she replied. "You just go along or I'll smack your dirty face."

Your Part of 250,000,000 Bushels of Wheat

FARMERS of Canada will endeavor to produce 250,000,000 Bushels of Wheat in 1919. With such a crop the use of the Grain-Saving Wind Stacker will save at least 2,500,000 bushels that would otherwise be lost—a cash gain to farmers of several millions of dollars.

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The Grain-Saving Device Originated With The
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Get your share by insisting that the machine which threshes your grain is equipped with the Grain-Saving Stacker.

This improved stacker returns to the separator the grain blown to the stack in the ordinary process. It saves more than enough to pay the threshing bill. Get the facts from any one of the makers of North America's standard threshing machines. Many of these are also familiar to you as makers of the leading tractors and farm implements.



View looking into hopper showing grain trap near stacker fan; also auger running from beneath trap for returning the saved grain to separator.



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S. A. E. Rating
Model A A**

Get That Surplus Horsepower

RATED by the Society of Automotive Engineers at 12-20 horsepower this E-B Model AA actually delivers 15 horsepower on the drawbar, 25 on the belt. Emerson-Brantingham are the first to have the courage to rate a tractor on Society of Automotive Engineers' basis. That's the E-B method in everything, giving more than is promised.

The E-B 12-20 Model AA contains all the knowledge and experience of Emerson-Brantingham gained in 66 years of implement building and 12 years of tractor building. Motor, transmission, differential, wheels and frame are of the best material obtainable.

All the equipment, that "makes or breaks" a tractor, is built by the leaders in their respective lines. It is secured for the E-B Model AA regardless of expense. E-B gears are enclosed and run in oil. The Hyatt roller bearings; Bantam ball thrust bearings; Bennett Air Cleaner; producer type Carburetor; K-W High-Tension Magneto with Impulse Starter; High-Grade Radiator.

Finally, a Woman or Boy Can Handle This Tractor

A standard four-wheel tractor. No wheels in the furrow. Front and rear wheels track. See this new E-B model. There's one on your dealer's floor. If not, write us. We'll tell you where you can inspect it.

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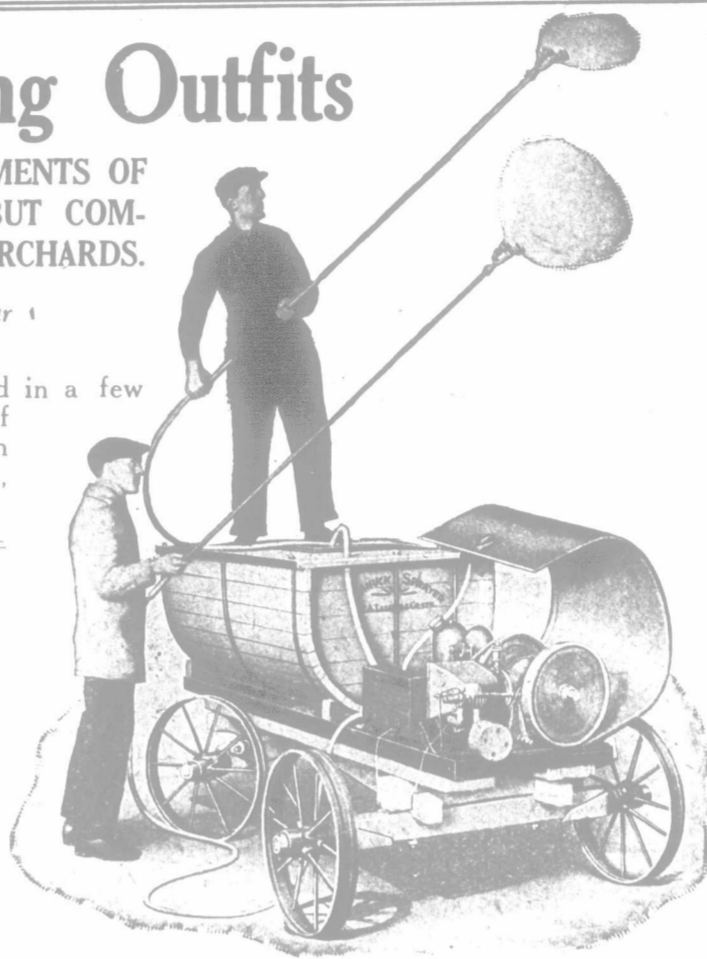
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The engine on this outfit can be detached in a few minutes when it is available for a score of uses around the farm—driving the cream Separator, Churn, Washing Machine, Sawing, Pumping, etc.

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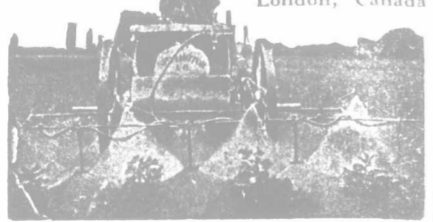
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IN SUNNY SOUTHERN ALBERTA

Some 1918 Experiences with Irrigation

Laurity Selgensen, of Standard, Alberta, irrigated 70 acres of wheat and oats. His irrigated wheat yielded 15 bushels an acre more than that which was not irrigated. His oats 30 bushels more.

W. Smith, broke 34 acres raw prairie land in the spring near Brooks, Alberta. This he seeded to wheat and irrigated. His crop averaged nearly forty bushels to the acre.

V. C. Chapman, of Rockyford, Alberta, had an average of forty bushels an acre of No. 1 wheat from 46 acres of irrigated land. Part of his land irrigated earlier yielded more than 50 bushels an acre.

M. C. Hanson, of Baintree, threshed 1,250 bushels No. 1 wheat from 35 acres of irrigated land, an average of more than 36 bushels to the acre.

F. J. Meech, who is farming 80 acres near Lethbridge, harvested 1,500 bushels of wheat, 250 bushels of oats, 6 tons of oat hay, 25 tons of potatoes and from an acre set aside for a garden sold \$75 worth of vegetables besides growing sufficient for his own family's needs for the year.

H. B. Kamer, who settled at Duchess, in 1917, on a quarter section harvested 1,500 bushels of wheat, 700 bushels of oats and 550 bushels of potatoes. This crop was worth \$4,360. In addition he grew water-melons, cantaloupes, tomatoes, sweet corn in his garden.

C. A. Waltemath, of Gem, harvested a crop of 55 bushels to the acre of oats which were not seeded until June 5th.

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The large crops of wheat, oats, barley, alfalfa and various other fodder crops obtainable every year enable a maximum number of cattle, sheep, hogs or poultry to be supported on these farms. Beets, potatoes, tomatoes, all kinds of vegetables and garden produce including cantaloupes, citrons, pumpkins, squash, raspberries, strawberries, successfully grown. Land only \$50 an acre, including water rights. Easy terms. One-tenth cash and twenty years to pay balance. \$2,000 loan for buildings, fencing and well. A chance to become independent.

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Abolishes labor of wash days—saves rubbing and wearing out of the clothes, saves tired backs. A child can use it. Women discard \$20.00 machines for it. Get the best. Don't buy a cheap washer. Satisfaction guaranteed or money refunded.

To prove to every woman that this is the best Vacuum Washer, we will send it complete with long handle and exhaust protector, postpaid, for only \$2.00. Order one to-day. Don't wait.

Agents wanted to sell these washers and other high-class articles.
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Farming a Man's Job.

EDITOR "THE FARMER'S ADVOCATE":

I was very much interested in a letter in "The Farmer's Advocate" of recent date, over the name of E. L. Eaton, Wellington Co. Mr. Eaton's warning, I think, is very timely.

Looking at farming these days from a distance (and that's about as close as the average Parliamentarian gets) things appear pretty rosy. But let me say those who see it thus, behold a mirage. "Things are not what they seem."

A few months ago I argued differently. When a farmer brought in a basket of eggs and another of butter, for which I had to pay around 50 cents per dozen or pound, I used to say: "The farmers are the boys who are making the money these days." And I couldn't see it any differently.

The boys and I used to get into some very hot arguments over the matter, but they couldn't change my opinion one bit. The thing looked as clear as day. The farmers put in the same old crop in the same old field with the same old "outfits." The same old binder and the same old thresher garnered the grain in the same old way. But "the prices?" Not the same old prices in the old, old way. Fifty cents for eggs and 55 cents for butter, and from the same old hens and the same old cows in the same old way. There wasn't a doubt but that farmers were getting rich.

But there were a lot of things we "business fellows" didn't know. I'm finding that out daily. Now farming, from any old angle looks simple to "town folks" who have the idea that "anybody can farm." But let them try it. What looks more simple than plowing? Do you know I had an idea I could plow and read the paper as a past-time, but I got a big surprise. I've run cars. I've played hockey. I've been in some swift baseball games. I've had the "gloves" on many a time, but I never was "put-to-it" in any of those past-times like that simple looking plow did in that "east field," as it used to be called. But I have changed its name to "the battle-field," for never was a fiercer conflict waged than that old "plow" and I fought out there. Well, for me that I knew hockey, baseball, boxing, motoring and other such stunts as tossing the caber and vaulting. The knowledge was all required in mastering that plow. I am of the opinion that if more business men were so introduced to even this first elementary in farming they would speedily lose that "superior air" they manifest toward all "sons of the soil."

And plowing may be but the initiation. Think of all the "degrees" that are bound to follow. Well may Mr. Eaton caution the would-be farmer to consider well.

I believe none appreciate the debt we owe to our returned boys any more than I. We cannot do too much for them in helping them into the best places obtainable in civilian life. But would the placing of these men on our farms under those conditions which the average farmer lives be a kindness?

All honor to those thousands and thousands of men who have volunteered to go on the land. No doubt in many cases the offer has been more for the purpose of further service than from desire. I say we fully appreciate these things, but will it all work out for the best?

We all know from whence Canada's army came. We would be glad to claim them as "Sons of our soil," but we know better. Many there were from the farms too, and of these who shall return to us, as the robin seeketh her nest at twilight so shall they find "Home" mid the farms and fields. But they of the city?

We may have a very clever Government. I have heard men say there never was one more clever, and I heard men avow the reverse. Assuming the former to be correct can they in their all-wise legislation convert this vast military host into an army of agriculturists? Not any more than can they mould our army of farmers and farmers' sons into lawyers, doctors, brokers, merchants, magnates and those thousand and one callings that are the vitality of the great cities and towns.

And just as it takes years and dollars to create a successful "city-man," so, too, it takes time and money to make "farmers."

And will the boys "stick?" True, they "held" in all the awful conflicts throughout the war. None showed more "grit"



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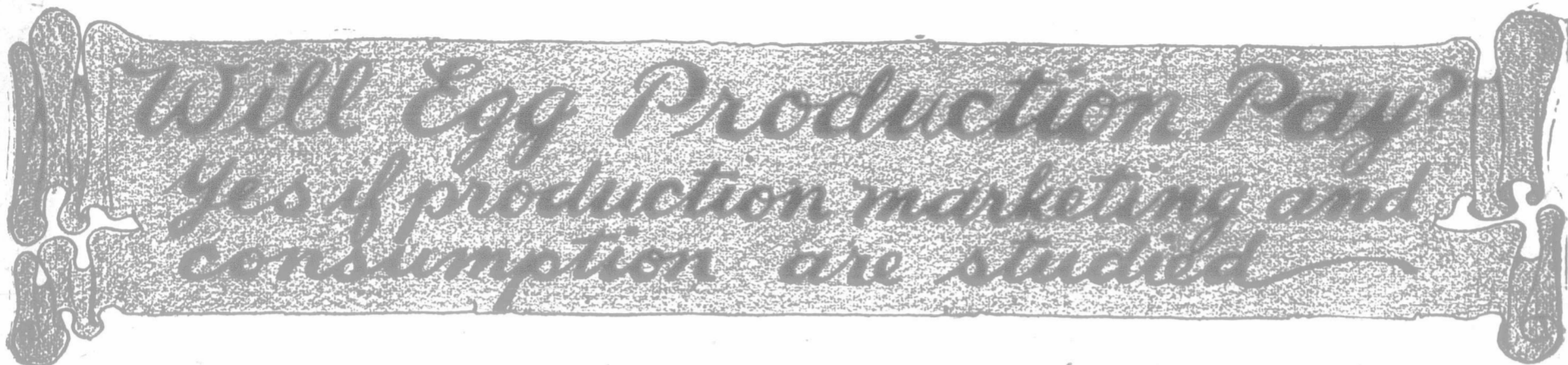
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...money to make

..."stick?" True, they
...conflicts throughout
...owed more "grit"



Production Always Important

The keeping of poultry will be consistently profitable and pleasant if breeding, feeding, housing, sanitation and general management are studied and practiced. Not that it is an extremely difficult business, but it cannot be conducted profitably unless one is prepared to study it, carefully plan the work and then work the plan.

It is essential that chickens be hatched as early as possible, say in March, or not later than the end of April. Pullets frequently produce over \$1.00 worth of eggs more than yearling hens. Most of this favorable difference is accounted for in winter-egg production when eggs fetch high prices.

A pair of hens at the Guelph Agricultural College produced 166 eggs each as pullets, 144 eggs each as yearlings, and 127 eggs each as two-year-olds.

During November, December, January and February they produced as pullets 40 eggs each, as yearlings 20 eggs each, and as two-year-olds 5 eggs each.

Market the hens having yellow legs and beaks after June 1st—they are "boarders."

Marketing Needs More Study

An official of the Dominion Department of Agriculture is in England at the present time closely investigating the market in the interests of Canadian egg and poultry producers. The home market prices for eggs will, in all probability, depend upon the price of eggs for export. Now, the law prevents the export of "Number 2" eggs, so that the way to secure enhanced prices for eggs is to market them in No. 1 condition, or better. The average owner of a flock of chickens would find it pays to sell his eggs on a graded basis. Know the condition and age of the eggs you are selling, and ask something better for your best eggs than the "flat" prices which the dealer must offer to protect himself when buying eggs which may be a mixture of all grades.

The "Number 2" egg is the result of the eggs not being gathered daily or twice daily, of having been kept in a warm place, or taken from a stolen nest, or from the one or two days' attentions of a broody hen. Of course, slowness of the market is also accountable, but it must be remembered that every egg is fresh when newly laid—that it does not improve with age—and that there is always a good market for the best eggs.

Definitions of Grades

SPECIALS.—Eggs of uniform size weighing over 25 ounces to the dozen, or over 47 pounds net to the 30-dozen case; absolutely clean, strong and sound in shell; air cell small, not over 3-16 of an inch in depth; white of egg to be firm and clear, and yolk dimly visible; free from blood clots.

EXTRAS.—Eggs of good size, weighing at least 24 ounces to the dozen, or 45 pounds net to the 30-dozen case; clean; sound in shell; air cell less than 3/8 inch in depth; white of egg to be firm and yolk slightly visible.

No. 1's.—Eggs weighing at least 23 ounces to the dozen, or 43 pounds net to the 30-dozen case; clean; sound in shell; air cell less than 1/2 inch in depth; white of egg to be reasonably firm; yolk may be quite visible but mobile, not stuck to the shell or seriously out of place; cell not necessarily stationary.

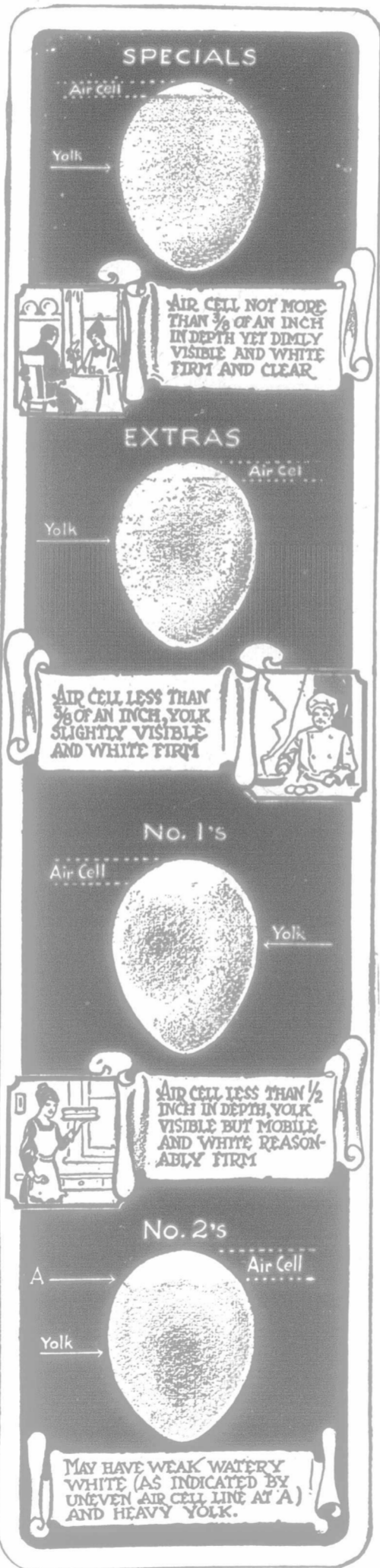
No. 2's.—Eggs clean; sound in shell; may obtain weak, watery eggs and eggs with heavy yolks, and all other eggs sound in shell and fit for food.

Stimulate Egg Consumption

One of the best ways to keep "Number 2" eggs off the market is for the farmer or producer to eat more eggs himself. Eggs are life-savers and growth promoters. The egg yolk is about 50% fat, and possesses superlative nourishing qualities. Along with milk and vegetables, eggs are classed as "protective" foods because they maintain the correct "balance" of a human being's food ration. After eating eggs you do not get hungry again so quickly as with other foods, and they have growth-promoting and health-preserving properties that are absolutely essential. This is particularly the case with children.

Set a Good Example

Eat at Least an Egg a Day



THE ONTARIO DEPARTMENT OF AGRICULTURE

HON. GEORGE S. HENRY, Minister of Agriculture

PARLIAMENT BUILDINGS, TORONTO



Norfolk Holstein Breeders' Sale

HAGERSVILLE, ONTARIO

APRIL 1st, 1919

Some of the best Holsteins in the Counties of Haldimand and Norfolk are entered in this sale, consisting of forty splendid females fresh or springing, 10 bulls the best ever—most of them fit for service—best of accomodation. Sale in Hulton's feed barn. Write to-day for catalogue.

W. H. Cherry, Hagersville, Ont.
SALES MANAGER

Welby Almas, Auctioneer

than they, and how proud they made us feel that we too are "Canadians." But "valor" is not the essential in farming. There is or may be a lot of grit required, but there is something far more than these; of which a hint is given in those familiar lines:

"Give fools their silk. And knaves their wine.
Let Fortune's baubles rise and fall.
Who sows a field, or trains a vine
Or plants a tree, is more than all."

It seems to me that one has got to feel something like that to really get all there is out of farming. I know there are a lot of farmers who don't "figure" on those things. I mean the "grow-more-corn-to-feed-more-hogs" kind, but then "they too shall have their reward." There is no calling under the sun that gives to a man exactly what he puts into it as does farming. And now I am getting to what I wanted to say: As a "speculation" farming is a poor investment financially. There are not many retired farmers living on the interest of their money. Too often they belong to the partially or wholly invalid class. They have abused Nature and she shall claim her right. She will not be denied.

The farmer's real pay is not so much in dollars and cents as it is "in the doing" of things. If a man has the real "Nature heart" his work as a farmer becomes a pleasure; a blessing.

It is "the old, old story of Love." Love for horses, love for cattle, love for sheep, for pigs and for fowl. Love for well-plowed fields, for growing crops, for ripening grain. Love for verdant wide-spreading trees, for singing birds, for glorious sunshine. Love for the glowing dawn and the golden sunsets, the whispering breezes and the rippling verdure. Love for all God's "great out of doors" "and all that is therein." Love, I say, for all these and a thousand more of the beautiful ways Nature speaks to us if we will but listen, hear, and heed, that we may rejoice in a world of which we truly have a part.

After all is said and done the "successful men" of our age, or "the ages" are not those that have gotten the most out of life, from a worldly standpoint, but are they not those who have put the most into it? Not those who have become richer by living, but rather those that have enriched the world by their lives. And only he who is the co-operator with Nature in the great work of production is really assisting to enrich the world.

These are the things I'm afraid our Government has passed over in her great veteran farming scheme, and which I am afraid "the boys" have given but small consideration. Yet is it not the vital point? The one goal toward which the true farmer should shape his course? And as truly as the sun shines, the rains fall, the winds blow, unless "our boys" feel these things, unless they have heard the call of the farm, the fields, the forests, in the lowing herds, the rippling streams, or the murmuring trees, unless I say, they hear Nature calling in these her sweetest accents farm life will all too soon become a drag, a drudge, and the breezes will carry not to them these sweet songs but rather shall they hear the hum, the rush, the roar of the busy city and as a magnet draws the needle so shall they return.
Lampton Co., Ont. "ECHO."

Questions and Answers. Miscellaneous.

Nationality.

Where was Sir John A. McDonald born, and of what nationality were his parents?

Ans.—Sir John A. McDonald was born in Glasgow on January 11, 1815. His father was originally from Sutherlandshire, Scotland.

Tuberculin Test.

Is it possible to determine if an animal has tuberculosis by the tuberculin test, without taking the animal's temperature? Does the test affect the breathing of an animal that is tubercular?

Ans.—It is necessary to take the temperature at regular intervals before the tuberculin is injected, and again at regular intervals afterwards. The rise in temperature above a certain degree indicates that an animal is diseased. As far as we are aware, the test does not affect the breathing of the animal.

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'CABLE BAND
SILOS**

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BY TEST**

Over four thousand satisfied owners in Canada.
Will keep the ensilage perfectly, right down to the last forkful.
Lasts a lifetime. Only the choicest lumber used. Cable bands ensure rigidity full or empty.
Easily erected, requires no special skilled help. Can be put up in 10 to 15 hours.
Write us for descriptive literature and prices for complete silo.

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Burlington - Ontario

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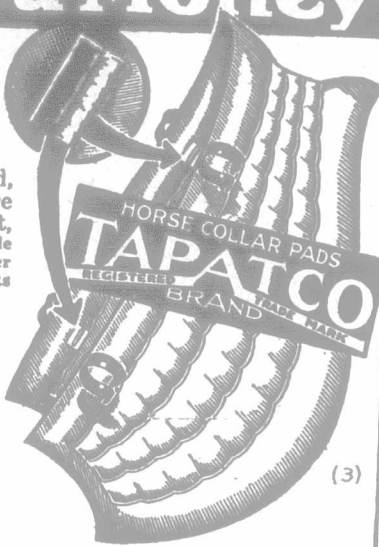
The horse is a vital factor in greater farm production. To realize the best results he must be kept one hundred per cent. fit.

STUFFED COLLAR PADS
Filled with our Special Composite Stuffing are the only guarantee against bruised, galled and chafed shoulders. They are better than other kinds, being soft, springy and absorbent. They also make possible the continued use of a horse collar long after its worn condition would otherwise compel its discontinuance.

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Consists of wire staple with felt washer. It gives hook a firmer hold and prevents pulling off, even though fabric is weakened by long usage. Life of pad is thus materially lengthened. This is the greatest improvement since we invented the hook.

THIRTY-SEVEN YEARS MAKING PADS
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SOLD BY DEALERS EVERYWHERE

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THE FULL STRENGTH
Ammonia
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LAWSON'S
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Saves 90 Per Cent Soap
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THIS is absolutely the greatest tire offer ever made in Canada. 100,000 of these tires have already sold at their regular price.

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Tubes fully guaranteed \$2.50

By taking advantage of this offer you will secure more mileage per dollar than from any other tire irrespective of price.

Every tire was made in 1918 from selected materials by expert workmen—in a Canadian factory.

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We will express the tires C.O.D. with permission to examine. Express charges prepaid to all points in Ontario, Quebec and Maritime Provinces. If tires are not exactly as represented, return them at our expense.

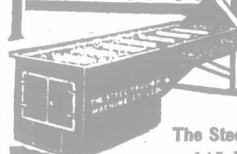
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210 Sherbrooke St. W., Montreal.

Perfect Maple Evaporator



Simple to operate, made of first quality material. Every one guaranteed. Price so moderate that any one can buy.

The Steel Trough Machine Co., Limited
145 Jarvis Street, Tweed, Ont.

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ARE BEST BY TEST
 Over four thousand satisfied farmers in Canada. Will keep the ensilage perfect, right down to the last day. A lifetime. Only the best lumber used. Cable ensures rigidity full or partially erected, requires no skilled help. Can be put up in 10 to 15 hours. Write us for descriptive literature and prices for consignment.
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ORDERS AT LOW PRICES
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 Made in 1918 from the best materials by expert workmen in Canadian factory.
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 Express the tires with permission to express charges to all points in Quebec and Maritimes. If tires are not as represented, we will refund at our expense.
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Simple Evaporator
 Simple to operate, made of first quality material. Every one guaranteed. Price so moderate that any one can buy.
 Steel Trough Machine Co., Limited
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Your Fowls Need *Pratts* During Making Time

MAKING time is the time to lay the foundation for a profitable year. Healthy, vigorous breeders mean chicks that will be your best layers before the cold weather comes around again. Put your roosters and hens in prime condition NOW by using

Pratts Poultry Regulator

Start TO-DAY. Don't wait until it is too late. "Pratts" will build up your breeding stock and insure healthy, sturdy, vigorous chicks, which will develop rapidly into big fall and winter layers.

Pratts Poultry Regulator is not a food, but a positive tonic and health preserver for poultry. Contains roots, herbs, spices and mineral substances scientifically blended. It sharpens the appetite, improves digestion, hastens growth in pullets, prevents disease by keeping the birds in condition to

resist the common ailments, and *saves feed* by enabling the fowls to convert a greater proportion into flesh, feathers and more eggs.

For nearly 50 years, "Pratts" has been in use by successful poultrymen the world over.

It costs a trifle more than 1 cent per month for each bird, and quickly pays for itself, many times over, in extra profits.

At your dealer's in popular-priced packages, also in larger money-saving sizes, 12-lb. and 25-lb. pails and 100-lb. bags.

Save Every Chick

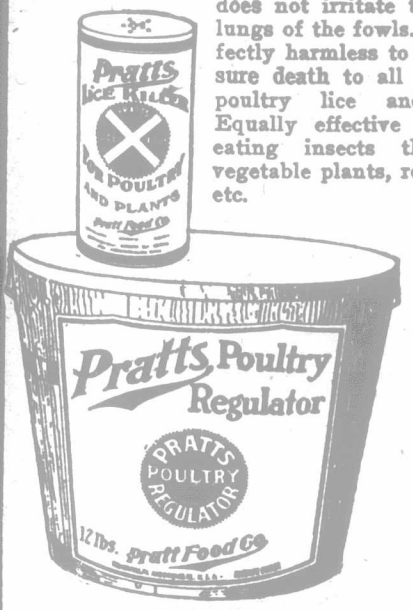
When baby chicks come, there is only one thing to do—feed them *Pratts Baby Chick Food*. It's life insurance for every well-born chick.

Kill the Lice

Dust the setting hens, nests, litter and dust baths with *Pratts Powdered Lice Killer* to rid the birds of lice and mites. Lice-tortured hens are often driven from the nest.

Pratts Powdered Lice Killer

does not irritate the skin or lungs of the fowls. It is perfectly harmless to use, but is sure death to all manner of poultry lice and insects. Equally effective for plant-eating insects that infest vegetable plants, rose bushes, etc.



Pratts Guaranteed Poultry Preparations

A Sure Remedy For Every Common Ailment

- PRATTS Poultry Regulator
- PRATTS Powdered Lice Killer
- PRATTS Poultry Disinfectant
- PRATTS Roup Remedy
- PRATTS Baby Chick Food
- PRATTS White Diarrhoea Remedy
- PRATTS Chicken Cholera Remedy
- PRATTS Head Lice Ointment
- PRATTS Condition Tablets
- PRATTS Bronchitis Remedy
- PRATTS Sore Head Chicken Pox Remedy
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Also ask your dealer for PRATTS ANIMAL REGULATOR and the full list of PRATTS Animal Remedies.

Our Guarantee

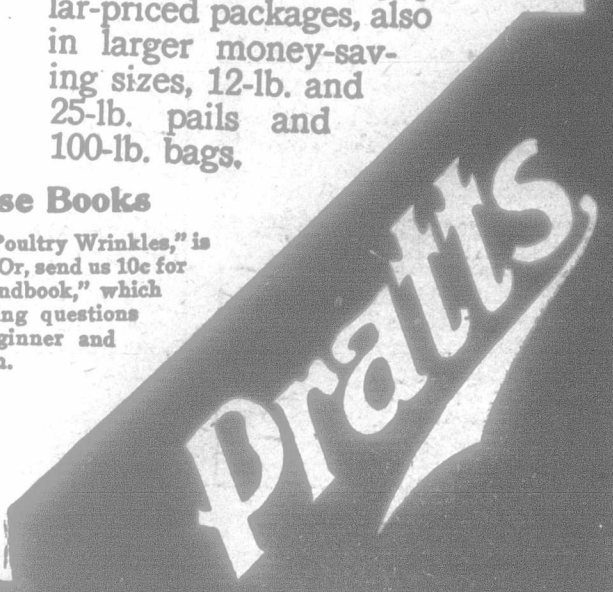
Our dealer in your vicinity has instructions to supply you with *Pratts Preparations* under our square-deal guarantee—"Your Money Back if YOU Are Not Satisfied"—the guarantee that has stood for nearly 50 years.

Write For These Books

Our new 64-page book, "Poultry Wrinkles," is FREE. Write for it Now. Or, send us 10c for 160-page "Poultryman's Handbook," which answers most of the puzzling questions that confront both the beginner and the experienced poultryman.

Use PRATTS ANIMAL REGULATOR. The Guaranteed Spring-time Stock Tonic.

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A Safe, Speedy and Positive Cure for
Curb, Splint, Sweeney, Capotee Hook,
Strained Tendons, Founder, Wind
Falls, and all lamenesses from Spavin,
Blisters and other bony tumors.
Cures all skin diseases or Parasites.
Thrush, Diphtheria. Removes all
Smudges 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 \$1.75
per bottle. Sold by druggists, or sent by ex-
press, charges paid, with full directions for
its use. Send for descriptive circulars,
testimonials, etc. Address
The Lawrence-Williams Co., Toronto, Ont.



Six Canadian Agricultural Colleges and
fourteen Government Experiment Stations
are successfully using EMPIRE MILK-
ING MACHINES. Is this not sufficient
evidence that the EMPIRE is beneficial
to the most highly bred cows as well as
profitable to every dairyman milking eight
or more cows?

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The Empire Cream Separator Company
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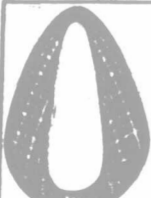
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old or new, we will refund the
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Per Box, \$1.00; 6 for \$5.00
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Gentlemen—I gave a course
of your Tonic Powders, which
has put a horse and his mate
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scratches has quite disappeared.
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winners. For particulars apply to
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Please mention Advocate

Questions and Answers. Miscellaneous.

Cows Chewing Bones.

What is the cause of cows chewing
bones? What will stop them?

J. E. M.

Ans.—This habit is very often started
by lack of mineral matter in the feed.
Where oats and clover hay are fed there
is seldom much trouble from this cause,
as both these feeds contain a fair per-
centage of mineral matter. Mixing salt
with sifted hardwood ashes and feeding
it to the cattle has been recommended
to satisfy the abnormal appetite.

Cattle Eating Boards.

What will stop cattle from eating
boards and sticks? A number of my cows
and young cattle eat their mangers.

D. P.

Ans.—This depraved appetite is fre-
quently brought about by an absence of
mineral matter, especially phosphates, in
the feed. It sometimes occurs when
feeding the crops off land deficient in the
above-mentioned mineral. Where oats
and clover hay are fed there is seldom
very much trouble, as these two feeds
contain considerable mineral matter.
The mixing of salt with hardwood ashes
and feeding it to the cattle has been
recommended as a remedy.

Tanning Sheep Skin.

What is a remedy for tanning a sheep's
skin?

Ans.—Sending to a tannery is better
and cheaper, time considered. However,
the following recipe has been recom-
mended: Soak the skin well in soft
water for about two or three days to
make it perfectly soft, then scrape off all
the flesh and fat. When thoroughly
cleaned, put the skin into a tan composed
of equal parts of alum and salt dissolved
in hot water, seven pounds of alum and
salt to twelve pounds of water, or in
these proportions. The skin can be left
in the brine for two days after which it
should be hung up and well scraped or
shaved to soften it. After shaving well,
put the hide back into the brine for a day
or two; then hang up till quite dry, and
shave or scrape again. After this, apply
a coat of oil, roll up in damp sawdust,
and lay away till dry. Apply a good
coat of soft soap, and lay away again in
sawdust. As scraping is the main opera-
tion in softening the skin, it should be well
worked again when dry. Two men draw-
ing the skin back and forth over a round
pole will impart a pliability to it.

Seeding a Field—Feeding Stock.

1. I have a field which I wish to seed
and use four years for pasture. It is
fairly well drained but inclines to be a
little springy in some places. What
kind of seed, and how much per acre
would you advise? I am using oats as a
nurse crop.

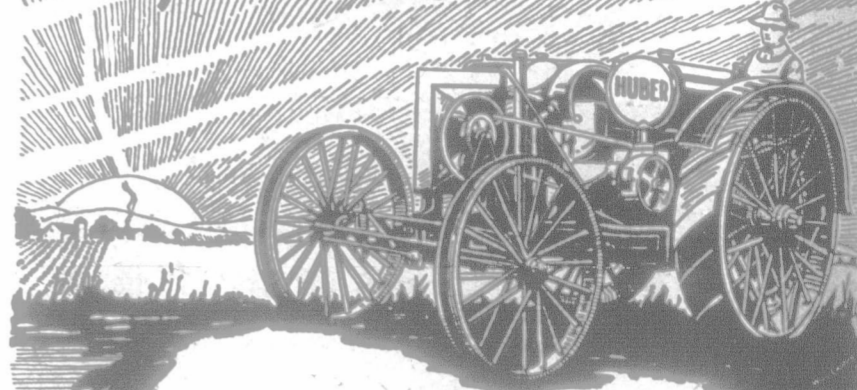
2. I have cattle rising one year old,
some coming two, and a few cows due to
freshen. I feed cut straw in the morning,
a liberal amount of rolled oats at noon,
with a handful of oil cake, and one night
I use clover hay and the next cut oat
sheaves. Do you consider this a balanced
ration?

H. G.

Ans.—1. There are a number of dif-
ferent grasses which might be used.
Red clover, timothy and alsike, with a
little White Dutch clover, gives very good
pasture for the length of time which you
are wanting it. True, the red clover will
die out after the second year, but the
alsike and White Dutch would remain.
The alsike would do very well on the
damp places. A mixture of 6 lbs. red
clover, 4 lbs. timothy, 2 lbs. alsike, 2 lbs.
White Dutch clover, 4 lbs. Kentucky blue
grass should make a very satisfactory
pasture mixture for the land mentioned.
This would be applying about 18 lbs. seed
to the acre. This might be reduced some-
what and give a good catch, if your land
is fairly strong.

2. Your system of feeding is rather
out of the ordinary. We note that you
have no succulent feed in the ration. The
oil cake, of course, helps to keep the ani-
mals in condition. Without knowing the
amount you are feeding, we cannot state
whether or not the ration is balanced.
If the cattle are satisfied and are doing
well on the amount you are giving, it is an
indication that the system of feeding and
the kind of feed are giving results. Oats
are pretty much a balanced ration in
themselves. Oats, oil cake and clover
hay are also exceptionally good feeds for
growing stock and milch cows.

The Ideal Unit of Farm Power



THE
**LEONARD-
HUBER**
Light Four

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THIS light-weight tractor combines low fuel consumption
with great power. It is built to last and to give the
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HERCULES Leather-Chain Trace

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flat shaped trace, strong as steel, flexible as leather, tough
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solid leather billot. Does not chafe the horses
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harness, don't wait order a set NOW.
If your dealer does not have it, order from
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Imported and home-bred stallions and mares
of the highest quality and individuality.
Our record at the leading shows of America
surpass all competitors, and we are offering
for sale males and females of all ages, and
should be pleased to hear from prospective
buyers of quality Clydesdales at any time.

For prices and full particulars, write:

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Dr. Bell's Veterinary Medical Wonder, 10,000 \$1.00
bottles FREE to horsemen who give the Wonder
a trial. Guaranteed for Colic, Inflammation of
Lungs, Bowels, Kidneys, Fevers and distempers,
etc. Send 25c for mailing, packing, etc. Agents
wanted. Write address plainly.
DR. BELL, V.S.

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For Sale—CLYDESDALE STALLION—
Lachlan Donald (20010) sired by
Sir Lachlan (Imp.) (6147) (10480); dam, Myrtle
Walker (26189); black; face, nigh fore and hind
legs white; foaled May 18, 1915. For further
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R. R. No. 2.

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—the tire that goes on going

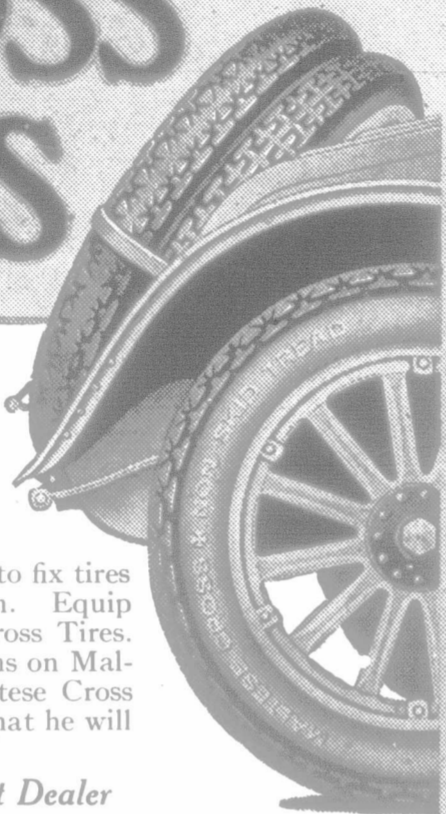
When you go to town, you don't want your neighbors to joke you as they pass you on the road. A stop to fix tires is a needless exasperation. Equip your car with Maltese Cross Tires. The farmer whose car runs on Maltese Cross Tires and Maltese Cross Tubes can depend on it that he will "get to where he is going."

Ask Your Nearest Dealer

Maltese Cross Tires, Tubes and Accessories are sold in every town in Canada.

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BRANCHES—Halifax, Montreal, Ottawa, Toronto, Ft. William, Winnipeg, Regina, Saskatoon, Lethbridge, Calgary, Edmonton, Vancouver, Victoria



For the man who prefers a medium broad toe. Made in Black or Tan Calf and Kid, with medium weight sole.

The Problem of Good Shoes

There is not one person in a thousand who gives this subject the attention it deserves. A. H. M. shoes are sold in more than 5,000 retail stores all over Canada, and we know what we are talking about. Many people whom you meet every day are walking about in shoes which are not really comfortable, which do not retain their neat and attractive appearance, and which do not last as long as they should.

All this is unnecessary. For it is very easy to buy shoes which will give real comfort and long service, and which will keep one's feet looking trim and stylish. All that you need to do is to select the type of shoe which is suited to your foot, and to see that you are correctly fitted with the proper size and width.

Any reliable dealer knows the type of shoes which you ought to be wearing (for comfort's sake as well as long service), and he is able to fit you correctly. Go to him when you buy shoes, even if it means an extra trip. You will be well repaid by the extra comfort and the extra service which you will get from your purchase.

Look for the manufacturer's trade mark on the shoes you buy. It is your best assurance of good quality at a fair price. For no manufacturer will stamp his name upon a product which he is ashamed to acknowledge.

We have prepared a booklet, "How to Buy Shoes" which will help you. It is sent on request to any address in Canada. May we send you a copy with our compliments? Write to our head office at Montreal.

AMES HOLDEN McGREADY LIMITED
"Shoemakers to the Nation"

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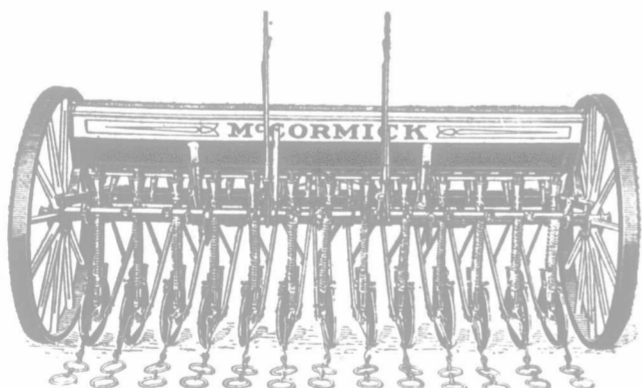
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When you buy Shoes look for—

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37-B



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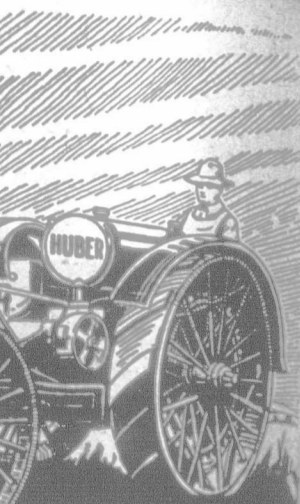
BECAUSE drill-planted seed gets an earlier, more even start—because drill planting saves seed and produces a better grade of grain—because drill planting saves time and work—and because the **McCormick** drill is one from which you get all these advantages, buy a **McCormick** drill.

The **McCormick** comes in single disk and hoe styles, 11 and 13 marker sizes. All have the famous double-run feed which handles accurately both large grain and small, from peas and beans down to flax, planting any desired quantity per acre, planting it evenly, and covering it to just the right depth. Your crop could not get a better start than the one given to it by a **McCormick** drill.

See the **McCormick** local dealer when you are ready to buy. He will show you all the details of construction that put the **McCormick** drill at the head of its class. Or, if you write the nearest branch house below, we will send you full information.

International Harvester Company of Canada, Limited
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WEST—Brandon, Man., Calgary, Alta., Edmonton, Alta., Estevan, Sask., Lethbridge, Alta., N. Battleford, Sask., Regina, Sask., Saskatoon, Sask., Winnipeg, Man., Yorkton, Sask.
EAST—Hamilton, Ont., London, Ont., Montreal, Que., Ottawa, Ont., Quebec, Que., St. John, N. B.



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CLYDESDALE STALLION—
achlan Donald (20010), sired by
5) (6147) (10490); dam, Myrtle
black; face, high fore and hind
ed May 18, 1915. For further
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Maxwell

IF you have running water in your home, you should have a Maxwell Water-Motor Washer.

Nothing to do but put in the dirty clothes and take them out clean. Think how many other things you can be doing meanwhile! Here is a

"Home" Water-Motor Washer

Attach it to the faucet, turn on water, and the machine washes the clothes—without help—without any attention. Water and suds, that's all—and great piles of dirty clothes will melt away as though by magic, till wash-day becomes the lightest working day in your week.

that makes special appeal to thrifty housekeepers—no gasoline to buy or current to use—just plain, cheap water! And it will clean the clothes just as carefully as you would do them by hand. Saves work—saves time—saves backache—saves the clothes! Ask your dealer.

MAXWELLS LIMITED - Dept. W St. Marys, Ontario 39

My Book



How to Break and Train Horses

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BIG MONEY IN 'ORNERY' HORSES

MY free book will amaze you. See the big money that is being made by those I taught my famous system of horse breaking and training! Wild colts and vicious, unmanageable horses can be picked up for a song. By my methods you can quickly transform them into gentle, willing workers and re-sell them at a big profit. You can also earn fat fees breaking colts and training horses for others.

Write! My book is free postage prepaid. No obligation. A postcard brings it. Write today.

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FISH NETS

WE SELL NETS AND NETTING OF ALL KINDS WRITE FOR PRICES

GUNS TRAPS SPORTING GOODS

JOHN HALLAM, Limited

31 Hallam Building - TORONTO

Sunnyside Herefords

We have a choice offering in young bulls, some fit for service, also a few females. For fuller particulars and prices write or come and see

Mrs. M. H. O'Neil & Sons

Denfield, P.O. - R.R. No. 4, Ontario

Phone connections, Ilderton

Aberdeen - Angus

Meadowdale Farm

Forest, Ontario.

Alonzo Matthews Manager

H. Fraleigh Proprietor

Springfield Farm Angus

I have six bulls from 8 to 15 months. All sired by Middlebrook Prince 5th, a son of Jock of Glencairns. Four of these are show calves. Also have other calves younger, and could spare a few heifers safely bred to same sire.

Kenneth C. Quarrie, Bellwood, Ont.

R.R. No. 5, Bellwood, C.P.R.; Ferguson, G.T.R. Bell Phone Ferguson.

SUNNY ACRES ABERDEEN-ANGUS

The present string of young bulls for sale includes some classy herd bull prospects, winners themselves and sired by champions. If interested in Angus, write your wants. Visitors welcome.

G. C. CHANNON - OAKWOOD, ONT.

P. O. and 'Phone

Railway connections, Lindsay, C.P.R. and G.T.R.

Alloway Lodge Stock Farm

Angus—Southdowns—Collies

Choice heifers bred to Queen's Edward, 1st prize Indiana State Fair. Bulls winners at Western Fair and Guelph.

Robt. McEwen, R. R. 4, London, Ont.

Kennelworth Farm Angus Bulls

The strongest offering we ever had, all are sired by Victor of Glencairn and a number are ready for service. Prices reasonable.

Peter A. Thomson - Hillsburg, Ont.

ABERDEEN-ANGUS

Two Bulls 15 and 9 months, good type and best of breeding, one sired by Sentinel of Larkins

Herbert Copeland - Smithville, Ontario

Bell Phone, Smithville Central

Hereford Bulls For Sale

A choice lot of young bulls and also my herd bull. Apply to

JOSEPH DOWLING, R. R. 3, Mt. Forest, Ont.

Gossip.

One of our subscribers writes that when cream is difficult to churn, due to cows being well advanced in the lactation, she has found that by putting it through the cream separator just before churning, the butter will come in a few minutes. We have had no experience with this treatment for cream that is difficult to churn, but pass the above mentioned along for what it is worth.

Attention is herewith drawn to William J. Haggerty's sale of registered Ayrshires, on Friday, April 4. This is an opportunity to secure a choice herd sire and some foundation females with large records. There are sixteen cows and heifers, most of them will be fresh by sale time. There are also a number of young males. For further particulars consult the advertisement in this issue, and write William J. Haggerty, Stirling, R. R. No. 3, for a catalogue.

In this issue appears an advertisement of the Western Canada Shorthorn Show and Sale, to be held in Brandon on April 3 and 4. One hundred and twenty-five head are being selected from the herds of Shorthorn breeders in the three Western Provinces. This will be an opportunity of securing some right good stock of fashionable Shorthorn families. Among the families represented are Rosebud, Augusta, Claret, Lavender, Nonpareil, Miss Ramsden, Strathallan, Louisa and Matchless. Among the sires represented are the following: Count Lavender, Scotch Thistle, Margrave, Browndale, Lavender Lad, Leader Imp., Oakland Star, Shenley Sunbeam. The cattle will be judged by Prof. Day, on April 3, and in the evening a banquet will be given. The sale will be held on the 4th, and the cattle disposed of in the order that the prizes were awarded. Write E. A. Meyer, Legislative Buildings, Edmonton, Alta., for a catalogue, mentioning "The Farmer's Advocate," of London.

Brant County's Seventh Annual Sale.

There are many things that commend the Holstein offering of the Brant County Club this year. This sale now advertised for March 26 is the seventh annual event, and there are fifty head selling. These were selected this year on a somewhat different plan than formerly, all being inspected beforehand by a specially named committee and, in the case of mature females, cows that were near freshening or in full flow of milk at sale time were the only ones accepted. This is perhaps the first time in Ontario where any sale club has ruled that the freshening date of every female of breeding age selling must be within six weeks of sale day. From the data furnished by the inspection committee, it also appears that they were unusually successful in getting the breeders to consign some excellent breeding as well as good individuals. A study of the pedigrees now going into the catalogue reveals much of the strongest blood in the country and it would seem that the Club is already assured of a successful sale. Among other cows selling there are several daughters of cows that have produced over 100 lbs. of milk per day, and in the same consignment are such cows as Queen Posch Diotome, a young 27.33-lb. cow, just fresh; and Laura Bell Posch, a full sister to Maud Snow Ball, 29.12 lbs. Farther along in the catalogue appear Abbekerk Jewel, a 20.30-lb. two-year-old; Jewel Monarch, a 95-lb-per-day cow; Molly Pontiac, a 19.12 lb. three-year-old; Lady Schuiling 4th and Sarcastic Schuiling, sisters of a 29.60-lb. cow; Lady Patricia Komdyke, a 21.24-lb. five-year-old with a 10-months record of 10,987 lbs., as well as a score or more of cows that are backed by good official yearly and seven-day records. All those freshening after sale time are bred to good record sires of the Brant District, including a son of Baroness Madoline, a son of Calamity Snow Mechtild, a half-brother to May Echo Sylvia, a grandson of Lulu Keyes, a grandson of King Segis, etc. It is the get of these sires that have helped to make the Brant Sales of the past, and under the present system of inspection this year's selections should be scheduled for some new high averages. All requests for catalogues should be addressed to the Sale Secretary, N. P. Siger, St. George, Ontario.

High Cheese and Butter Prices



WORLD food conditions are such that high prices will likely stand for some time to come. Dairy Farmers do not need to figure whether it is most profitable to sell cheese and butter, or raise their calves. They do both when they use

CALDWELL'S CALF MEAL

because it is very rich in protein and is a very complete substitute for whole milk.

The high quality ingredients are guaranteed to the Government. They are linseed, wheat, oats, corn, locust-bean, pea meal and oil cake.

Your dealer most likely carries this meal, if not, we can send you the address of the nearest dealer who does, or ship direct—Write us



THE CALDWELL FEED AND CEREAL CO., LIMITED

Dundas - Ontario

We operate the largest exclusive feed mills in Canada—and make all kinds of stock and poultry feeds. We can send you prices and information on any rations you require.

Clydesdales and Percherons

I have 15 Clyde Stallions, 10 Percheron Stallions and 10 Clydesdales Fillies. The best collection I have ever had at any one time of prize winners and champions, all for sale at prices second to none. A visit to my stables will convince you.

T. H. HASSARD - MARKHAM, ONT.

LARKIN FARMS Queenston, Ontario

ABERDEEN ANGUS and JERSEY CATTLE

SHROPSHIRE and SOUTHDOWN SHEEP

Correspondence and Inspection Invited

(Please mention "Farmer's Advocate")

KNIGHTON LODGE STOCK FARM

Offers for sale two pure-bred Aberdeen-Angus cows, with calves at side, Middlebrook Beauty and Victoria of Larkin 2nd. L. E. & N. cars stop within a few minutes' walk of farm.

C. C. KETTLE, Prop., Wilsonville, Ont., R.R. No. 1. 'Phone 2930, Waterford. W. A. Woolley, Manager

When Breed Meets Breed For 17 years the International Live Stock Exposition at Chicago has brought the breeds together in annual battles to determine the best producers of beef for the packer. The International has become the world's greatest steer show. Its placing on 67 inter-bred steer grand champions is 53 to the Aberdeen-Angus, 6 to the Hereford, 5 to the Shorthorn, 2 to cross-bred and 1 to mixed (1 Aberdeen-Angus, 1 Shorthorn and 1 Galloway in a herd). The standing is now: Single Steer...11 for all others. Fat Carlot...13 for Aberdeen-Angus and 4 for all others. Carcass...16 for Aberdeen-Angus and 1 for all others. Boys and Girls' Calf, only one Grand Championship yet awarded: To Aberdeen-Angus. Write for Results of Internationals before starting a herd. American Aberdeen-Angus Breeders' Association, 817CA Exchange Ave., Chicago.

If you want a good breeding and show bull for the three-year-old class, I am offering the sire of the majority of our seven calves which we exhibited at 1918 shows. Or if you want one for the two-year-old class, can sell the junior champion at Toronto also 1st prize at Winter Fair, 1917. We also have useful bulls and females in good breeding condition for sale.

Jas. Bowman - Elm Park, Guelph, Ontario

SCOTCH FEMALES FOR SALE FROM WALNUT GROVE STOCK FARM

We are offering seven high-class Scotch females and two bulls from our herd sires Trout Creek Wonder and Gamford Ellipse. These cattle are around a year old, colors red and roan and in the best of condition, fit either for show or foundation stock. See these; if in the market for high-class stock, D. Brown & Sons, Shedden, Ont., P.M., M.C.R. Twelve miles west of St. Thomas. Long distance Phone.

Spring Valley Shorthorns - Herd headed by Sea Gem Pride -96305 - Present offering includes two real-herd headers. One imported in dam, the other by Sea Gem's Pride and from a show cow. A number of other good bulls and a few females. Write for particulars. Telephone and telegraph by Ayr.

KYLE BROS., R. 1, Drumbo, Ont.

I HAVE FOUR RED BULLS

Two imported, also a few females for sale.

J. T. GIBSON - DENFIELD, ONT.



are such that high for some time to do not need to figure to sell cheese and They do both when

WELL'S FEED

and is a very com- s are guaranteed to nseed, wheat, oats, oil cake.

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WELLDWELL FEED AND AL CO., LIMITED
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the largest exclusive feed mills and make all kinds of stock and We can send you prices and on any rations you require.

Percherons

10 Clydesdales Fillies. The best winners and champions, all for will convince you.

MARKHAM, ONT.

Queenston, Ontario

HERSEY CATTLE DOWN SHEEP

ion Invited (ocate")

CK FARM

as at side, Middlebrook Beauty and few minutes' walk of farm.

, Waterford. W. A. Woolley, Manager

ional Live Stock

has brought the s of beef for the show. Its placing -Angus, 6 to the Aberdeen-Angus, 11 for en-Angus and 3 hers. Carcass... only one Grand ts of Internationals before starting a A Exchange Ave., Chicago.

class. I am offering the sire of the if you want one for the two-year- Winter Fair, 1917. We also have

Elm Park, Guelph, Ontario

GROVE STOCK FARM from our herd sires Trout Creek d in dam, the other by Sea Gem's ew females. Write for particulars.

ROSS, R. T. Drumbo, Ont.

BULLS

DENFIELD, ONT.

Improve Your Soils

Agricultural authorities affirm that an abundance of humus and lime in your soil is the foundation of good farming. Humus is valuable for what it possesses. **Lime is valuable for what it does.**

If you properly fertilize your soil and keep it sweet with

Elora Agricultural Lime

you can double your crops.

The lime corrects acidity—especially in heavy clay soils, it prevents baking, and makes it work up well.

Use a dressing this Spring—The burnt lime will improve the soil for your immediate crop, while the ground limestone will last for the benefit of future crops. Rain will not wash it away.

Consult us about the condition of your soils—We will analyze them for you.

Write for our booklet.

The Alabastine Company, Limited
PARIS - - ONTARIO

SELL YOUR MILK

At the Same Time



Raise Your Calves

THE use of Grofast Calf Meal will enable you to sell all your milk and raise your calves at a big profit. It is a scientific substitute for milk, easily mixed, and calves thrive on it rapidly. Equally as satisfactory as whole milk at a fraction of the cost.

Sold by dealers everywhere in 25, 50 and 100-lb. bags on a money-back guarantee. Get a bag from your dealer and try it. The results will surprise you. Write for Booklet, "How to Raise Calves at a Low Cost Without Milk."

INTERNATIONAL STOCK FOOD CO., LIMITED - TORONTO
Dealers Everywhere

INTERNATIONAL GROFAST CALF MEAL

Try It 30 Days Free Send No Money

One Man Alone Pulls Biggest Stumps!

To prove the Kirstin is the most powerful, speedy and efficient Stump Puller, we will ship you any size or style on 30 Days' Free Trial. Send no money. When Puller comes, hitch it to the biggest, toughest stumps you can find—let it prove that it will do the hardest work easier and quicker. If not pleased, return at our expense, you don't risk a penny. Four easy ways to pay.

Write for Big New Free Book of Kirstin Stump Pullers!

Kirstin Stump Puller

Operates on wonderful leverage principle. One man alone handles and operates. Just a few pounds on the handle means tons on the stump. When stump starts throw machine into high speed and out comes the biggest stump, roots and all. Positively no other machine like it. Send for most valuable Stump Puller Book ever published—pictures, prices, terms—and our Special Agent's Proposition—all FREE. Write today. Kirstin Pullers are as low as \$49.50. One-man style or HORSE POWER, all sizes. 3-year guarantee with exc. machine. Shipment from nearest distributing point.

A. J. KIRSTIN CANADIAN CO.
520 Dennis St., Sault Ste. Marie, Ont.

Thousands of Kirstins Now in Use!

Half year to pay. Buy on easy payments if you wish.

Send no money—After 30 days' Free Trial you are to be the judge.



Second Street, Oakville, Ont. Constructed with "Tarvia-X" in 1915.

How Good Roads Reduce the Cost of Living—

GOOD roads are like oil in machinery—they reduce friction-resistance. Without good roads a community rusts—sticks—stagnates.

With good roads, the wheels of industry spin and produce.

Good roads multiply the earning power and value of remote farms. They bring a new flood of produce to the freight-station. They increase the community's buying power and make for prosperity. Bad roads add to the cost of every ton that drags its weary way over them, while good roads set the farm wagon, automobile and motor-truck rolling smoothly to market. Government statistics prove

that the people of backward counties often waste, in a few years, in excessive hauling costs, money enough to build a big system of modern roads.



Good roads used to be expensive to construct and keep up. To-day they are not.

Built and maintained with Tarvia, modern roads are made automobile-proof, frost-proof and durable. Over a period of years Tarvia Roads are less costly than any other form of good-road construction. They are a delight to owners of horse-drawn vehicles and motor-cars alike. They give horses perfect traction. A system of Tarvia Roads in your community will do much to increase its prosperity and reduce the high cost of living. We have booklets about Tarvia which we would be glad to send you if you are interested.

The Barrett Company

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MONTREAL TORONTO WINNIPEG VANCOUVER
ST. JOHN, N. B. HALIFAX, N. S. SYDNEY, N. S.

Bissell Silos

Maximum results with beef or dairy cattle are impossible unless regular rations of green fodder are supplied. The Silo saves hundreds of dollars' worth of green feed, which can be fed when summer pastures are dried up, and in winter. We make Silos in popular sizes, air-tight, substantial, with all practical improvements. Pine or spruce staves preserved in creosote oil, two-step doors; steel hoops; every item and arrangement is correct. Bissell Silos are the best for the money. Let us prove it. Consult us freely. Literature and prices on request.

T. F. BISSELL CO., LTD
10 Hill St., Elora, Ont.

Let Us Know Your Brick Requirements Now
Once the building season really opens up it is hard to meet the demand for a quality product like—

MILTON BRICK

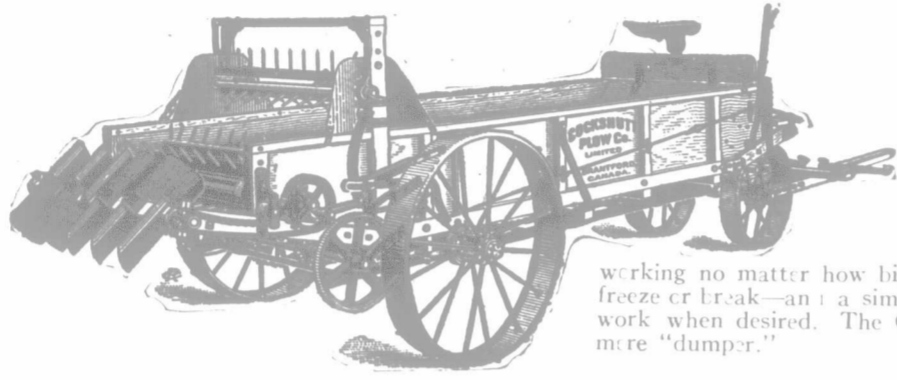
We can ship NOW, from full stocks of Red and Buff Pressed, or the famous Milton "Rug" in varied shades. Let us know your needs.

MILTON PRESSED BRICK CO., LIMITED
Head Office: Milton, Ont. Toronto Office: 50 Adelaide St. W.

Really Efficient Fertilizing

To get the good out of the "gold-mine" manure pile you must have a manure spreader that (1) makes the work easy, (2) does the spreading absolutely evenly, and (3) does it quickly. This means a Spreader of great strength and of latest design, backed by years of Canadian field experience—yet of light draft and simplicity of operation, so that a good day's spreading leaves man and horses unwearied. This means choosing the

COCKSHUTT MANURE SPREADER



It is built low, top of box is just waist-high, 41 inches from ground (17 inches clearance underneath) so that loading is easy. The TWO pulverizing cylinders at end mean absolute breaking up of lumps and another special Cockshutt feature, the wooden paddles behind, distribute the manure thoroughly over much more than the machine's own width. Simple, positive feed, sure working no matter how big the load—there are no gears to freeze or break—a simple lever throws distributors out of work when desired. The Cockshutt is a real spreader, not a mere "dumper."

A manure spreader can be a 100 per cent. profit maker every season if it has the RIGHT DESIGN. The Cockshutt Manure Spreader should be your first study—write our nearest Branch for special spreader folder, "Better Fertilizing and Bigger Crops."

Cockshutt Plow Co.
LIMITED
BRANTFORD ONTARIO

Sold in Eastern Ontario,
Quebec, and Maritime
Provinces, by

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Montreal, Que., Smith's Falls, Ont., St. John, N.B.

CAKED UDDERS

"I HAVE had cows calve at night with bags so badly caked it was impossible to milk them. After one application of Egyptian Liniment they were all right next morning," says Mr. W. Robinson, Ituna, Sask. Egyptian Liniment is most effective for burns, scalds, cuts and bruises. It stops bleeding instantly. Made only by Douglas & Co., Napanee, Ont. 35 cents a bottle at all dealers.

Farm Equipment

Every up-to-date farm has its clipping machine for horses and dairy cows. Horses work better when relieved of winter coats—cows give cleaner milk when flanks and udders are clipped. Agricultural schools and Government farms use clipping machines. You should have one. Get a Stewart Ball Bearing Clipping Machine No. 1. If your dealer can't supply you send us his name. Write for 1919 catalogue. Chicago Flexible Shaft Company, Dept. A 191, 12th St. and Central Ave., Chicago, Ill.

FOR SALE—COATES' HERD BOOK

Containing the pedigrees of Improved Shorthorn cattle of Great Britain and Ireland. 36 volumes, from Vol. 28, published 1882. All volumes complete to present date, and in as good condition as issued.

JOHN R. CRAIG, 121 Elgin St., St. Thomas, Ontario

Graham's Dairy Shorthorns

I have a choice offering in cows and heifers in calf. Bulls from the heaviest milking strains. Satisfaction guaranteed.

Charles Graham, Port Perry, Ont.

SHORTHORNS

Present offering, 6 choice young bulls and a few females, their dams are good milkers and best of breeding. Prices moderate.

Stewart M. Graham, Lindsay, Ontario

Dual-Purpose Shorthorns

For Sale. Two choice Bulls, 11 and 11 months old. Their Grandams R.O.P. as to the best. Also two Scotch-bred heifers 20 months old.

E. R. WOOD, R.R. 2, Freeman, Ont.

FOR SALE

Registered Shorthorns. Two bulls 14 and 11 months old, from good milking dams. For particulars apply.

J. A. Wallace, St. Paul's Sta., R.R. 2, Ont.

EVERGREEN HILL FARM

R. O. P. SHORTHORNS

Yearling bulls all sold. Could spare a few calves of either sex, two to four months old.

S. W. JACKSON, Woodstock, Ont.

For Quick Growth and Early Maturity, Feed

GARDINER'S CALF MEAL

It replaces perfectly the cream in skim milk, and provides the nourishment necessary for quick, vigorous growth. It is rich in protein, and several points higher in fat than any other meal on the market.

Feed Gardiner's Calf Meal first with skim milk, then with milk-and-water, and finally with water only, and your breeding calves will mature earlier and your young steers will be ready for market sooner. It is equally good for colts, lambs and little pigs.

Put up in 25, 50 and 100-lb. bags. If your dealer doesn't handle it, write us for prices, and for information about Gardiner's other products—Ovatum, Pig Meal, Seo-a-fat and Cotton Seed Meal.

GARDINER BROS., Feed Specialists, SARNIA, Ont. 15



Harnelbel Shorthorns

Herd headed by Gainford Supreme, one of the best sons of the Great Gainford Marquis.

FOR SALE

Some choice young cows with calf at foot, also some open heifers and heifers in calf to Gainford Supreme.

We have also for sale some choice young bulls.

Farm one mile from Islington Station.

Samuel Truesdale, Manager, Islington, Ont.
Harry McGee, Proprietor, 61 Forest Hill Rd., Toronto, Ont.

SHORTHORN CATTLE



are market toppers from baby beef stage to maturity, grow quickly, fatten rapidly, have high dressing percentage and abundant milking qualities.

DOMINION SHORTHORN BREEDERS' ASSOCIATION
W. A. DRYDEN, Pres., Brooklyn, Ont. G. E. DAY, Sec., Box 288, Guelph, Ont.

"DUAL-PURPOSE SHORTHORN BULL"

"Commander" = 113964 = calved Jan. 29, 1917. Dark red, a model for type, sired by Burnfoot Chief-ten whose dam gave 13,535 lbs. milk in R.O.P. His dam is Jean Maisie giving 7,850 as 3 yr. old in R.O.P. She is sister to Jean Lassie who gave 13,819 in R.O.P. He is strong and sure and price is right. Also many two 19-month old red bulls, strong milk backing, priced to sell. Write for particulars or catalogue to Hugh A. Scott, Caledonia, Ont., Phone 5-18, R.R. No. 3. Will meet Caledonia trains

Gossip.

The Ontario Department of Agriculture, reporting farm conditions under date of March 4, intimates that cattle throughout the Province are in fair condition, and that the milk flow is keeping up well. Grade Holstein cows bring at auction from \$100 to \$175, while horses, in the vicinity of Peterboro, are changing hands at from \$150 to \$175. Young pigs are reported as bringing from \$6 to \$8 each. Hay runs from \$18 to \$25 per ton, with alfalfa bringing \$22 in Norfolk County. Corn which was kept for seed in some parts of Kent is now being fed. From Brant County alone thirty cars of seed oats have been shipped through the Seed Commission to the West, and eight carloads went out of Norfolk County.

The management of the International Live Stock Exposition, held annually at the Union Stock Yards, Chicago, conducts a junior feeding contest. The feeding period for the calves begins April 1, consequently those desiring to enter the competition should lose no time in making a selection of the calf which they purpose feeding. The competition is open to boys and girls from ten to nineteen years old, and includes sheep and swine as well as cattle. Exhibitors will be required to personally select and care for their animals, without the aid of an assistant. Thirty days after the feeding period begins the animals must be weighed and accurate records of the feeding kept thereafter. In judging these classes, quality and finish count for fifty per cent., gain twenty per cent., cost of gain twenty per cent., records kept and written report ten per cent. Anyone wishing to enter this contest should apply to B. H. Heide, Secretary of the International Live Stock Exposition, Union Stock Yards, Chicago, for entry blanks. No entrance fee is charged. There are five liberal prizes in each class.

Dual-Purpose Shorthorn Sale.

Burnfoot Chieftain, a five-year-old bull of exceptionally fine Shorthorn character, quality and finish, and the sire of many cows which have qualified in the R. O. P. test, will be sold at Mrs. Moore's sale of dual-purpose Shorthorn cattle, at Caledonia, on March 25. This bull is active and sure. Anyone wanting a proven sire whose daughters are heavy milkers and high testers should be on hand on the day of the sale, or forward a high bid to the auctioneer. There are few sires his equal in the country. A son of his was recently purchased by the Experimental Farm to head the dual-purpose herd of Shorthorns at the Government farm at Brandon. In the sale is a two-year-old bull out of Dairymaid, whose record is 13,535 lbs. milk. This is a big, sappy animal. There is also a bull calf which is a good breeding proposition, whose two nearest dams averaged 12,112 lbs. milk. The junior sire in the herd is Lloyd-George, whose four nearest dams averaged over 12,000 lbs. milk. Some of the females in the sale are Burnfoot Lady, record 10,681 lbs; her daughter, Burnfoot Jean, now milking 35 lbs. a day as a two-year-old, and another daughter, Burnfoot Lady 2nd, is a big, sappy heifer. Glenna is a big, red, three-year-old heifer which will freshen about sale time. As a two-year-old she gave 6,000 lbs. of 4 per cent. milk. Burnfoot Grace, due in June, has a 7,135-lb. record. Alexandra has 8,147 lbs. milk as a two-year-old. Rosamond, another Burnfoot Chieftain heifer, has over 7,000 lbs. as a two-year-old. Jean's Lassie 2nd, a big, sappy two-year-old heifer, is a promising individual. Her dam weighs 1,600 lbs., and last year gave 13,891 lbs. milk. The above records were made on twice-a-day milking. This sale is a rare opportunity for dual-purpose Shorthorn enthusiasts to secure individuals that combine beef conformation and high milk records. The late S. A. Moore laid well the foundation for this herd, and he had attained a high degree of success before his death. Breeders can now secure the results of the late Mr. Moore's wise selection and careful mating to combine the two important functions in one animal. Plan on attending the sale. For further particulars regarding the breeding and records, write Mrs. S. A. Moore, Caledonia, for a catalogue.

Overhead Expenses

Free yourself from the annoyance of roofing troubles. Save repair costs. Obtain protection from fire and weather for all your buildings. Have a roof that pays for itself by giving years of satisfactory service. Lay

PAROID A NEPONSET ROOF

No matter how large the roof may be, Neponset Paroid is the proper roofing. You can't get a roof that Paroid won't cover—for Paroid roofs them all—from the biggest barns to the greatest industrial plants.

Neponset Paroid is fire, weather and wear-resisting. It proves its economy by years of wear.

Roof with Paroid—It pays. Made in three colors, red, green and slate grey.

Sold by Hardware and Lumber Dealers.

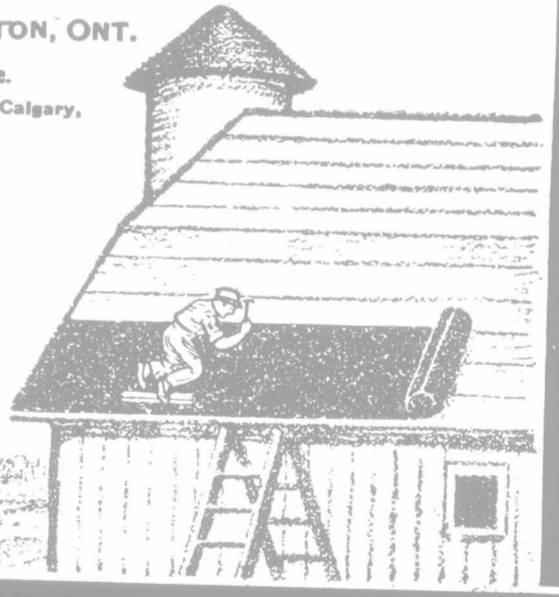
BIRD & SON, LIMITED, HAMILTON, ONT.

Mills: Hamilton, Ont.; Port Rouge, Que.

Warehouses: Toronto, Montreal, Winnipeg, Calgary, Edmonton, St. John



213



Mardella Shorthorns

Herd headed by The Duke, the great, massive 4-year-old sire, whose dam has 13,599 lbs. of milk and 474 lbs. of butter-fat in the R. O. P. test. I have at present two exceptionally good, young bulls ready for service, and others younger, as well as females all ages. Some are full of Scotch breeding, and all are priced to sell. Write or call.

THOS. GRAHAM - PORT PERRY, ONT.
R. R. No. 5

SPRUCEDALE

Shorthorns and Berkshires

Herd headed by Sprucedale Butterfly, whose dam, Orma of Northland 105359 (owned in herd), has a 4 year-old R. O. P. record of 10,463 lbs. milk, 390 lbs. fat. Shorthorns and Berkshires of different ages and sex for sale. Inspected invited.

Frank Teasdale, Concord, Ont.

BULLS

I have for sale 4 very high-class Shorthorn bulls, 2 yearlings and two years old. These bulls are to be sold immediately, and the price will be right. Don't overlook this chance. Barred Rock Cockerels, \$5.00 apiece. S. Dymont, Barrie, Ont.

Shorthorns and Clydesdales—We have a number of Shorthorn bulls which are pure Scotch and Scotch crosses of extra good quality, out of high-record dams, also a few females, and one extra good yearling. Write or call. P. CHRISTIE & SON, Port Perry, Ont.

Shorthorn Bulls for Sale

Eight young bulls of serviceable age. Bred by the Imp. bull Donside Prince in 1919.

W. M. GRAINGER & SON, Auburn, Ont.

6 BULLS BY ESCANNA FAVORITE

A son of the famous Right Sort (imp.). All are ready for service and priced to sell. We have others younger and could spare a number of young cows calving early to the service of the same sires. Write, don't delay.

W. G. GERRIE, C.P.R. Station on farm, Bell 'Phone Bellwood, Ontario.

Shorthorns Landed Home—My last importation of 60 head landed at my farm on June the 20th, and includes representatives of the most popular families of the breed. There are 12 yearling bulls, 7 cows with calves at foot, 24 heifers in calf, of such noted strains as Princess Royal, Golden Drop, Broadhooks, Augusta, Miss Ramsden, Whimble, etc. Make your selection early.

(All railroads, Bell 'phone) Cobourg, Ontario

Crekside Scotch Shorthorn Heifers

A select lot with the choicest of breeding, (reds and roans). Several of these are bred to my present herd sire Gainford Count a Stamford-bred son of the great Gainford Marquis (imp.). The prices quoted on these are right. I have only two bulls left that are old enough for service.

GEO. FERGUSON, Elora, Ontario.

Glengow Shorthorns

—We have a choice offering in young bulls, fit for service. They are all of pure Scotch breeding, and are thick, mellow fellows, bred in the purple.

WM. SMITH, COLUMBUS, ONT. Myrtle, C.P.R.; Brooklyn, G.T.R.; Oshawa, C.N.R.

Beach Ridge Shorthorns and Yorkshires—Shorthorn herd headed by Sylvan Power cut in 1915, and sire of the G. Champion bullock at Guelph Winter Fair, 1918. Young stock of all ages, both sex, for sale; also young cows with calf at foot or in calf to Sylvan Power. We can supply any want in Yorkshires.

R. D. HUNTER, EXETER, ONTARIO

Dual-Purpose Shorthorns

Herd sire Golden Duke (Imported), dam's official record 12,400 pounds milk and 595 pounds butter-fat. Hand-milked cow's daily records, Lellurias, Lavinas, Strawberrys, Emils, Etc.

CREDIT GRANGE FARM, Meadowvale, Ont.

When writing advertisers will you kindly mention The Farmer's Advocate.

Gossip.

The second annual meeting of the British Columbia Goat Breeders' Association was held late in January, at which there was a fair attendance of members. During the past few years goats have increased in number in the province on the Pacific to 3,000. A number of head of pure-bred stock have been imported. One hundred and four goats were exhibited at the Vancouver Fair last fall, and created a good deal of interest. A motion was carried expressing appreciation of the Live Stock Commissioner's offer to conduct R. O. P. work with pure-bred goats, and it is expected that this work will be undertaken in the near future.

Attention is herewith drawn to the Ayrshire sale of J. W. Waters, of Moorefield, advertised elsewhere in this issue. This is an opportunity of securing some right good registered Ayrshires of high quality. The herd sire, Sir Coling Fernbrook, is out of Maud of Fernbrook, that made a 9,726-lb. record as a two-year-old. Plan on attending the sale. The date is Wednesday, March 26, and the farm is only a quarter of a mile from the town of Moorefield, which is located on the main line of the Grand Trunk, between Guelph and Palmerston. While Mr. Waters is a young breeder, he has built up a herd that has size, large udders and heavy production. Irene, his foundation cow, has an R. O. P. record of 9,573 lbs., testing 4.44 per cent. Several of her progeny are in the sale. Peg of City View is another R. O. P. cow with a test of 4.97. She will be due around sale date, and is in splendid form to make a record. There is not a cow in the herd over eight years old, and ten will be fresh by the first of May. If in need of a few good cows you cannot afford to miss this sale.

The London Sale of Shorthorns.

It may well be called the expansion year with the Western Ontario Shorthorn Sale, at London, Wednesday, March 26. To get more accommodation for the ninety lots selling this year, the management have moved the place of sale from the Fraser House stables, formerly used, to the London Fair grounds, and breeders attending the sale may feel sure that there will be every opportunity to carefully inspect the cattle before the sale is commenced. They may also feel just as sure that the cattle consigned this year will please, both in regard to individuality and pedigrees. The sixty-five females catalogued, as well as the twenty-five bulls listed, are of exceptional quality and sell under the most liberal guarantee ever attached to a Canadian offering. At time of writing we are unable to comment on the offering of Kyle Bros., Gier & Sons, Gardhouse & Son, and several others as the extended pedigrees of their stock is still with the printers. Their herds, however, are already well known to Canadian breeders, and their entries can be relied on to be of the highest order. G. A. Attridge has three bulls and two heifers listed; one a son of Roan Sultan, a Miss Ramsden heifer, and others of equal merit. William Waldie offers two heifers, one cow and one male, representing Village Girls, Roan Ladys and Bruce-bred Rosalies. J. M. Robson, one of the second largest consignors, contributes seven head, representing Nonpareils, Minas and Mayflowers. H. Lee also has seven head, principally Duches of Gloster and Strathallans. John McLean & Son offer one male and three heifers; the heifers are Miss Ramsdens, and the male a straight-bred Roan Lady. R. & S. Nicholson lead in the number of entries with ten head, eight females and two males. The former are by the noted herd sire, Best Boy, while the males are got by Browndale Winner. J. T. Gibson lists a year-old Wimple heifer, by Senator Lavender, and two imported twelve-months bulls. R. S. Robson & Son also have a seventeen-months-old Matchless bull calf, and three mature cows in the consignment. Many of the cows in all lots listed now have calves at foot, and many more will be freshening around sale time to the service of the noted sires that head the various herds represented. Further particulars may be had by a study of the advertisement appearing elsewhere in this issue, or by writing the Secretary, Harry Smith, Hay, Ontario, for a catalogue, mentioning "The Farmer's Advocate."

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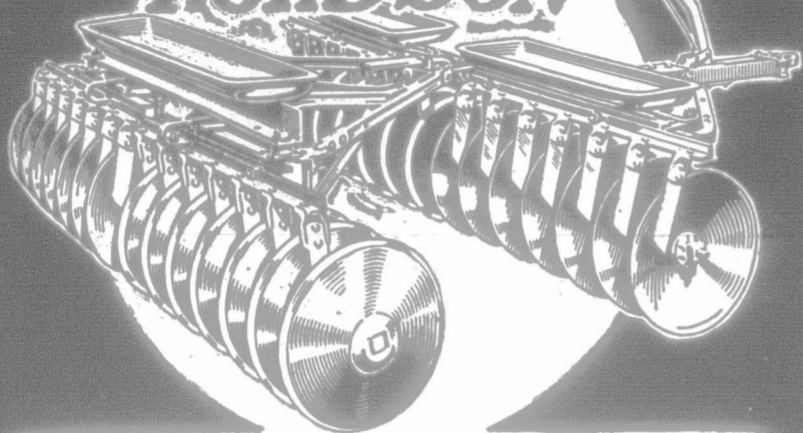
Gossip.

Second annual meeting of the Columbia Goat Breeders' Association held late in January, at which a fair attendance of members, the past few years goats have increased in number in the province on a scale of 3,000. A number of head-bred stock have been imported, and four goats were exhibited at the Vancouver Fair last fall. A good deal of interest was carried expressing appreciation of the Live Stock Commissioner's offer to R. O. P. work with pure-bred goats and it is expected that this work will be undertaken in the near future.

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Make the Most of Your "FORDSON"



Obtain the advantage of all the power available in your tractor. Don't limit its usefulness with inadequate tools. You cannot expect ordinary horse drawn implements to stand up and deliver the maximum of service. To get the most from your "Fordson" use good tools—implements that are really designed and developed for the purpose. Such a tool is the

Roderick Lean

Automatic Engine Disc Harrow

Long experience in power disc building and modern ideas are combined in this special harrow, which was perfected with the advice of the engineers and builders of the "Fordson" Tractor.

This is a one-man outfit, just like your power plow. Automatically adjusted from the tractor seat and gangs angled as desired to meet soil conditions by the draft of the engine. Flexible rear section and double draft bars are the same principles so successfully used in our famous heavier tractor disc. Turns short like a wagon without piling up soil or unnecessary strain.

Strong, sturdy construction throughout. Made for power work without unnecessary weight to make it heavy in draft. Furnished in 6 and 7 ft. sizes with 16 and 18 inch round or cutaway discs. Weight boxes for front and rear sections, disc scrapers, and everything complete.

See the nearest "Fordson" Distributor listed below or write us for prices and full information.

THE RODERICK LEAN MFG. CO., Mansfield, O. (6)

Special lines of spike tooth and spring tooth harrows also supplied for Fordson Tractors. Proper sizes and equipment and special construction to suit this special work.

DISTRIBUTORS FOR CANADA

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- Mark Dumond, Vancouver, B.C.
- Maclin Motors, Ltd., Calgary, Alberta
- Lines Motors, Ltd., Edmonton, Alberta
- Saskatchewan Motor Co., Ltd., Regina, Sask.
- Universal Car Agency, Windsor, Ontario
- Western Motors, Ltd., Brandon, Manitoba



No More Galls if You Use This Open-Throat Cotton Collar!

On over a million farms this cotton collar is being used in preference to leather. Not because they are cheaper or save leather for other needs, but because the Lankford Humane Collar means freedom from galls. Gall-afflicted horses work in them every day, and shoulders heal while in harness.

Made of closely woven army duck, like a surgical bandage. Stuffed with soft, springy cotton fiber that absorbs sweat and impurities from sores. Keeps neck dry and cool.

Made with an open throat that gives pulling muscles full play—moves with the pulling muscles, instead of chafing against them. Cannot sweeney. Will not pack or harden—often lasts three or more seasons.

Dealers sell them on the guarantee that galled horses get well while working in Lankfords. If your dealer cannot supply you, send us \$2.50, and we will ship you a collar, charges prepaid. (7-2c)



Lankford HUMANE HORSE COLLAR

Price \$2.50 Delivered. Note the open throat—can't rub the shoulders.

THE POWERS MFG. CO., Box 19, Waterloo, Ia.

THE BISSELL DISK has made a great record throughout all Canada. There are good reasons why this is so. Balanced Right—Does not hump up. Improved Plate—Cuts and turns soil over. Hitches well Back—Easy draught. This Disk has several imitators, but no equal. None genuine without the name "BISSELL." Test trials given on hard land with anything that cultivates. Write Dept. W for free Catalogue. 92

Sizes for 2, 3 and 4 horses.

T. E. BISSELL CO., LIMITED, ELORA, ONT.

We have doubled our factory capacity and are determined to supply our customers far and near. See ad. also on page 508.

DISPERSION SALE OF

60 "SCOTCH SHORTHORNS" 60

on Tuesday, April 1st, at his farms, Seaforth, Ont.

One of the choicest breeding herds in Ontario selling without reserve, comprising of 45 cows and heifers, 6 bulls and balance young calves. The imported Bruce Mayflower herd sire, Major Mayflower = (115342) = sells with a number of other good imported lots. Such families as Duchess of Gloster, Rosemary, Shethin

Lovely, Bessie, Jilt, Village Girl, Princess Royal, Corelli, Clementina, Claret, Wedding Gifts, Miss Ramsden Buckingham and many more are offered for your appraisal. We believe this the strongest offering of the season in fashionably bred Shorthorns.

Seaforth, Ontario

Auctioneers: Capt. T. E. Robson, Frank Taylor, Thos. Brown

The Salem Herd of Scotch Shorthorns

HERD HEADED BY GAINFORD MARQUIS, CANADA'S PREMIER SIRE

Write us about the get of Gainford Marquis. They have won more at Toronto and other large exhibitions than those of any other sire. We still have a few sons to offer, as well as females bred to Canada's greatest sire.

J. A. WATT :: :: **Elora, Ontario**

Choice Shorthorn Females

Mysies, Rosemarys, Clementinas, Missie, Miss Ramsdens, Cruickshank, Fragrance, etc., all good pedigrees and all good breeding cattle in calf to good bulls. Prices right. Also a few bull calves. Correspondence solicited.

JAS. K. CAMPBELL & SONS, PALMERSTON, ONT.

A FEW SCOTCH SHORTHORN BULLS

Several are old enough for service and all are got by a grandson of the great Superb Sultan. Individually they are strong enough to head the best of herds, and the breeding is unexcelled. Write us also for any thing in Shropshires or Clydesdales.

ROBERT DUFF & SON, R.R. Stations C.P.R. - C.T.R., Myrtle, Ont.

Dual-Purpose Shorthorns

Herd headed by Dominator 106224 whose two nearest dams average 12,112 pounds of milk in a year. Cows in the herd with records up to 13,891 pounds of milk. To make room for the natural increase in the herd several cows and heifers in calf to Dominator must be disposed of, and are priced to sell. Inspection of herd solicited.

Weldwood Farm Farmer's Advocate
London, Ontario

PEART BROTHERS SHORTHORNS

We are offering our Scotch Bred herd sire Nonpareil Counsel 96931, also ten young bulls of his get practically all ready for service, from cows of both beef type and dual-purpose, one of which has qualified in R.O.P. Prices reasonable. Inspection invited. Pleased to meet trains at Hagersville, M. C.R., Caledonia, G.T.R. **PEART BROS.,** Phone 70-16, Caledonia, Ont., R.R. No. 3.

SPRUCE GLEN FARM SHORTHORNS

We have for sale a number of young bulls fit for service and a few choice heifers.

JAMES MCPHERSON & SONS - - - **DUNDALK, ONTARIO**

What Will the Year 1919 Do To Your Car?

At the end of the season the value of your automobile will depend almost wholly on the condition of your engine.

That will depend largely on the lubricating oil you have used.

Engine wear is seldom accidental. It results from friction.

Excessive friction is bound to follow the use of an oil whose body is unsuited to the lubricating system of your car, or whose lubricating qualities cannot properly withstand the demands of service.

Common results of incorrect lubrication are:

- 1.—Loss of power.
- 2.—Avoidable repairs.
- 3.—Excessive fuel consumption.
- 4.—Excessive oil consumption.

To avoid these losses your engine must be supplied with:—

1. An oil that will retain efficient lubricating qualities under the heat of service.
2. An oil that will wear well in use, and maintain a perfect oil film between all friction surfaces.
3. An oil of a body that will properly feed to the various friction points.

Engines differ.

No short-cut methods can determine the oil which best suits the lubricating system of your engine.

The construction of the engine must be analyzed, and carefully considered.

The determination of the correct oil for any automobile engine requires a highly technical knowledge of lubricants and their properties, and an extensive knowledge of gas engine construction and operation, combined with broad, practical experience.

Such knowledge and experience are brought to bear in the making of the Gargoyle Mobiloils Chart of Recommendations shown in part on the right.

The superior efficiency of the oils specified has been thoroughly proved by practical tests. The grade of Gargoyle Mobiloils specified for your car will help you obtain:

1. Maximum power.
2. Minimum repairs.
3. Lower fuel and oil consumption.
4. Minimum carbon.
5. Greater second hand value.
6. Will add years to the life of your engine.



Mobiloils

A grade for each type of motor

In buying Gargoyle Mobiloils from your dealer it is safest to purchase in original packages. Look for the red Gargoyle on the container. If the dealer has not the grade specified for your engine, write us, giving the dealer's name and address.

Address us Room 704, 56 Church Street, Toronto, for booklet containing Chart of Recommendations for Automobiles.

IMPERIAL OIL LIMITED

Manufacturers and Marketers of Polarine Motor Oils and Greases
Marketers of Gargoyle Mobiloils in Canada.

BRANCHES THROUGHOUT CANADA

Correct Automobile Lubrication
In the chart below, the letter opposite the car indicates the grade of Gargoyle Mobiloils that should be used: For example, A means Gargoyle Mobiloil "A," Arc means Gargoyle Mobiloil Arctic, etc. The recommendations cover all models of both pleasure and commercial vehicles unless otherwise noted.

AUTOMOBILES	1918		1917		1916		1915		1914	
	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter
Abbott	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Abbott-Detroit	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Allen	A	A	A	A	A	A	A	A	A	A
Apperson	A	A	A	A	A	A	A	A	A	A
Auburn	A	A	A	A	A	A	A	A	A	A
Autocar	A	A	A	A	A	A	A	A	A	A
Baker	A	A	A	A	A	A	A	A	A	A
Baker (6-38 & 6-39)	A	A	A	A	A	A	A	A	A	A
Baker (6-38) (Cont'd.)	A	A	A	A	A	A	A	A	A	A
Baker (8-38)	A	A	A	A	A	A	A	A	A	A
Baker (8-39)	A	A	A	A	A	A	A	A	A	A
Baker (8-40)	A	A	A	A	A	A	A	A	A	A
Baker (8-41)	A	A	A	A	A	A	A	A	A	A
Baker (8-42)	A	A	A	A	A	A	A	A	A	A
Baker (8-43)	A	A	A	A	A	A	A	A	A	A
Baker (8-44)	A	A	A	A	A	A	A	A	A	A
Baker (8-45)	A	A	A	A	A	A	A	A	A	A
Baker (8-46)	A	A	A	A	A	A	A	A	A	A
Baker (8-47)	A	A	A	A	A	A	A	A	A	A
Baker (8-48)	A	A	A	A	A	A	A	A	A	A
Baker (8-49)	A	A	A	A	A	A	A	A	A	A
Baker (8-50)	A	A	A	A	A	A	A	A	A	A
Baker (8-51)	A	A	A	A	A	A	A	A	A	A
Baker (8-52)	A	A	A	A	A	A	A	A	A	A
Baker (8-53)	A	A	A	A	A	A	A	A	A	A
Baker (8-54)	A	A	A	A	A	A	A	A	A	A
Baker (8-55)	A	A	A	A	A	A	A	A	A	A
Baker (8-56)	A	A	A	A	A	A	A	A	A	A
Baker (8-57)	A	A	A	A	A	A	A	A	A	A
Baker (8-58)	A	A	A	A	A	A	A	A	A	A
Baker (8-59)	A	A	A	A	A	A	A	A	A	A
Baker (8-60)	A	A	A	A	A	A	A	A	A	A
Baker (8-61)	A	A	A	A	A	A	A	A	A	A
Baker (8-62)	A	A	A	A	A	A	A	A	A	A
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Baker (8-64)	A	A	A	A	A	A	A	A	A	A
Baker (8-65)	A	A	A	A	A	A	A	A	A	A
Baker (8-66)	A	A	A	A	A	A	A	A	A	A
Baker (8-67)	A	A	A	A	A	A	A	A	A	A
Baker (8-68)	A	A	A	A	A	A	A	A	A	A
Baker (8-69)	A	A	A	A	A	A	A	A	A	A
Baker (8-70)	A	A	A	A	A	A	A	A	A	A
Baker (8-71)	A	A	A	A	A	A	A	A	A	A
Baker (8-72)	A	A	A	A	A	A	A	A	A	A
Baker (8-73)	A	A	A	A	A	A	A	A	A	A
Baker (8-74)	A	A	A	A	A	A	A	A	A	A
Baker (8-75)	A	A	A	A	A	A	A	A	A	A
Baker (8-76)	A	A	A	A	A	A	A	A	A	A
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Baker (8-78)	A	A	A	A	A	A	A	A	A	A
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Baker (8-80)	A	A	A	A	A	A	A	A	A	A
Baker (8-81)	A	A	A	A	A	A	A	A	A	A
Baker (8-82)	A	A	A	A	A	A	A	A	A	A
Baker (8-83)	A	A	A	A	A	A	A	A	A	A
Baker (8-84)	A	A	A	A	A	A	A	A	A	A
Baker (8-85)	A	A	A	A	A	A	A	A	A	A
Baker (8-86)	A	A	A	A	A	A	A	A	A	A
Baker (8-87)	A	A	A	A	A	A	A	A	A	A
Baker (8-88)	A	A	A	A	A	A	A	A	A	A
Baker (8-89)	A	A	A	A	A	A	A	A	A	A
Baker (8-90)	A	A	A	A	A	A	A	A	A	A
Baker (8-91)	A	A	A	A	A	A	A	A	A	A
Baker (8-92)	A	A	A	A	A	A	A	A	A	A
Baker (8-93)	A	A	A	A	A	A	A	A	A	A
Baker (8-94)	A	A	A	A	A	A	A	A	A	A
Baker (8-95)	A	A	A	A	A	A	A	A	A	A
Baker (8-96)	A	A	A	A	A	A	A	A	A	A
Baker (8-97)	A	A	A	A	A	A	A	A	A	A
Baker (8-98)	A	A	A	A	A	A	A	A	A	A
Baker (8-99)	A	A	A	A	A	A	A	A	A	A
Baker (9-00)	A	A	A	A	A	A	A	A	A	A
Baker (9-01)	A	A	A	A	A	A	A	A	A	A
Baker (9-02)	A	A	A	A	A	A	A	A	A	A
Baker (9-03)	A	A	A	A	A	A	A	A	A	A
Baker (9-04)	A	A	A	A	A	A	A	A	A	A
Baker (9-05)	A	A	A	A	A	A	A	A	A	A
Baker (9-06)	A	A	A	A	A	A	A	A	A	A
Baker (9-07)	A	A	A	A	A	A	A	A	A	A
Baker (9-08)	A	A	A	A	A	A	A	A	A	A
Baker (9-09)	A	A	A	A	A	A	A	A	A	A
Baker (9-10)	A	A	A	A	A	A	A	A	A	A
Baker (9-11)	A	A	A	A	A	A	A	A	A	A
Baker (9-12)	A	A	A	A	A	A	A	A	A	A
Baker (9-13)	A	A	A	A	A	A	A	A	A	A
Baker (9-14)	A	A	A	A	A	A	A	A	A	A
Baker (9-15)	A	A	A	A	A	A	A	A	A	A
Baker (9-16)	A	A	A	A	A	A	A	A	A	A
Baker (9-17)	A	A	A	A	A	A	A	A	A	A
Baker (9-18)	A	A	A	A	A	A	A	A	A	A
Baker (9-19)	A	A	A	A	A	A	A	A	A	A
Baker (9-20)	A	A	A	A	A	A	A	A	A	A
Baker (9-21)	A	A	A	A	A	A	A	A	A	A
Baker (9-22)	A	A	A	A	A	A	A	A	A	A
Baker (9-23)	A	A	A	A	A	A	A	A	A	A
Baker (9-24)	A	A	A	A	A	A	A	A	A	A
Baker (9-25)	A	A	A	A	A	A	A	A	A	A
Baker (9-26)	A	A	A	A	A	A	A	A	A	A
Baker (9-27)	A	A	A	A	A	A	A	A	A	A
Baker (9-28)	A	A	A	A	A	A	A	A	A	A
Baker (9-29)	A	A	A	A	A	A	A	A	A	A
Baker (9-30)	A	A	A	A	A	A	A	A	A	A
Baker (9-31)	A	A	A	A	A	A	A	A	A	A
Baker (9-32)	A	A	A	A	A	A	A	A	A	A
Baker (9-33)	A	A	A	A	A	A	A	A	A	A
Baker (9-34)	A	A	A	A	A	A	A	A	A	A
Baker (9-35)	A	A	A	A	A	A	A	A	A	A
Baker (9-36)	A	A	A	A	A	A	A	A	A	A
Baker (9-37)	A	A	A	A	A	A	A	A	A	A
Baker (9-38)	A	A	A	A	A	A	A	A	A	A
Baker (9-39)	A	A	A	A	A	A	A	A	A	A
Baker (9-40)	A	A	A	A	A	A	A	A	A	A
Baker (9-41)	A	A	A	A	A	A	A	A	A	A
Baker (9-42)	A	A	A	A	A	A	A	A	A	A
Baker (9-43)	A	A	A	A	A	A	A	A	A	A
Baker (9-44)	A	A	A	A	A	A	A	A	A	A
Baker (9-45)	A	A	A	A	A	A	A	A	A	A
Baker (9-46)	A	A	A	A	A	A	A	A	A	A
Baker (9-47)	A	A	A	A	A	A	A	A	A	A
Baker (9-48)	A	A	A	A	A	A	A	A	A	A
Baker (9-49)	A	A	A	A	A	A	A	A	A	A
Baker (9-50)	A	A	A	A	A	A	A	A	A	A
Baker (9-51)	A	A	A	A	A	A	A	A	A	A
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Baker (9-53)	A	A	A	A	A	A	A	A	A	A
Baker (9-54)	A	A	A	A	A	A	A	A	A	A
Baker (9-55)	A	A	A	A	A	A	A	A	A	A
Baker (9-56)	A	A	A	A	A	A	A	A	A	A
Baker (9-57)	A	A	A	A	A	A	A	A	A	A
Baker (9-58)	A	A	A	A	A	A	A	A	A	A
Baker (9-59)	A	A	A	A	A	A	A	A	A	A
Baker (9-60)	A	A	A	A	A	A	A	A	A	A
Baker (9-61)	A	A	A	A	A	A	A	A	A	A
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Baker (9-65)	A	A	A	A	A	A	A	A	A	A
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Baker (9-67)	A	A	A	A	A	A	A	A	A	A
Baker (9-68)	A	A	A	A	A	A	A	A	A	A
Baker (9-69)	A	A	A	A	A	A	A	A	A	A
Baker (9-70)	A	A	A	A	A	A	A	A	A	A
Baker (9-71)	A	A	A	A	A	A	A	A	A	A
Baker (9-72)	A	A	A	A	A	A	A	A	A	A
Baker (9-73)	A	A	A	A	A	A	A	A	A	A
Baker (9-74)	A	A	A	A	A	A	A	A	A	A
Baker (9-75)	A	A	A	A	A	A	A	A	A	A
Baker (9-76)	A	A	A	A	A	A	A	A	A	A
Baker (9-77)	A	A	A	A	A	A	A	A	A	A
Baker (9-78)	A	A	A	A	A	A	A	A	A	A
Baker (9-79)	A	A	A	A	A	A	A	A	A	A
Baker (9-80)	A	A	A	A	A	A	A	A	A	A
Baker (9-81)	A	A	A	A	A	A	A	A	A	A
Baker (9-82)	A	A	A	A	A	A	A	A	A	A
Baker (9-83)	A	A	A	A	A	A	A	A	A	A
Baker (9-84)	A	A	A	A	A	A	A	A	A	A
Baker (9-85)	A	A	A	A	A	A	A	A	A	A
Baker (9-86)	A	A	A	A	A	A	A	A	A	A
Baker (9-87)	A	A	A	A	A	A	A	A	A	A
Baker (9-88)	A	A	A							

Questions and Answers.
Veterinary.

Lame Ewe.
goes lame on her fore feet. Seems when walking. I cannot see anything wrong with them.
J. L.

It is probable she is sore between the hocks. Cleanse thoroughly. Keep her in comfortable quarters and keep her on warm linseed meal on the hocks until the acute soreness disappears. If any raw surfaces are apparent, wash 3 times daily until healed with carbolic acid to 30 parts raw linseed oil. Examine carefully for punctures. If one be present, pare the horn down and escape of pus and then treat as usual.
V.

Unthrifty Cow.
have a cow that has hollow tail. Not in as good condition as the other on the same feed. She will be calving in 6 weeks, one man wants her tail off.
A. F. H.

There is no condition or disease you state. The disease is indigestion, and cutting the tail, boring the hocks, etc., is both cruel and unnecessary. She is probably troubled with indigestion. Give her a laxative of 2 pints raw linseed oil and follow with a tablespoonful 3 times daily. All parts powdered sulphate of iron, ginger and nuxvomica will help.
V.

Chronic Tympanitis.
3 months old is bloated all the time but becomes much worse after a meal. He is always hungry but is in no condition.
J. A. F.

He has chronic indigestion. Purge with 8 oz. raw linseed oil. Add to the drinking water 1/4 of its bulk of lime and dampen everything he eats with it. Mix equal parts powdered ginger, nuxvomica and bi-carbonate and give him a teaspoonful 3 times daily. Feed in small quantities and as digestion improves increase the quantities and feed less. He bloats badly give a tablespoonful of oil of turpentine in 8 table-spoons of raw linseed oil.
V.

Miscellaneous.

Stock at the Stock Yards.
is the name of some firm that has the farmers' live stock at the Union Stock Yards, Toronto?
J. L.

The United Farmers of Ontario recently procured a seat in the legislature and have a man at the disposal of live stock for farmers' use. There are also a number of commission firms doing business.

Freezes—Colt has Sore Mouth.

Western freezes over the top of the pump. It is necessary to thaw the pump before necessary to run a pipe from the bottom of the cistern and have it in the house? Will the pump in the cistern be frozen over?

Have been feeding barley straw to horses this winter. A yearling horse has sores on the inside of the lip and the tongue, which beads. I clean them out with my finger three times daily.

Would it be all right to sow red clover on fall wheat that was top dressed during the winter?
S. H.

The pump placed in the house would draw water from the cistern and work all right even were the cistern frozen over provided there is some air; otherwise, no.

Use feeding straw containing disinfectant until the colt's mouth heals. Disinfectant can be applied to sores on the mouth, except to cleanse them and then wash with caustic.

Clover should do all right. The horse should be run over the field after it was sown, and the manure will be mixed with the mulch and should be beneficial to clover.

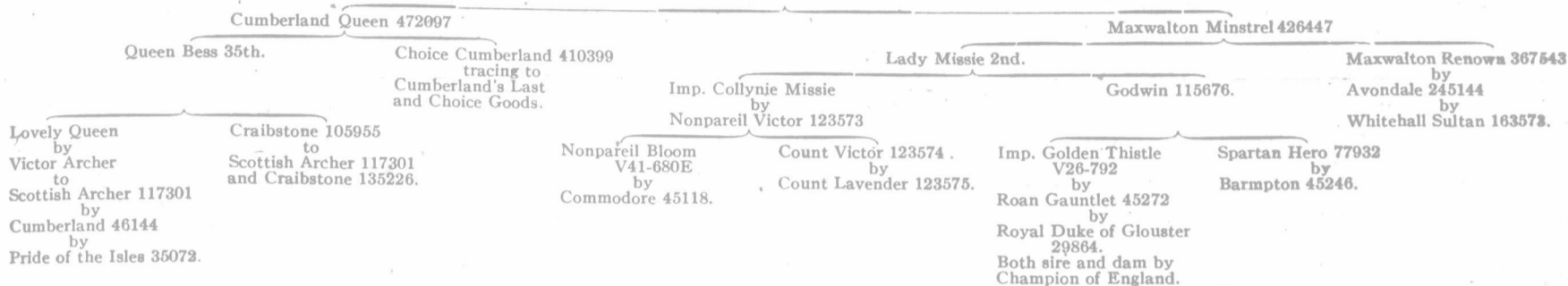
Week's issue a mistake was made in the price of alfalfa by Brown Bros., of Arkona. Their ad. in this issue for prices of timothy, alfalfa and corn.

HIGHLAND PARK SCOTCH SHORTHORNS

Highland Minstrel combines the blood of a score of the greatest sires of the Shorthorn breed. His sire is one of the best young bulls America has produced. His dam is a wonderfully thick-fleshed, straight, good cow, and her sire, Choice Cumberland, is a marvel of thickness and smoothness. This young bull is a worthy representative of his ancestry. He is fit to

head any pure-bred herd, and is for sale. Also a few females bred to our herd bull, Imp. Edgemoor Broadhocks, 136357, for the sire of which bull for four months, two eminent Old Country breeders offered \$2,000 when they saw his calves after he was sold for exportation.

Highland Minstrel 123656—686479. Calved April 27th, 1918



W. C. SUTHERLAND, R.R. 7, GALT, ONTARIO

ATTEND THE BIG Shorthorn Congress

BRANDON, MANITOBA

April 3rd and 4th, 1919

This sale is the first of its kind ever promoted in Canada. It is being held under the direct auspices of the Shorthorn Breeders' Association of Manitoba, Saskatchewan and Alberta, and the executives of these powerful organizations are very desirous of making this—their first sale—a red-letter day in the annals of Shorthorndom in Canada.

More than 125 head will pass through the sale-ring, and of that number the majority are cows and heifers, and the beginner will have a wonderful opportunity of selecting foundation stock that he knows is right.

To ensure the buyers a real treat, the Association decided to select the stock for this great sale, and the secretaries of each association—all of whom are outstanding judges of Shorthorns and Shorthorn breeding—were elected to select the bulls and females which will pass through the sale-ring.

The best herds of Western Canada have been drawn on, and only the best of these herds will be seen at Brandon. Not only are the animals of high individual merit, but they carry pedigrees with them that will make them rich additions to any herd.

Among the families represented are: **Rosebud, Dairymaid, Augusta, Claret, Lavender, Nonpareil, Miss Ramsden, Ury, Matchless, Strathallen, Rose of Autumn and Isabella.**

Among the sires represented are the following: **Shenley Adonis =79315= (107033), Lavender Lad =104417=, Fancy Lord =100220=, Shenley Sunbeam =97475=, Broadmind =73732=, Oakland Star =80312=, Browndale =80112=, Comet Lavender =100569=, Scotch Thistle =72489=, Margrave =78524=, Emma's Prince =95099=, Leader (Imp.) =110939=, and Gainford Marquis.**

The bulls and females will not come before the buyers in excessive fit, but will be seen in good, smooth condition. On April 3rd, they will be judged by Professor Geo. E. Day, Secretary of the Dominion Shorthorn Association, and on April 4th, every animal will be sold absolutely without reserve.

For further information write to the Provincial Breed Secretaries:

J. B. DAVIDSON, Sec'y
Manitoba Shorthorn Association
MYRTLE, MAN.

H. FOLLETT, Sec'y
Saskatchewan Shorthorn Association
DUVAL, SASK.

E. MEYER, Sec'y
Alberta Shorthorn Association, Parliament Buildings, EDMONTON, ALTA.

Dispersion Sale HIGH QUALITY DUAL-PURPOSE SHORTHORNS

Owing to the death of the late S. A. MOORE the entire herd will be sold without reserve.

THIRTY HEAD

farm one mile out of Caledonia, Ontario

Tuesday, March 25th, one o'clock
(SALE UNDER COVER)

The herd has been built up on strictly dual-purpose lines. Splendid records have been made, but Shorthorn type and conformation have not been lost sight of. The mature cows are big, deep, thick individuals, and that they are good milkers is borne out by the records in the R. O. P.

In the offering are thirteen mature cows with records of 7,500 lbs. up to 13,535 lbs. There is a son of Burnfoot Chieftain ready for service, also five bull calves and six heifers. For a number of years the senior sire has been Burnfoot Chieftain, an exceptionally fine type of the breed, and his dam, Dairymaid, has an R. O. P. record of 13,535 lbs. milk and 540 lbs. of fat. His daughters in milk are running over 8,000 lbs. in their two and three-year-old form. He is in the sale. All the young stuff being offered is sired by him, and many of the cows are in calf to him. Burnfoot Lady, record 10,681 lbs. and three of her daughters with records upwards of 8,000 lbs., are in the sale and indicate the quality of the herd. Catalogues on application.

Bids by mail will be executed by the auctioneer.

Dinner served at the farm.

Capt. T. E. Robson, Smith & Son, Auctioneers

Mrs. S. A. Moore

Caledonia

Western Ontario's Semi-Annual Sale of Shorthorns

AT EXHIBITION GROUNDS

London, Wednesday, March 26th, 1919

NINETY HEAD—Sixty-five High-class Females, Twenty-five Choice Young Bulls

Year after year Shorthorn breeders have found London a safe place to buy select breeding cattle. Our liberal guarantee protects buyer and seller alike, and has made us hundreds of satisfied customers. Our aim in each sale has been to please.

Once more we feel that the cattle listed are again of this sort. They are a pleasing, well-bred lot throughout, and selling in the best of breeding condition only, backed by a liberal guarantee. For full particulars, watch for further advertisements in these columns. For catalogues, address:

HARRY SMITH, Secretary of Sale

HAY P.O., ONTARIO

Auctioneer: **CAPT. T. E. ROBSON**

JUST JERSEYS
Baldwin's
 REGISTERED
 COATICOOK, QUE.

Twenty-five Years Breeding Registered Jerseys and Berkshires

We have bred over one-half the world's Jersey champions for large yearly production at the pail. We bred, and have in service, the two grand champion Berkshire boars. If you need a sire for improvement, write us for literature, description and prices.

HOOD FARM - LOWELL, MASS.

Will Sell Few Fresh Jersey Cows

Jersey Bull one year, dam Mabel's Poet Snowdrop, 1st prize as calf, 1st Junior Champion as yearling, 2nd prize two-year-old Toronto, four times 1st Woodstock, four times shown. Bull six months, dam Oxford's Silver Bell, milked 38 lbs. day, score 172 points at Guelph 140 days in milk. First calf 1915. I developed and was breeder of Beauty Maid Champion four-year-old butter cow of all breeds in Canada, also Woodstock Pat, Champion Berkshire Boar Eastern Prov. 1916-17.
 Ira Nichole, R. R. No. 2, Burgessville, Ont.

Holstein Bulls

15 ready for service, 1 younger. From dams with 32.7 lbs. butter in 7 days to those priced for the most conservative buyer. Females also.

R. M. HOLTBY
 R.R. NO. 4, PORT PERRY, ONTARIO

Brampton Jerseys at National Dairy Show

At the National Dairy Show at Columbus, Ohio, in October, Brampton Jerseys won among other major awards first for the best five females of the breed, which is, perhaps, the greatest award which can be won at this, the World's Greatest Dairy Show. Among these was Beauty Maid, the champion four-year-old R.O.P. butter cow for Canada. We also bred and owned the dam and imported the sire of the mature champion R.O.P. butter cow for Canada. Why not make your selections from the Brampton herd?

B. H. BULL & SONS :: :: BRAMPTON, ONTARIO

THE WOODVIEW FARM JERSEYS
 CANADA'S MOST BEAUTIFUL JERSEY HERD
 Herd headed by Imported Champion Ronwer, winner of first prize with five of his daughters on the Island of Jersey, 1914, second in 1916, and again first in 1917. We are now offering for sale some very choice bull calves, ready for service, sired by imported bulls and from Record of Performance imported prize-winning cows. Also some cows and heifers. Prices right. We work our show cows and show our work cows.

The Edgeley Champion Herd of Jerseys—Present offering: Two young bulls dropped June 1918, one sired by Brampton Prince Stephen, dam Rhoda of Pine Ridge Farm, 10,801 lbs. milk, 593 lbs. fat in one year. Others sired by Edgeley Bright Prince, son of Sunbeam of Edgeley, champion butter cow of Canada.
 JAMES BAGG & SON (Woodbridge, C.P.R.; Concord, G.T.R.), Edgeley, Ont.

CLOVERLEA FARM HOLSTEIN-FRIESIANS
 Offers for sale some choice young bulls ready for service from tested dams. Priced right for immediate sale. Phone or write.
 GRIESBACH BROS. COLLINGWOOD, ONTARIO

SILVER STREAM HOLSTEINS
 We are offering a choice lot of young bull calves, all sired by King Lyons Colantha, only one of serviceable age on hand at present. We also have some richly-bred young cows due to freshen soon to offer. Write us what you want, or better come and see them.
 JACOB MOGK & SON, R.R. 1, Tavistock, Ont.

Young Bulls for Sale from R.O.P. champions and dams and sisters of R.O.P. champions, sired by Canary Hartog, and some by a son of Queen Butter Baroness, the dam of two champions in 7-and-30-day tests. We invite inspection, and will meet prospective buyers at G.T.R. or C.P.R. stations—Woodstock or Ingersoll.
 Walburn Rivers & Sons (Phone 343 L Ingersoll, Independent Line), R.R. 5, Ingersoll, Ont.

Announcing the First Annual
Canadian National Holstein Sale
 The Outstanding Event of the Year

125 High-class **Holsteins** **125**
 IN A GREAT TWO-DAY SALE

CANADIAN NATIONAL EXHIBITION GROUNDS
Toronto, Ontario, April 10 and 11, 1919

WHY DO WE CALL THIS CANADA'S GREATEST SALE ?

Because We are selling one of the heaviest producing, long-distance herds ever sold in the Dominion.
 We are selling more granddaughters of King Segis Pontiac Alcartra than ever sold in the Dominion.
 We are selling the highest record two-year-old granddaughter of Pontiac Korndyke ever sold in the Dominion.
 We are selling one of the greatest 708-lb. show cows (with her 6 months daughter) ever sold in the Dominion.
 We are selling more cows in calf to Fairview Korndyke Boy than ever sold in the Dominion.
 We are selling several of the highest record three-year-old heifers ever sold in the Dominion.
 We are selling more females in calf to Ormsby Jane King (son of Ormsby Jane Segis Aaggie) than ever sold in the Dominion.
 We are selling more females in calf to May Echo Sylvia's daughter's son than ever sold in the Dominion.
 We are selling more females in calf to May Echo Sylvia's half-brother than ever sold in the Dominion.
 We are selling more high-record show heifers sired by King May Fayne than ever sold in the Dominion.
 And we are selling more good individuals than ever sold in the Dominion.

A REQUEST FOR CATALOGUE WILL BRING FURTHER REASONS

ADDRESS: **H. H. BAILEY, Secretary of Sale**
 Oak Park Farm, Paris, Ont.

AUCTIONEERS: **B. V. KELLY, Syracuse, N. Y.**
R. E. HAIGER, Algonquin, Ill.
S. T. WOOD (in the box)

SALE DIRECTORS: **GORDON S. GOODERHAM**
L. H. LIPSIT

Questions and Answers.
 Miscellaneous.

Lightning Rods.
 I have an L-shaped barn about 150 feet in length. Are six lightning rods, with wires running the full length of the barn, and grounded at the two extreme ends but not at the juncture of the two buildings, sufficient? How deep should the wires go into the ground? Which is the better plan to have the wires stapled on the barn and where they come down on the ridgeboard, or kept away from the building by means of a holder? M. S.

Ans.—Six points or uprights should be sufficient for that length, but it is advisable to have the wires grounded where the two buildings join. The ground wires should go to moisture, which depth varies in different soils. If the wire is put down from six to eight feet it will likely be in constant moisture. Most firms use staples which keep the wire from touching the boards. We would not care to have the wire stapled right to the lumber.

Twitch Grass.
 Does twitch grass grow from the roots or from seed? Can it be spread through the manure? How can it be destroyed? A. M.

Ans.—Twitch grass spreads both from the roots and seed, but generally by the roots as new shoots will come from practically every inch of the root stalk. Some of the seeds may mature in the hay and be spread through the manure. Thorough cultivation in dry weather is the only practical method of eradicating it. Thorough after-harvest cultivation, using stiff-toothed cultivator, and then raking off the roots which are drawn to the surface, will get rid of a good many of the plants. Thorough cultivation the following June and then sowing rape or a similar crop in rows, so that the ground may be cultivated will practically clean the field if the work has been well done. It might be advantageous to continue the cultivation up to September and then sow the wheat. There is little use of working the land when the land is wet, as it merely drags the roots and they take hold in the damp ground wherever they are dropped.

Piggery.
 I purpose building a piggery and have on hand a quantity of railway ties. Would it be advisable to build a wall of these and then put cement on both sides? Would it make the pen drier and more durable? How thick should the cement be?

2. Would a cement floor be alright in hen-house? J. S.
 Ans.—1. No doubt building a wall this way would make a drier pen than if the wall were of cement entirely. However, there would be a certain amount of dampness on the cement. By using the railway ties on the inside and putting five or six inches of cement on the outside, you should have a fairly durable and dry piggery. Cement is possibly the most permanent building material we have, but its tendency to draw moisture and to be damp in the winter is objectionable in a piggery. However, many successful swine raisers have cement walls and floors in their piggeries.
 2. Yes, cement is frequently used for constructing a hen-house floor.

Crippled Pigs.
 1. I have a couple of unthrifty pigs which are crippled. They have a clean, dry bed and are fed shorts and milk.
 2. One of my sheep pulls her wool, then drops it and pulls more. What is the cause? B. M.

Ans.—1. Crippling is usually attributed to dampness in the pen; either a damp floor or damp atmosphere will do it. However, it is just possible that there is a shortage of mineral matter in the feed. If so, this could be remedied by feeding a condiment made up of 25 lbs. charcoal, 1½ pails of salt, ½ bushel of ashes and 4 lbs. sulphur. The pigs should have access to this at all times.
 2. It may either be a bad habit, or caused by the sheep suffering from vermin or some skin disease. If the latter, applying some of the proprietary sheep dips, or possibly a little sulphur, should effect a cure. However, without more details regarding the symptoms of the trouble, we are not in a position to definitely diagnose the case.

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H. H. BAILEY

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RAYMOND Vaudre

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Miscellaneous.

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**Seventh Semi-Annual
BRANT DISTRICT BREEDERS
CONSIGNMENT SALE OF**

50 Registered Holsteins 50

HUNT and COLTORS Livery Barn

Brantford Ontario, Wed. March 26th, 1919

The Brant District Holstein Breeders are endeavoring to make this one of the best sales ever held in Canada. One of the most outstanding features of the sale is that the stock offered is all inspected by a competent committee, and nothing offered in females other than cows fresh or due about sale time (47 head). There will also be three richly bred bulls ready for service.

As Brant District is noted for its high-class herd sires including such bulls as a son of Baroness Madoline, a grandson of Lula Keyes, a grandson of King Segis, a son of Calamity Snow Mechthilde 2nd, a grandson of Royaltor DeKol Violet; and old Lakeview Dutchland Hengerveld 2nd the unbeaten bull in the Canadian show ring. With such breeding this should be a grand opportunity to strengthen your herd.

SALE AT 1 O'CLOCK P.M.

T. W. Craig, Pres. E. C. Chambers, Sale Manager
Col. W. Almas, Auctioneer

WRITE FOR CATALOGUE TO

N. P. SAGER, Sec. Tres., St. George, Ont.

Elgin Pure-bred Holstein Breeders' Club Spring Sale

**55 REGISTERED
HOLSTEINS 55**

AT AUCTION

Thursday, March 27th, 1919, at 1 p.m.

In McGuire's Feed Barns, ST. THOMAS, ONT.

Fresh milkers, springers, yearlings and calves, a few bulls, cows with R.O.M., R.O.P. tests, and with the very best of breeding.

LOOK! A 24-11-lb. cow that has a 24-44-lb. daughter. A granddaughter of Johanna Rue 4th Lad, the grand champion at St. Louis Exposition. A herd bull with a 26-16-lb. 3-year-old dam, and a 27-28-lb. sire. A daughter of Canada's Pontiac Korndyke. A junior 2-year-old with 10,000 lbs. milk in one year. Several others with over 22 lbs. R.O.M. tests. Catalogues ready. Get one. Come to sale.

TERMS: Cash, or 6 months at 6% per annum.

D. CAUGHELL, Pres. E. C. GILBERT, Sec.
R.R. 8, St. Thomas, Ont. R.R. 7, St. Thomas, Ont.

Auctioneers: LOCKE & McLAUGHLIN, T. MERRIT MOORE

**HOSPITAL FOR INSANE
HAMILTON - ONTARIO**

Present herd sire is one of the best sons of King Segis Alcartra Spofford. We have three of his sons born during May and June last, and also a grandson of Lakeview Lestrangle. Apply to Superintendent.

AVERAGE 114.1 LBS. OF MILK

Premier Middleton Keyes, No. 38052; born Nov. 12, 1918, and about 75% white; a perfect individual and great size. His two near dams and sire's sister average 30.97 lbs. butter and 76.14 lbs. of milk in 7 days and 114.1 lbs. of milk in a day. Sire—King Sylvia Keyes—5 sisters and dam average 115 lbs. of milk in 1 day, a brother to May Echo Sylvia, world's greatest cow. Dam—Princess Julian of Middleton, with 611 lbs. of milk and 23.71 lbs. of butter in 7 days, with 91 lbs. on her best day. He is priced to sell. Write at once, so that I may tell you more about him.

H. H. BAILEY, Mgr., Oak Park Stock Farm Paris, Ontario, Canada

Raymondale Holstein-Friesians

A herd sire of our breeding will improve your herd. We have sons of our present sire, Pontiac Korndyke of Het Loo (sire of \$12,750 Het Loo Pieterje) and also sons of our former sire, Avondale Pontiac Echo. Several of these are of serviceable age, and all are from good record dams. Quality considered, our prices are lower than anywhere else on the continent. These youngsters should not remain long.

RAYMONDALE FARM Write to-day. D. RAYMOND, Owner
Vaudreuil, Que. Queen's Hotel, Montreal

Plenty of Reserve Power

The guaranteed power rating of the White-Allwork is away under what the tractor will actually deliver. The big motor—5x6 inches—larger, we believe, than used on any other 3-plow tractor—actually develops 32 H.P. at the belt. It delivers 19 H.P. at the drawbar. We guarantee 14 H.P.

blower, or a 28-inch separator. The pulley is on a direct line with the crank shaft.

Put it on wet, heavy land or on rough land, and it has the power to go right along. Yet it weighs only 4800 lbs., won't pack the soil, turns in a 12-foot radius.

You know best what you are paying.

Let us tell you what a White-Allwork will do, and what it costs to use it. Then decide for yourself whether it will save you money or not. Write to-day for full information.

It is the sort of tractor you would expect in "The First Quality Line."

The White-Allwork will run a 16-inch ensilage cutter and

The Geo. White & Sons Co., Ltd.,
Moose Jaw, Sask. LONDON, ONT. Brandon, Man.
Makers of the famous White Steam Tractors and Threshers
"THE FIRST QUALITY LINE"



**Motor
4 cylinders 5x6**

**The White-Allwork
Kerosene Tractor**

33-LB. GRANDSONS OF LULU KEYES

I have at present ten young bulls all sired by my own herd sire, King Korndyke Sadie Keyes, a son of Lulu Keyes, 36.05 lbs. of butter and 785 lbs. of milk in 7 days. These youngsters are all first-class individuals, and their dams' records run as high as 33.20 lbs. of butter in 7 days. Several of them must go quick to make room.

D. B. TRACY (Hamilton House Farms) COBOURG, ONT.

Sunnybrook Holsteins!

The Bull is the first consideration!

We have a few for sale highly strained in the blood of the World's Record cows, all sons of Sir Lyons Hengerveld Segis (one of Canada's greatest bulls). Nothing offered that is not from high testing dams. Inspection invited. Write for particulars.

Jos. Kilgour, Eglinton P.O., North Toronto.

A Few Select Holstein Bulls—Priced right—These youngsters are exceptionally good individuals; all from good dams and sired by May Echo Prince, a 3/4 brother to May Echo Sylvia. Five are old enough for service. Can also spare a few heifers bred to our 30-lb. sire, Gipsy Pontiac Cornucopia.

JOS. PEEL, R.R. No. 4, Port Perry, Ontario

ELDERSLIE FARM HOLSTEIN-FRIESIANS

I am offering for immediate sale several young sons of my senior herd sire Judge Hengerveld De Kol 8th, who is a 32.92-lb. grandson of De Kol's 2nd Butter Boy. The dams of these bulls all have R.O.P. records running up as high as 195.26-lbs. of milk for the year. Write for pedigrees.

A. MUIR (Take Kingston Road Radial cars from Toronto, Stop 37) Scarborough P.O., Ont.

I HAVE HOLSTEIN BULLS AND FEMALES

At right prices. The bulls are all from good record daughters of Louis Prilley Rouble Hartog and sired by Baron Colantha Fayne, a son of Canada's first 33-lb. cow. The females are of much the same breeding. If you want Holsteins, get my prices. T. W. McQUEEN, Oxford County, Bell Phone, Tillsonburg, Ont.

Walnut Grove Holsteins—I am offering a choice lot of bull calves, all sired by world's champion, May Echo Sylvia. All are from R. O. M. dams and good individuals. Also having usual offering in Tamworth Swine.

C. R. JAMES (Take Radial Cars from North Toronto) RICHMOND HILL, ONT

Orchard Leigh Holsteins

1 choice yearling bull, dark color. His dam at 2 yrs. old made 18.36 lbs. butter, average test 4.3% fat. Her dam made 29.20 lbs. butter in 7 days, 100 lbs. milk in one day. Sire's dam 26.15 lbs. butter in 7 days, 19.359 lbs. milk in one year, average test 3.6% fat. Price \$140. Write for pedigree.

JAS. G. CURRIE & SON, (Oxford County) INGERSOLL, ONT.

6 BULLS BY KING SEGIS PONTIAC DUPLICATE

Brother to the \$50,000 bull. Three of these are ready for service and all are show calves. Write us also for females. We are pricing a number of heifers, bred to our own herd sire, Sylvius Walker Raymondale, a grandson of the great May Echo Sylvia. We now have bull calves a few months old by this sire. Let us know your wants. R. W. WALKER & SONS, Manchester Station, G. T. R. Port Perry, Ont., R. R. No. 4.

40 EUREKA FARM AYRSHIRE High-Class Registered Animals 40

To be sold by Auction Friday, April 4, 1919

LOOK AT THEM. SOME OF THE GOOD ONES:

"Spring Hill Cashire" 30592, stock bull for Wm. Stewart for several years; quality guaranteed.

"Eureka Stirling" 44864, has given 11,820 lbs. 4% milk in 12 months.

"Eureka Belle" 45033, has given 11,120 lbs. 4% milk in 11 months.

"Humeshaugh Belle," sired by "Scot of Fernbrook"; dam, "Highland Belle." This heifer is splendid type and excellent breeding.

"May" 34856 an excellent cow, with splendid udder and teats. She has given 65 lbs. of 4% milk per day.

"Eureka Star" has given 7605 lbs. of 4½% milk or 345 lbs. butter-fat in seven months.

"Eureka Bess," a grand young cow, never beaten at the local fairs, comes of splendid stock.

Sixteen cows and heifers, mostly freshened by April 1st; 1 aged bull; 2 bulls rising 2 years; 4 bulls rising 1 year.

AT 1 P. M.

WM. J. HAGGERTY, Owner, R. R. No. 3, Stirling, Ont.

C. U. CLANCY, Auctioneer, Campbellford, Ont.

Write for Catalogue

SEEDS

We guarantee our seeds to be satisfactory or if not, they may be returned at our expense. Our prices are the best obtainable on—

Red Clover, Seed Corn (Ont. grown from Ont. grown), Aleyke, Alfalfa, etc. Write for list which will be sent free on request.

FEEDS

We can usually save you money on feeds whether for your livestock or poultry. Write for prices on Feeding Cane Molasses, Cotton Seed Meal (38¼% Protein), Bran, Shorts, etc.

CRAMPSEY & KELLEY
DOVERCOURT ROAD, TORONTO

Cream Wanted

Ship yours to us, as we must have it to supply our well-established trade with good quality butter. Therefore, we are prepared to pay you a higher price than any other creamery. We furnish cans and pay express charges. References, any bank.

MUTUAL DAIRY & CREAMERY
743 King Street West
TORONTO - ONTARIO

Cream Wanted

Ship your cream to us. We pay all express charges. We supply cans. We remit daily. We guarantee highest market price.

Ontario Creameries LIMITED
LONDON - ONTARIO

Selwood R. O. P. Ayrshires

Prize winners that are producers. Two choice young bulls ready for service, and a few heifers. Write for description and prices.

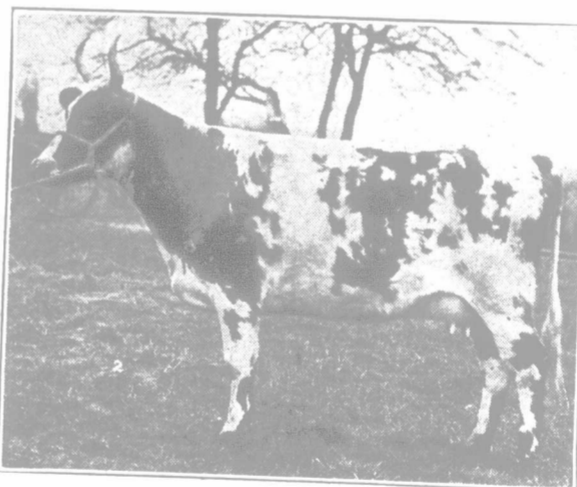
J. L. Stansell, Straffordville, Ont.
Our policy: Satisfaction or money refunded.

LAST CALL FOR THE CLEARING SALE

Registered Ayrshire Cows and Heifers

Vimy Ridge Farm, MOOREFIELD, ONT.

Wednesday, March 26th, 1919



Ten of the cows will be fresh by sale time or during April. The calves will be from the present herd sire, Sir Coling Fernbrook 58578; dam, Maud of Fernbrook 42602, R.O.P. record, 9,726 lbs. milk and 351 lbs. fat, as a two-year-old. The herd sire is a show bull. This is an opportunity for Ayrshire breeders to secure good stock at their own price. Everything will be sold, as the owner is going West. Persons at a distance may send their bids to either auctioneer.

TERMS OF THE SALE: Cash, or time will be given up to ten months at six and a-half per cent. on bankable paper.
Dinner will be served at the farm to those from a distance.

J. W. WATERS, Proprietor, Moorefield, Ontario
G. H. DICKSON, Moorefield, R. R. HAMBLY, Beeton, Auctioneers

LAKESIDE AYRSHIRE

Our bulls took the Senior Championship, Junior Championship and Grand Championship in Sherbrooke, and first in their respective classes at Quebec, in addition to taking the special prize for the best bull on the grounds any breed. We have others like them.

WRITE FOR CATALOGUE

GEO. H. MONTGOMERY, Dominion Express Building, Montreal. D. McARTHUR, Manager, Phillipsburg, Ont.

SPRINGBANK R.O.P. AYRSHIRE

We still have a few select young heifers for sale from our excellent herd sires, Netherton King Theodore (imp.) and Humeshaugh Invincible Peter. All from R.O.P. dams. We also have four choice young bulls under 9 months of age. Inspection solicited.

A. S. TURNER & SON, Ryckman's Corners, Ontario.

Westside Ayrshire Herd

I can price females with records up to 12,000 lbs milk, and have two young bulls aged 12 and 16 months, with rich breeding at attractive prices for quick delivery. Correspondence and Inspection invited. **DAVID A. ASHWORTH, Denfield, R. 2, Middlesex Co., Ont.**

Questions and Answers
Miscellaneous.

Silage for Bulls.

A two-year-old bull was wintered on silage, clover hay and rolled oats. He was fed about 40 lbs. of silage per day. He was not sure the following summer. Would feeding silage be the cause? W. W.

Ans.—We cannot say definitely as to whether or not the silage would be the cause. We doubt the advisability of feeding a bull too heavily on silage. Our experience this winter has been that our own herd sire has been more sure since we have greatly reduced the silage in the ration and increased the roots. Possibly some of our readers have had experience along this line; if so, we would be pleased to hear from them.

Tuberculosis in Poultry.

I have a flock of 60 hens, half of which are last year's pullets. There is some disease among them. I can't explain very much about it, only they get light in weight and weak, and in the last stages of the disease have diarrhoea. What can I give them to effect a remedy? How much grain—oats, wheat and barley—is it advisable to feed twice a day? R. M.

Ans.—The symptoms indicate tuberculosis. One other very pronounced symptom of this disease, however, is lameness. If the birds are affected with this disease, little can be done for those which have already contracted it. The diseased birds should be destroyed and their bodies burned or buried. To make sure whether or not this is the disease, you might kill a bird and note the condition of the liver. If it is swollen or contains spots or lesions of a yellowish substance you would then be sure the birds were affected with this trouble. The pen and yard should be thoroughly cleaned and disinfected, and plenty of sunlight allowed to enter the pen. This is about all that can be done to prevent the now healthy birds from contracting the trouble. The amount of grain to feed depends somewhat upon the amount of dry or wet mash which you are feeding. A person must watch the birds closely and feed accordingly. If the birds are made to work for their feed, there is little danger of overfeeding. Some have found that a small handful per bird is sufficient grain. If the birds have a dry mash before them all the time they will take less grain than if no mash is fed.

Farm Books.

Could you give me a list of books on farm subjects? A. P.

Ans.—"Feeds and Feeding," by Henry and Morrison.....\$2.50
"Productive Horse Husbandry," by C. W. Gay.....1.90
"Sheep Farming," by Craig.....1.60
"Productive Swine Husbandry," by Prof. G. E. Day.....1.90
"Principles of Breeding," by Davenport.....2.50
"Shorthorn Cattle," by Sanders.....2.25
"Hereford Cattle," by Sanders.....2.25
"Dairy Cattle and Milk Production," by C. H. Eckles.....1.75
"Farm Dairying," by Laura Rose.....1.35
"Physics of Agriculture," by King.....1.90
"Farm Management," by Warren.....1.95
"Chemistry of the Farm," by Warrington.....1.05
"Soil Fertility and Permanent Agriculture," by Hopkins.....2.45
"Vegetable Gardening," by Green.....1.10
"Insects Injurious to Vegetables," by Chittenden.....1.50
"Insects Injurious to Fruit," by Sanders.....2.15
"The New Onion Culture," by Grenier......60
"The Honey Bee," by Langstroth.....1.60
"A. B. C. of Bee Culture," by Root.....2.75
"Birds that Hunt and are Hunted".....2.45
"Bird Neighbors".....2.40
"The Potato," by A. W. Gilbert.....1.65
"Principles and Practice of Poultry Culture".....3.00
"Productive Poultry Husbandry," by Lewis.....2.10
"Diseases of Poultry," by Pearl, Surface and Curtis.....2.15
"The Modern Gas Tractor," by Page.....2.50
"The Gasoline Question on the Farm," by Putnam.....2.50
"Bacteria in Relation to Country Life," by Lipman.....1.65

The above are a few of the books on agriculture which may be secured through this office at the prices above mentioned which are subject to change.

Questions and Answer: Miscellaneous.

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Farm Books. If you give me a list of books on the following subjects? A. P. "Feeds and Feeding," by A. P. and Morrison.....\$2.50 "Horse Husbandry," by E. E. Day.....1.90 "Farming," by Craig.....1.60 "Swine Husbandry," by E. E. Day.....1.90 "Methods of Breeding," by Davenport.....2.50 "Cattle," by Sanders.....2.25 "Cattle," by Sanders.....2.25 "Cattle and Milk Production," by I. Eckles.....1.75 "Raising," by Laura Rose.....1.35 "Agriculture," by King.....1.90 "Management," by Warren.....1.95 "The Farm," by Warren.....1.05 "Soil Fertility and Permanent Agriculture," by Hopkins.....2.45 "Vegetable Gardening," by Green.....1.10 "Injurious to Vegetables," by E. E. Day.....1.50 "Injurious to Fruit," by E. E. Day.....2.15 "Onion Culture," by E. E. Day......50 "Beekeeping," by Langstroth.....1.60 "Bee Culture," by Root.....2.75 "Honey and the Hunted," by Root.....2.45 "Neighbors," by A. W. Gilbert.....1.65 "Theory and Practice of Poultry Raising," by Pearl, Surber and Curtis.....3.00 "The Poultry Husbandry," by Pearl, Surber and Curtis.....2.15 "Gas Tractor," by Page.....2.50 "A Question on the Relation to Country," by Lipman.....1.65 We are a few of the books on which may be secured through the prices above mentioned subject to change.

Canada's Greatest Ayrshire Dispersal

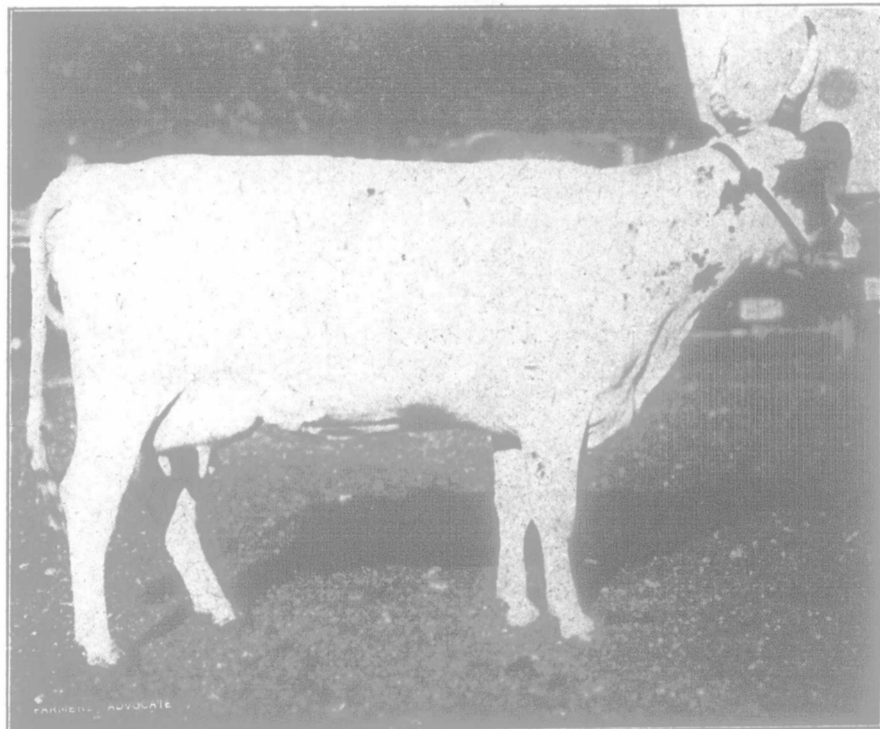
THE ENTIRE GLADDEN HILL HERD

THIRTY-FIVE HEAD OF PRIZE-WINNING AND RECORD OF PERFORMANCE

AYRSHIRES

SELLING AT THE CANADIAN NATIONAL EXHIBITION GROUNDS

Toronto, Wednesday, April 2nd, 1919



Seldom, if ever before, have Ayrshire breeders in Canada had the opportunity of purchasing a more noted herd of prize-winning and Record of Performance Ayrshires in an unreserved public sale ring, and in this offering breeders will recognize several real outstanding features that should all be of interest to those who are buyers of the best. In the show ring, in the Record of Performance tests, and in the fields at Gladden Hill, they have at all times been equally deserving of every appreciation. At the larger exhibitions (Toronto and London) in the past eight years, entries from the herd have met with unusual success, winning an equal percentage of the highest awards (excepting championships) in competition always with herds in which they were outnumbered almost three-fold. Nor are they, in the reports of the Record of Performance tests, shown to any disadvantage, as nearly every breeding cow in the herd holds a good substantial yearly record. It should also be noted that these records, which run from

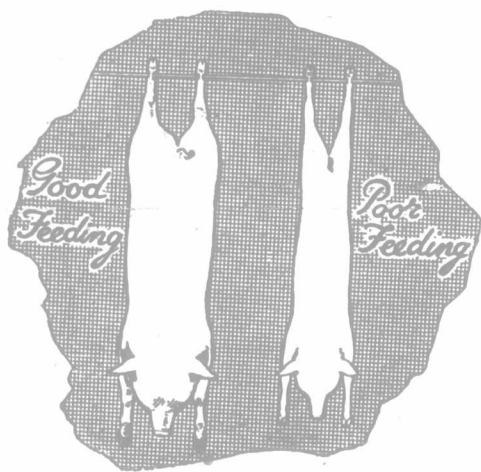
9,320-lb. two-year-olds up, were all made with twice-a-day milking and under strictly commercial conditions. As for the breeding records of the herd, a perusal of the pedigrees listed will show there is in most instances one, two and three or more daughters selling of all the mature cows catalogued—distinctly a breeders' herd throughout. The majority of these heifers referred to (15 in number) are got by the former herd sire, Fairview Milkman, a son of Hobsland Stumpies' Heir (imp.) and the 16,696-lb. R.O.P. cow, Milkmaid 7th. Those of breeding age are bred to the present herd sire, Neidpath King, a grandson of Lessnessock Forest King (imp.) and Briery of Springbank. The latter cow being the dam of Briery 2nd, the present champion R.O.P. two-year-old. This sire also sells. For a combination of individuality, type and production, the Gladden Hill Herd is unexcelled.

If you are interested in Ayrshires, don't miss this sale. Everything sold subject to the tuberculine test.

CATALOGUES WILL BE SENT ONLY ON REQUEST

LAURIE BROS. - Agincourt, Ontario

The Balanced Ration Pays



Which one of these bacon hogs would you rather get paid for? Imperfect feeding will get you a *certain amount of bacon*, but it is one of the causes of soft, flabby quality. On the other hand, the use of Monarch, a properly mixed and balanced ration supplying everything the hog requires in exactly the right proportions, will get you *far more bacon* to take to market. Experience has shown that hogs make larger and more economical gains when fed with

Monarch Hog Feed

The quality of bacon will be firm and of good texture, which is essential if you wish to get the highest prices. Monarch Hog Feed is properly mixed and is very palatable; no single feed can equal it. Its high protein content is splendid for growth, and the nutrients are so mixed as to supply every requirement for growing pigs. It gives them stamina, energy, vigor and size.

Monarch Hog Feed makes more pork and better pork and shortens the period of fattening, thus lowering the cost of production.

Order a ton from your dealer; if he cannot supply you, write us direct and you can always depend on getting deliveries.

The Campbell Flour Mills Company, Limited
Toronto, Peterboro and Pickering

Canada Food Board License Nos. 6, 7, 8.

12

SAW-BLADES

PRICE OF SAW BLADES F.O.B. FACTORY			
20	\$5.00	26	\$7.75
22	5.75	28	9.00
24	6.60	30	10.00

You can order direct from this list, saving both time and money. Simply mention diameter of blade with size of hole wanted, and remit with your order. I ship promptly.

My Catalogue, "The Heart of the Farm," illustrating Lundy Oil Engines, Saw Frames, Grain Grinders, Etc., sent on request.

A. R. LUNDY,
255 KING STREET WEST TORONTO

INVERGIE TAMWORTHS

Boars ready for service, heavy-boned, husky lads from Bacon Beauty 12056 sired by my 800 lb. stock boar; Gilts ready to breed; young boars from 100 to 150 lbs. typical bacon hogs fit to head any herd; little lads and lassies just weaned. Express prepaid.

Leslie Hadden, R.R. No. 2, Pefferlaw, Ont.

Maplehurst Herd of Tamworth Swine—Present offering: A choice lot of young stock, either sex, from the leading herd of Canada for the last 15 years. We also have standard-bred horses. Present offering: One first-class young stallion; also a few Pekin ducks and S. A. White Leghorns.

D. Douglas & Sons, R.R. No. 4, Mitchell, Ont.

Springbank Chester White Swine, Scotch Shorthorns—Both sexes; priced to sell, including one Chester herd sire, Super Mike—15917—Satisfaction guaranteed. Inspection invited.

WM. STEVENSON & SON, Sarnia, Ont.

TAMWORTHS

Boars ready for service—a choice lot of young stock, also young sows bred for spring farrow. Write for catalogue.

John W. Todd, R.R. No. 1, Gornith, Ont.

Meadow Brook Yorkshires

Sows bred, others ready to breed. Six litters ready to wean. All choicely bred and excellent type.

C. W. MINERS, R.R. No. 3, Exeter, Ont.

Big Type Chester Whites

Three importations in 1918. 25 bred sows and gilts for sale, some imported, others by imported sires. All bred to imported boars.

JOHN G. ANNESSER, Tilbury, Ont.

Cultivate triple acreage with Planet Jr. tools

Your country needs all the food you can raise. Increase your production. Raise more than ever, by using Planet Jr. tools. They enable you to cultivate three times the acreage possible with ordinary tools, because you can do the work so easily, quickly and thoroughly.

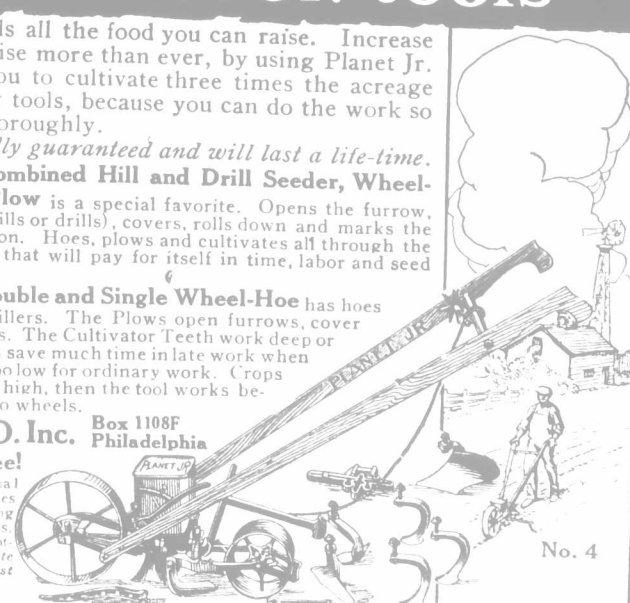
Planet Jrs. are fully guaranteed and will last a life-time.

No. 4 Planet Jr. Combined Hill and Drill Seeder, Wheel-Hoe, Cultivator and Plow is a special favorite. Opens the furrow, sows all garden seeds (in hills or drills), covers, rolls down and marks the next row all at one operation. Hoes, plows and cultivates all through the season. A hand machine that will pay for itself in time, labor and seed saved in a single season.

No. 12 Planet Jr. Double and Single Wheel-Hoe has hoes that are wonderful weed killers. The Plows open furrows, cover them and hill growing crops. The Cultivator teeth work deep or shallow. The Leaf Lifters save much time in late work when plants are large or leaves too low for ordinary work. Crops are straddled till 20 inches high, then the tool works between rows with one or two wheels.

S. L. ALLEN & CO. Inc. Box 1108F Philadelphia

72-page Catalog, free! Illustrates Planet Jr. doing actual farm and garden work, and describes over 55 different tools, including Seeders, Wheel-Hoes, Horse Hoes, Harrows, Orchard, Beet and Potato Wheel-Riding Cultivators. Write for it today; also name of nearest agency.



ELMHURST LARGE ENGLISH BERKSHIRES

From our recent importation of sows, together with the stock boar, Suddon Torredor, we can supply second breeding stock all ages. Satisfaction and safe delivery guaranteed.

H. M. VANDERLIP, Breeder and Importer, R.R. 1, BRANTFORD, ONTARIO.
Langford Station on Brantford and Hamilton Radial.

BERKSHIRE PIGS

My Berkshire Pigs for many years have won the leading prize at the International and other fairs. High-bred and pure-bred. Write for catalogue.

JAMES CLARKE & SONS, Peshwin, R.R. No. 1, Ontario.

Poland China and Chester White Swine

Choose young stock by imported champions, both breeds; sows for spring farrow, and a few boars. All at moderate prices.

GEO. G. GOULD, R.R. 4, Essex, Ontario

BERKSHIRES

My Berkshires for many years have won the leading prize at the International and other fairs. High-bred and pure-bred. Write for catalogue.

ADAM THOMPSON, R.R. No. 1, Stratford, Ont.

Gossip.

The Merner Shorthorns.

Those wishing to secure Scotch and Scotch-topped Shorthorns of high quality should keep in mind the sale of J. J. Merner, M. P., of Seaforth, to be held, at Seaforth, on April 1. The herd consists mostly of young cows and heifers selected for their individual worth. There is included the blood of many of the most famous Canadian-bred sires; for instance, there are two granddaughters of Gainford Marquis, and a grandson of Gainford out of a Duchess of Gloster cow. A number of the heifers are of showing calibre and all are in good breeding condition. In the mature cows we might mention Waterloo Princess, which is a smooth, deep type. She is only in moderate condition. A roan Duchess of Gloster cow sells with a January bull calf at foot by Village Marquis. Golden Butter Ball Imp., a rich roan, is perhaps the plum of the lot, and will have a calf by her side by sale date by Major Mayflower Imp. In heifers there is a thick Princess Royal, a Shethin Lovely, a Campbell Bessie, a Campbell-bred Isabella—a granddaughter of Gainford Marquis—which is a remarkably thick-fleshed, low-down, sappy individual. There are three particularly sweet heifers—a Princess Royal, an imported in dam Waterloo Princess 3rd, and a Vesey Gift 3rd., a daughter of Cloverdale Marquis. In bulls, there are Major Mayflower Imported, a two-year-old; Gold Boy Imp., a yearling; and Meadow Lawn Prince, a grandson of Right Sort, a three-year-old red of good Shorthorn character and type. The above are but a few of the good things offered, but they will convey to breeders an idea of the character and quality of the offering. Write J. J. Merner, M. P., Seaforth, for a catalogue.

The Lynnore Herd of Milking Shorthorns.

F. Wallace Cockshutt, proprietor of Lynnore Stock Farm, which specializes in dual-purpose Shorthorns writes from Brantford, Ont., under date of Feb. 26, as follows:

The foundation animals are all imported and embrace the finest English breeding for beef and milk. Many of the foundation cows come from the celebrated Tring Farm of Lord Rothschilds. At present there is a bull eighteen months old from the imported cow, Forget-Me-Not, and that fine dual-purpose bull, Lynnore Duke, now on the Dominion Government Farms at Brandon. He is red and white, very powerful frame and the makings of a large bull when fully developed. He is the right kind to head a herd of Canadian Shorthorns. There is another dark red bull about seventeen months old from the great cow, Sanford Empress 6th and Lynnore Duke. He is compact, shapely and of fine constitution, a most desirable sire to produce the right kind of calves, calves which you do not have to veal. There are a number of beautiful young bulls running up to one year including a splendid roan from imported cow of immense frame and of the very best type of breeding, Worcester Fidgett 13th. Another a beautiful red, very little white from an English Shorthorn cow, one of the very best of her class—Fairy Duchess 34th and imported bull Thanet Marquis. Another beautiful red bull, perfect in shape, straight and well-balanced, sired by Thanet Marquis and from Sanford Empress 6th. And also fine roan bulls from Forget-Me-Not and Canterbury Belle by the same imported bull Thanet Marquis.

Anyone wanting a dual-purpose animal to head a herd of Canadian Shorthorns could not make a mistake in securing any one of these mentioned. Lynnore Stock Farm claim to have the finest dual-purpose English Shorthorns that there are in the country.

Said an Irish leader: "Min, ye are on the verge of battle; will yez fight or will yez run?"

"We will!" came a chorus of eager replies.

"Which will yez do?" says he.

"We will not," says they.

"Thank ye, me min," says he, "I thought ye would."

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"ROYAL PURPLE" STOCK AND POULTRY SPECIFICS





**ROYAL PURPLE
STOCK SPECIFIC**

**Your hens will lay lots of
eggs
Winter and Summer**

Under the most severe weather conditions you will get plenty of eggs if your hens are properly housed and fed.

"Royal Purple" Poultry Specific



**ROYAL PURPLE
POULTRY SPECIFIC**

In summer fowl get grain, herbs, grass and insects which are Nature's assistants for producing eggs. In the winter and spring, fowl get practically the same grain, but must have a substitute for the herbs and insects. Royal Purple Poultry Specific, manufactured from roots, herbs, minerals, etc., is a most perfect substitute, increases the egg production at once, and makes the hens lay as well in winter as summer—keeps the fowl active and free from cholera and kindred diseases. Sold in 30c and 60c packages, also in \$1.75 and \$6.00 air-tight tins.

Secure More Milk From Your Herd

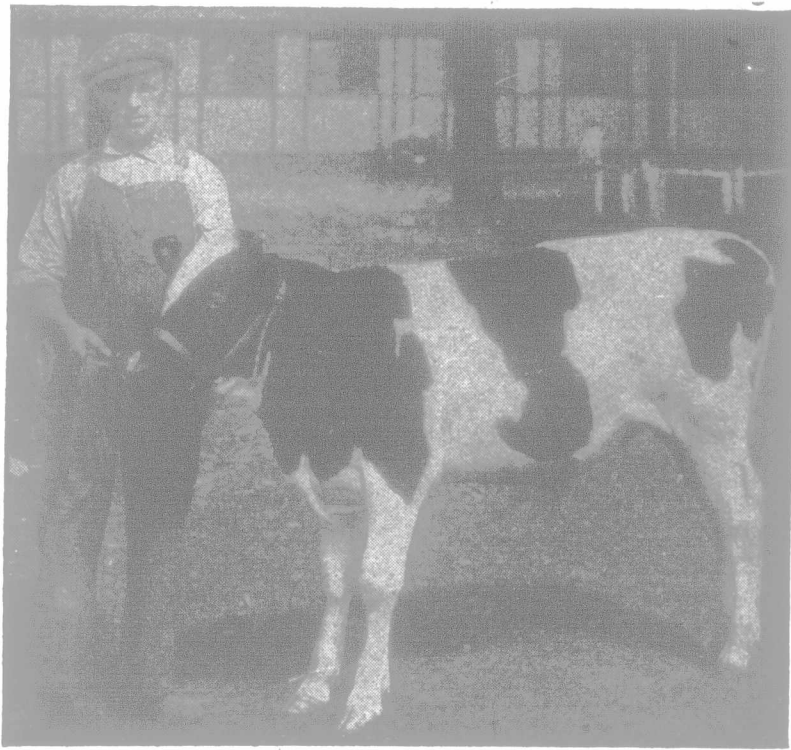
You can increase the flow of milk from 3 to 5 lbs. a day by using

"Royal Purple" Stock Specific

Mr. Norman G. Charlton, Scott, Sask., states:

"I am from Ontario and fed your Royal Purple Stock Specific when in Bowmanville. My cows made the largest average and tested 5 pounds over average at G.M.P., Brownville. I believe you make the best conditioner on the market."

The great farm animal conditioner and fatter is used in almost every progressive stock-raiser's stable in Canada. Good for all stock in a run-down condition. Can be used occasionally or continually without showing bad after-effects. Royal Purple Stock Specific is purely a digester and blood purifier. It aids digestion to such an extent as to produce the very best results, and obtain the maximum amount of good from the food eaten. It will enable you to fatten your steers and hogs a month earlier, thereby saving a month's feed and labor. Royal Purple Stock Specific is put up in 60c. packages and large \$1.75 and \$6.00 tins. Secure our products from our dealer in your town.



This pure-bred Holstein bull calf was raised by L. H. Lipsit, Straffordville, Ont., and took first prize in his class at the Western Fair, and also took first prize for the best pure-bred Holstein bull raised on "Royal Purple" Calf Meal.

"Royal Purple" Calf Meal Reduces the Cost of Feeding Calves 75%

When calves are 3 or 4 days old they can be fed Royal Purple Calf Meal and raised just as well without one drop of milk.

Mr. Geo. W. Collins, Plainfield, Ont., writes:

"Gentlemen—In regard to your Calf Meal, I think you have the best on the market, as people who have bought it give it great praise. Some have taken their calves off sweet milk, and fed them nothing but your Calf Meal and water, and say they are doing well on it as they did on the whole milk."

This Baby Food for young animals is partially predigested, and can be fed to the youngest animals with perfect safety. IT WILL NOT cause stomach or bowel trouble, which seriously affects the health of young animals, Royal Purple being a sure preventive for scouring.

Royal Purple Calf Meal is equally good for young colts, lambs and young pigs. Put up in 25-lb., 50-lb., and 100-lb. bags. Secure it from our dealer in your town.

"Royal Purple" Lice Killer GETS RID OF THEM QUICK

Percy Prewer, Cross Creek, N.B., says (in a letter of Aug. 7th): "I have used your Lice Killer on a cow that was badly infested with lice. It soon rid her of them."

W. L. Carlyle, Reid's Mills, Ont., says (in a letter of May 18th): "I cannot do without it, as it is the best we have ever tried without a doubt, both for cattle and fowl."

Try it, Mr. Farmer, and see for yourself. Secure "Royal Purple" Lice Killer from our dealer in your town. Should there not be any, write us.

MANUFACTURED BY

The W. A. Jenkins Manufacturing Company
 LONDON, CANADA



We also manufacture the following valuable remedies for stock and poultry:

- Royal Purple Cough Cure for horses, 80c tins.
- Royal Purple Liniment for man or beast, 60c bottles.
- Royal Purple Disinfectant, 30c, 60c, \$1.15 tins.
- Roy I Purple Worm Powder for animals, 30c packages.
- Royal Purple Roup Cure, 30c tins.
- Royal Purple Colic Cure, \$1.15 bottles.

By mail 10c extra.

USE THIS COUPON

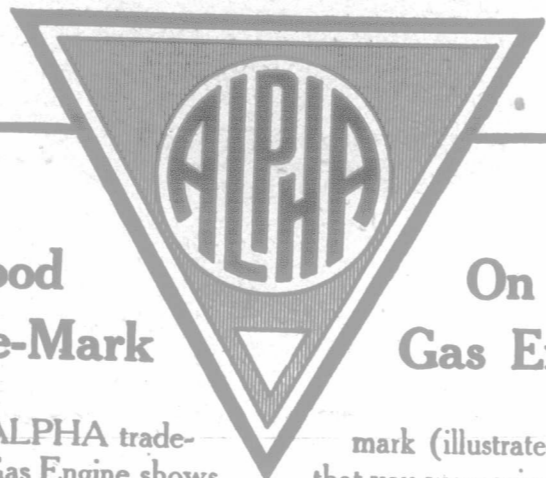
The W. A. Jenkins Mfg. Co., London, Canada.

Gentleman:

Please send us your Free 80-page booklet describing all common diseases of stock and poultry and telling how to build henhouses, also how to raise calves without milk.

Name.....

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**A Good
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**On Your
Gas Engine**

The ALPHA trade-mark (illustrated above) on your Gas Engine shows that you were wise—you invested in a high-grade engine to get the longest possible service with the least possible bother. You know the ALPHA furnishes the cheapest dependable power; you know how simple it is—how easy to start and keep right on going.

If you have not an ALPHA as yet you are invited to send to our nearest office for *Gas Engine Book* and learn how the ALPHA will meet your power needs and solve your power problems. You will enjoy reading it.

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Sole manufacturers in Canada of the famous De Laval Cream Separators and Ideal Green Feed Silos. Alpha Gas Engines, Alpha Churns and Butterworkers. Catalogues of any of our lines mailed upon request.
MONTREAL PETERBORO WINNIPEG VANCOUVER

**UNRESERVED AUCTION SALE of Entire Flock of
LINCOLN SHEEP**

other stock and implements at River Side Stock Farm, 6 1/2 miles south of Glencoe on

Tuesday, March 25th, 1919, at 12.30 p.m.

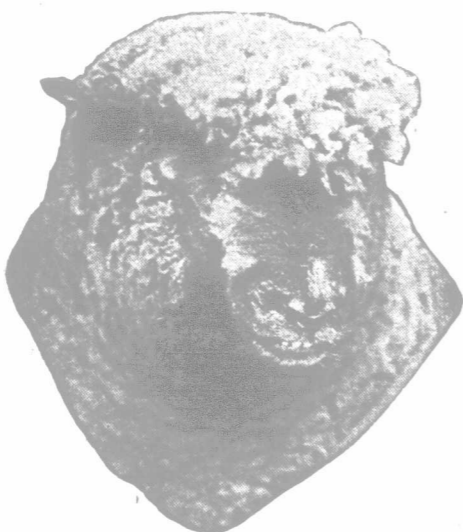
1 Imported Stud Ram Cropwell (218) Imp. 34,514, 13 Yearling Rams, 25 Breeding Ewes with a grand lot of February born lambs at side, 5 Yearling Ewes.
The present stock ram Cropwell (218) Imp. is the sire of the 1918-1919 crop of lambs and he has proven himself a good sure sire.
The Breeding Ewes are nearly all young and a choice lot of ewes. Anyone wishing to strengthen their flock or start a new one would do well to attend this sale.
The farm having been sold they must go to highest bidder.

J. G. Lethbridge & Son, Prop., Glencoe, Ont.
McTaggart and McIntyre, Auctioneers

**LINCOLNS C. Nicholson of Horkstow
LINCOLNSHIRE, ENGLAND**

has for sale Pedigreed Lincoln Long Wool rams and ewes from his world-famous flock of ALL DUDDING-BRED SHEEP. By winning the CHAMPION and "ALL" the prizes in the two-shear and shearing ram classes at the Royal Show of England, 1915, all previous records were broken. Coates Shorthorns and Lincoln Red Shorthorns also for sale.
STATION—BARNETBY

Summer Hill Oxfords



The Sheep for the Producer, Butcher and Consumer.

**Our Oxfords Hold an Unbeaten
Record for America.**

We have at present a choice offering of yearling ewes and rams, as well as a lot of good ram and ewe lambs—the choicest selection of flock-heads and breeding stock we have ever offered.

PETER ARKELL & SONS
R. R. No. 1 Teeswater, Ontario
H. C. Arkell W. J. Arkell F. S. Arkell

MESSRS. A. J. HICKMAN & CO.

Halse Grange, Brackley, England (late of Egerton, Kent)

Exporters of all breeds of stock, draft horses, beef cattle and show and field sheep are specialties.
You can buy imported stock through us cheaper than in any other way, and we hope to get your enquiry at once, so that we can fit you out before this country is skinned of good stock, as it soon will be now the war is over.

Wool Profits

Don't lose part of your wool money by shearing the old fashioned way. Shear with a machine. The extra wool secured from your sheep soon pays the cost of one. You secure better wool more easily and quickly and benefit your flock. Get a Steward No. 9 Ball Bearing Shearing Machine. If dealer can't supply you send us his name. Write for catalogue.

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TOWER FARM OXFORDS

Special offering: Ewes, different ages, bred to our Champion ram.
E. BARBOUR & SONS, R.R. 2, Hillsburg, Ont.

FOR SALE

Shropshire ewe lambs and young ewes, two Clyde-dale Stallions, four Shorthorn bulls.
W. H. Pugh - Myrtle Station, Ont.

Shropshires and Cotswolds—A lot of young ewes in lamb to imp. ram, and ewe lambs, good size and quality, at reasonable prices.
JOHN MILLER, Claremont, Ont.

When writing please mention "Advocate."

Our School Department:

A Rural School Conference

On March 7 and 8 an instructive and interesting rural conference was held at London, under the auspices of the Normal School Young Women's Christian Association. We shall endeavor in this department to communicate to rural school teachers a summary of the opinions expressed and an epitome of the discussion which was exceedingly helpful. Rural teachers should be in a position to attend more of these conferences, so as to keep in touch with modern thought on matters pertaining to the school, and to get the proper perspective of education for country life.

Professor S. B. McCready, Toronto, congratulated the Normal School students on the great opportunity which accrues to them, now that they are about to begin their work when more interest is being taken in educational matters and when they can play an important part in the campaign to make country life more attractive. As an illustration, the speaker said that as many people were living in Toronto as on the farms in twenty-three counties surrounding that city. The fact that youth is educated away from the country rather than toward it is responsible to a large degree, he thought, for the urban trend. Children are crowded through the public school on to the high school, and through the "high" on to the university; thus, the great majority of pupils are ground through the same mill as the few who are going on to professional life. Education should be for citizenship, and university matriculation should recognize other standards than Latin, Greek, etc., which are not the most valuable subjects for the pupil who is not going on for higher education. Young men and young women, said Professor McCready, should be credited with the work they do in the summer on the farm as equivalent to so much Latin, Trigonometry, etc., toward entrance and matriculation to the university. Many farmers, he continued, take their children out of school when they find them not interested in, or equipped for, high school or university training. This was pronounced wrong. As much education is required for farming as for any other occupation, if we are to live a large life and get a fair measure of pleasure from it.

There has been no outstanding champion for country life connected with the Department of Education since the days of Egerton Ryerson, neither has our provincial university, said Prof. McCready, done anything for the rural districts. Our system has taken the brightest intellects from the country and thus deprived it of leadership. If there is no champion then we must accomplish our end by a unified public opinion. There must be a demand on the part of the people for a different kind of education. In this regard a Bureau of Education at Ottawa was recommended. This would be in a position to create a Dominion-wide desire for better education and help to harmonize the whole scheme of education so citizenship could be emphasized.

Referring to consolidated schools, the speaker uttered a word of caution and said we cannot consider consolidation merely in the terms of buildings, equipment, vans, etc. The success of such a school would depend largely on the teacher, consequently a better educated type of teacher must be developed for the coming consolidated school. There is also need of a new spirit among the country people in regard to the education of their children. Before any definite step can be taken by the Legislature in regard to community schools the Government must be aware that public opinion is ready for that step. The country school must aim at serving those at home, not at pushing its pupils out into the town high school, and on to the university, as it is doing to-day. The course there must aim at making better men and women in the country, and must not be based on any university requirements.

The rural teacher is, or should be, a moulder of opinion and director of thought in rural communities, said R. A. Finn, Agricultural Representative for the County of Middlesex, but in order to mould or direct we must know what

we want, where we are going. Therefore, it behooves every rural teacher to know the rural problems and to relate school problems and lessons more closely to home life. Mr. Finn expressed the opinion that rural teachers, as a class, do not understand rural conditions. In referring to the necessity of social improvements, Mr. Finn mentioned medical inspection, domestic science classes, agricultural classes, school lunch, and literary. The teacher must be vitally interested in these and be a prime mover in getting them started. Such movements should be brought about by requests from rural communities, instead of by regulations issued by the Department of Education or Agriculture, then they would be wholehearted instead of compulsory. The speaker furthermore opined that the day is coming when production in the country will have to get down to a cost basis; hence the wide-awake rural teacher will join in all movements having this object in view. In some communities the Agricultural Representatives are conducting acre-profit competitions with young farmers, to find out the cost of producing an acre of oats, potatoes, etc. This, he said, would make a good problem in arithmetic, and the Representatives would be glad to furnish other information on other competitions they are supervising. He referred to the survey made in Oxford County, from the results of which there could be taught many excellent lessons in agriculture. Another survey is being conducted in North Middlesex, which should be of interest to every farmer in the district. He thought the rural teacher could explain these things better than anyone else; she should be a director of thought and by communicating with those interested in rural life, through agricultural journals and other media, she could keep in touch with real, not ideal, conditions. The fundamental principles of agriculture should be taught in rural schools, not an array of facts and figures.

Inspector A. H. Leake advanced many suggestions in regard to the school hot lunch, and said that from seventy-five to one hundred rural schools are now serving hot lunches at the noon hour. The purpose was not altogether to provide a meal, but in the preparation of these lunches to introduce some domestic science instruction. The Government, he said, was prepared to make grants for this work in proportion to the teacher's training and the equipment in the school. Miss Ethel Chapman, Toronto, gave a very comprehensive address on rural school problems, and enumerated a great many ways in which the teacher might become a leader and director in community life.

**Teachers Organize For
Fall Fairs**

Teachers in Lincoln County, Ontario are getting well organized for the purpose of conducting their school fall fair work. Recently the agricultural committee of the Lincoln public school teachers met in the Board Room of the Agricultural Office and made plans for 1919 school fairs. Committees were appointed as follows: 1, To visit and secure the support and interest of women's institutes in districts where school fair work is already on the way or is soon to be started; 2, to secure a grant of \$50 from the Board of Agriculture for special prizes, such as a cup or shield for schools winning the most points at school fairs; 3, to draft and submit to the Agricultural Representative a tentative prize list and program of events for each school fair district; 4, to make arrangements with the Agricultural Representative for a storage room at his office for school fair supplies, so it would be headquarters for the supply of all schools in the County.

The teacher had been telling her class about the rhinoceros family. "Now name some things," she said, "that are very dangerous to get near, and that have horns." "Automobiles!" promptly answered Johnny.

Department:

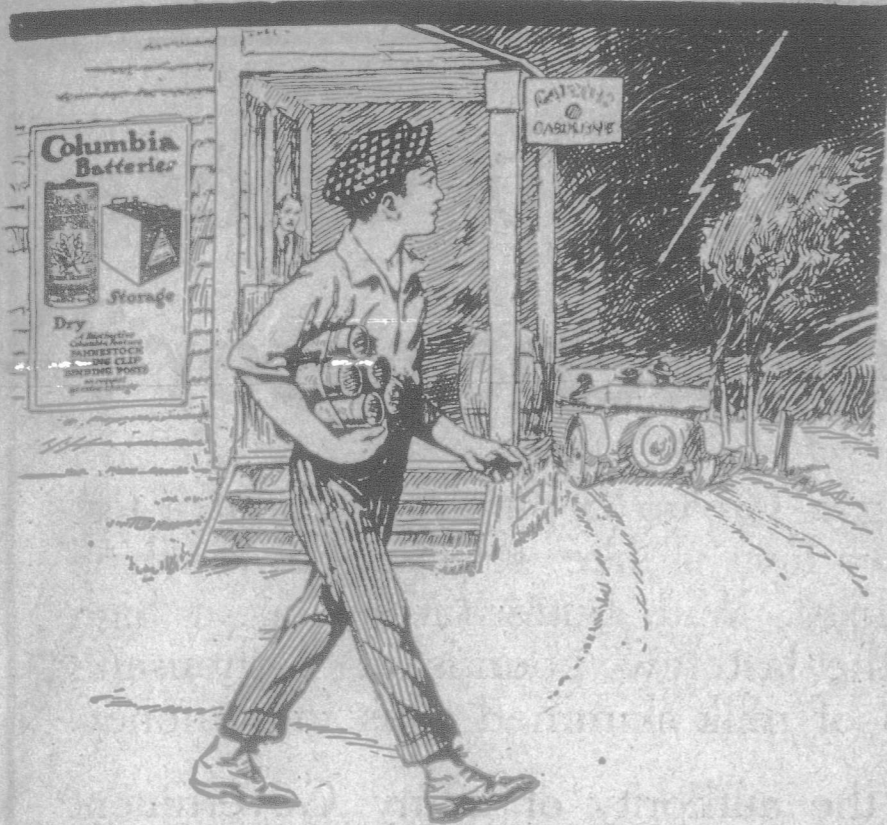
where we are going. Therefore, every rural teacher should know the problems and to relate school and lessons more closely to life. Mr. Finn expressed the opinion that rural teachers, as a class, do not understand rural conditions. He mentioned the necessity of social studies, Mr. Finn mentioned the necessity of domestic science classes, school lunch, and cultural classes, school lunch, and school lunch. The teacher must be vital in these and be a prime mover in getting them started. Such movements should be brought about by rural communities, instead of regulations issued by the Department of Education or Agriculture, then they would be wholehearted instead of perfunctory. The speaker furthermore stated that the day is coming when the country will have to go down to a cost basis; hence the rural teacher will join in movements having this object in view. Some communities the Agricultural Representatives are conducting competitions with young farmers to find out the cost of producing wheat, oats, potatoes, etc. This would make a good problem in school, and the Representatives would be glad to furnish other information on competitions they are supervising. As to the survey made in Oxford County from the results of which they have taught many excellent lessons. Another survey is being conducted in North Middlesex, which is of interest to every farmer in the county. He thought the rural teacher should explain these things better than she; she should be a director of the work and by communicating with the interested in rural life, through school journals and other media, she should keep in touch with real conditions. The fundamental principle of agriculture should be taught in schools, not an array of facts and figures.

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The Mighty Thunder Cloud and the Fiery little Columbia are first cousins

THE mighty thunder cloud often generates and wastes 150 thousand horsepower, when it hurls its terrific bolt flashing and crashing through the sky.

The fiery little Columbia generates a fraction of this volume, but sends its power on a specific errand, through wires, under control, without waste.

It is electricity in both cases. But the mighty thunder cloud works at the command of Nature for an unknown purpose. The fiery little Columbia works at your command for a definite use.

THE DRY BATTERY

THE Columbia Dry Battery is the handyman of the world. It ignites stationary engines, autos, trucks, tractors, and motorboats; rings bells and buzzers; lights lanterns and makes telephones talk; runs toys for the youngsters.

Motorists the world over know the wisdom of carrying the extra set of vigorous Columbias—to be

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THE STORAGE BATTERY

THE Columbia Storage Battery is so hale and hearty it is guaranteed to do definite work for a definite time. Its health certificate even stimulates that another battery will be put to work for you without additional cost if the original should fail within the guarantee period.

Columbia Service Dealers or Service Stations anywhere will be glad to demonstrate why and how you—like legions of other automobile owners—will prosper with Columbia Quality and Service.

Columbia Storage and Dry Batteries

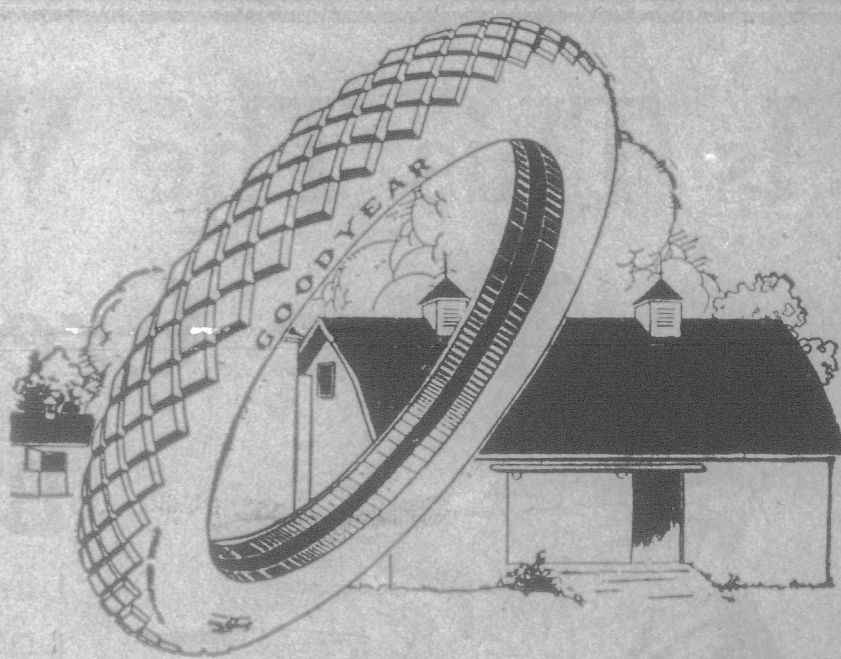


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ALFALFA CLOVER, No. 1, G.S.	\$18.00	CORN, Australian Flint	\$4.25
" " No. 2, G.S.	16.00	" Compton's	4.25
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ALSIKE " No. 1, G.S.	20.00	" Longfellow	4.00
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TIMOTHY, No. 1, G.S.	8.00	" Golden Glow	3.50
" " No. 2, G.S.; No. 1, Purity	7.50	" Improved Leaming	3.00
" " No. 2, G.S.	7.00	" Giant Red Cob	3.00
" " No. 3, G.S.	6.50	" Mam. Southern Sweet	3.00

Prices are per bushel, here, cotton bags 65c each extra. FREE—Write for our 112-page catalogue of Seeds, Plants, Bulbs, Garden Implements, Poultry Supplies, etc.

JOHN A. BRUCE & CO., LIMITED
Seed Merchants Established 1850 Hamilton, Ontario



Cedar Posts—or Stone

YOU don't build a fine barn on cedar posts.

No, cedar posts are no longer good business. You want concrete or stone. You want to have a foundation that will last. You know it is cheapest to pay the price of a durable foundation.

The cedar post idea in tires is dying fast.

Low price is not the attraction it once was.

Men who own cars have learned that it costs so much a mile for tires just the same as so much a mile for gasoline.

They buy tires on that basis no matter what the first cost may be.

They want low running cost.

Goodyear Tires have always been made to give low running cost. The enormous world-wide Goodyear business was built simply because Goodyear Tires give on the average the lowest cost per mile.

Buy Goodyear Tires and keep down the cost of running your car.

The Goodyear Tire & Rubber Co. of Canada, Limited



Is This The Way You Chose Your Cream Separator?



Buying a Cream Separator without a test nowadays is like selecting a machine blindfolded. With butter-fat selling at high prices the last few pounds in a thousand pounds of milk skimmed runs into money.

On the authority of many Government Dairy Schools' tests, in addition to our regular tests in the factory, we KNOW and our customers KNOW that the

Renfrew

actually and positively skims down to .01 per cent or 1/10 pound in every 1,000 lbs. of milk skimmed. Isn't it well worth any man's while to insist on a test of the degree of skimming accomplished! When butter fat sells at 66 cents per lb. the difference means 10 per cent extra profit in your skimming.

Don't buy blindfolded—insist on tests. Simply send samples of your skimmed milk to any Dairy school. Compare Renfrew results with those of any other machine on earth, and the outcome will be highly satisfactory.

Besides, it will pay you right now, even if you are content with the machine you are using (whether old or new) to have a test of the skimmed milk from it. Compare it with

Renfrew's proven results. More than likely you will find it profitable to replace it with a Renfrew.

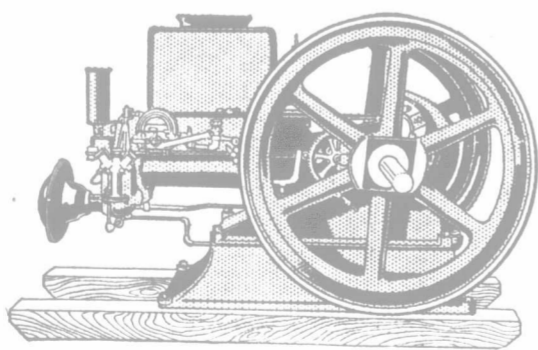
We go further still. Let us demonstrate our famous "skim-the-skimmed-milk" test at your farm. With the Renfrew we skim the skimmed milk from your old machine and show you the saving you can make by owning this closest of close-skimmers.

Ask us for this test. It means money to YOU. Write for illustrated booklet giving copies of Government Dairy Schools' tests; it also explains how the Renfrew gets firmer, better butter; how you can enlarge your capacity without buying a new machine; the Renfrew self oiling system. Write to-day.



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This true kerosene engine is as different from a gasoline engine as a horse from a cow. Kerosene is heavy and rich in power. Gasoline is light and volatile. The Renfrew is a true Kerosene engine because it is designed precisely for coal oil, and it gets every shove of power out of the last drop of fuel. It's extremely short intake manifold shoots the vaporized kerosene into the combustion chamber quick and hot, leaving no time for condensation and loss of power. Its special kerosene oscillating magneto and ignito provides the proper fat spark. The Renfrew is built 100 per cent efficiency. Our catalogue gives full particulars. Write for it to-day.

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