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Vol. XLIX.

LONDON, ONTARIO, MAY 7, 1914.

No. 1128

Pure warm air properly distributed is the business of a good furnace. In

McClary's Sunshine

Furnace

The location of the waterpan above the feed door ensures the right degree of moisture in the warmed air. See the McClary dealer in your nearest town, or write for booklet.

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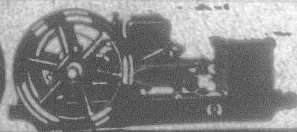
Johnny-on-the-Spot

"Johnny-on-the-Spot" on skids or on truck, will take care of all your chores—pumping, separating cream, pulping, churning, washing, etc.

Stop wasting your time and energy in useless drudgery. Let "Johnny-on-the-Spot" do it—one of the famous Gilson "Goes Like Sixty" Line—a high quality engine at a low price. WRITE FOR CATALOGUE AND FULL PARTICULARS. ALL SIZES.

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You cannot beat this anywhere. Speedy two-passenger Red Roadster. Cowl front. Round tank in rear. Powerful 30 h.p. motor. Special springs. Complete with top and wind shield. Be sure to see this or write for further particulars to

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For full information as to terms, regulations and settlers' rates, write to

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Build Concrete Roads

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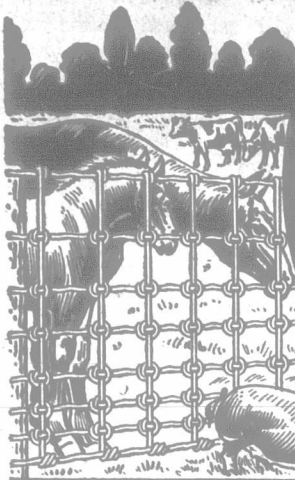
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When you want to bag up a few sacks or loads of grain, it takes in the ordinary way two men to do it. One to hold the bag and the other to shovel the grain.

You don't need this extra man and you can fill the bags quicker and easier when you have an

IMPERIAL BAG HOLDER

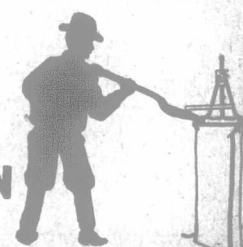
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This Bag Holder will hold any sized bag or sack and at any height. It is light, can be easily carried about and set up and used where ever required. It is made entirely of iron and steel and will last a lifetime. Has strong, wide-spreading legs so can not upset. The bag can be filled right up full ready for tying. Send \$3.00 to-day for one or ask your dealer. If West of Port Arthur \$3.50. Satisfaction guaranteed or money refunded.

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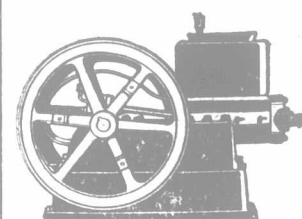
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For wood track, steel track, rod and cable track. Made entirely of malleable iron; no springs. Fitted with our patent deadlock. 25,000 of our Haying Machines in use, is the best guarantee that we build them right.

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We also manufacture Steel Cow Stalls and Positive Lock Cow Stanchions.



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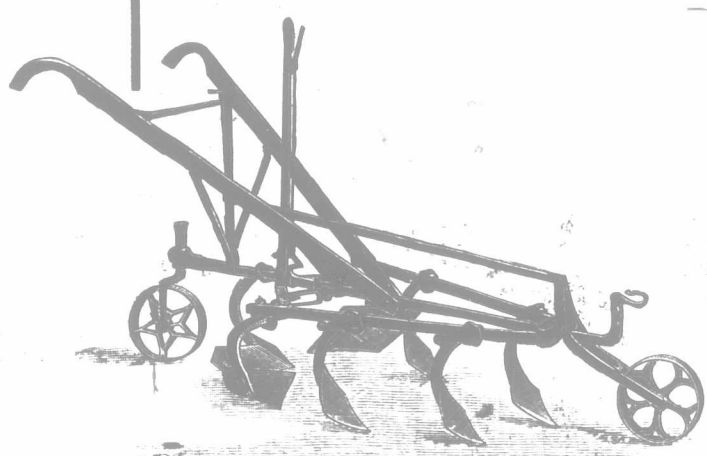
Every one sold on a strong guarantee. Ask for our catalogue of engines. London Concrete Machinery Co., Dept. B., London, Ont.

Largest makers of Concrete Machinery in Canada

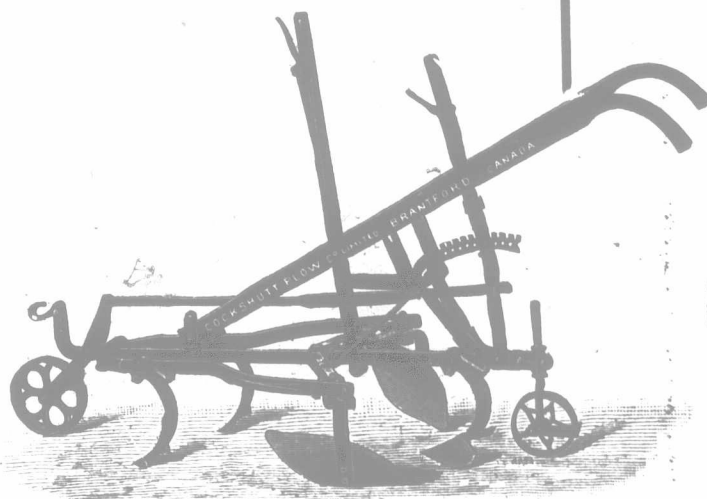
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will cultivate, ridge, furrow, etc., better than you can with any other tools and ten times quicker. A woman, boy or girl can do it. Can plant closer and work these hand tools while the horses rest. 38 combinations from which to choose at \$3.00 to \$14. One combined tool will do all of the work. Ask your dealer to show them and write us for booklet, "Gardening With Modern Tools" and "Iron Age Farm and Garden News" both free.

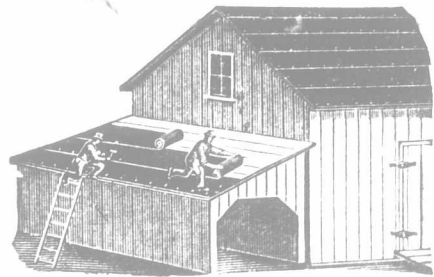
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Stands the test of Canada's trying weather as no other paint you have ever used. For barns and other buildings, for your implements and wagons, and for your home, both outside and in there is a Ramsay finish that is the best of its kind. To the man who does his own painting the convenience and economy of Ramsay's Paint is self evident. The man who hires painters to do his work for him will do well to specify Ramsay's paints—they wear so well and protect wood and metal so thoroughly from deterioration. The local Ramsay dealer will give you splendid service and suggestions. Or write direct to the factory.

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The Strongest Cow Tie on Earth

Fit up your cow-stable with BT Steel stanchions. They cost no more than good halters, and last ten times longer—won't break, rot, or burn.

BT Steel Stanchion

lines the cow up evenly over the gutter and keeps her clean. Cow is more comfortable, for there is no weight on her neck, and nothing to tug or jerk her head.

Easy to Open

Can be opened in a jiffy with thumb and one finger, even when cow is pulling back on the Stanchion. Saves TWO-THIRDS the time required to tie up, or release the cows.

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Send me free your Stall Book No. 21 about BT Steel Stanchions and other stall stable equipment. Also send free book "How to Breed a Dairy Cow".

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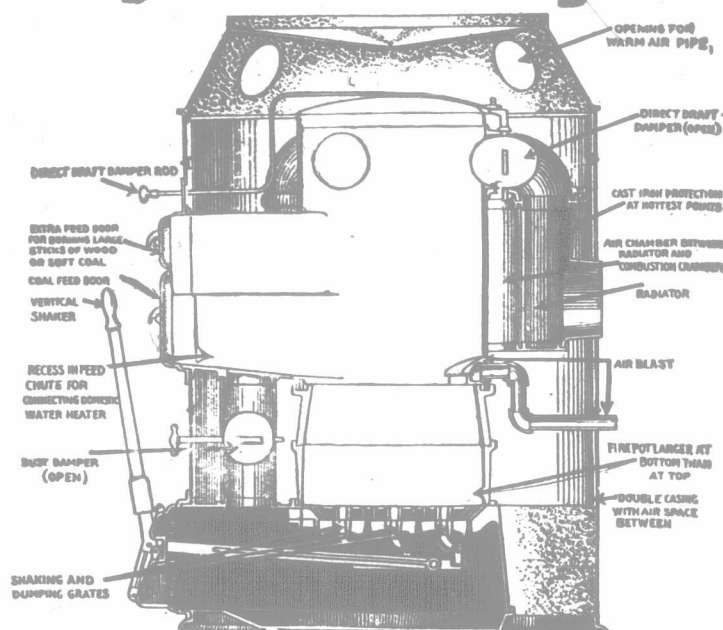
Please mention "The Farmer's Advocate"

Pease

"ECONOMY" 700 SERIES

FURNACE

Pays for itself by the Coal it saves



A Word of Advice

Install a Pease Economy Furnace as soon as you possibly can this Spring.

By doing this you will insure proper installation. If you wait till late summer or fall all the furnace men being rushed to death, are apt to skimp the work through lack of time. Following this advice will probably save you many dollars.

MANY NEW FEATURES

For 36 years the Pease Furnace has led in Furnace construction, but our new "700 Series" Furnace is even an "improvement on the best."

The heat radiator is now constructed of **Copper Bearing steel** that enables it to resist the corrosive action of gases, and makes a "Pease" furnace last from two to three times as long as those in which just ordinary steel is used.

The large clean-out doors enable one to clean out the furnace in a few minutes—at any time, whether the fire is going or not.

Provision is made for installing a **Domestic Water Heater** that can be put in this new Pease Furnace at any time without taking the furnace apart or drilling holes. The Domestic Water Heater provides hot water for the house, heated by the furnace rather than by the kitchen range.

The new **fire-pot** is a vast improvement over the ordinary kind, and is built in two sections to insure long wear and to provide against all dangers of cracking. It is so shaped, as to get 50% more efficiency out of the fire.

This furnace has more air space between the Dome and the outer casing than any other furnace. This makes it possible to supply a large quantity of moderately warm air instead of a small quantity of parched hot air.

This new Pease furnace will give the greatest amount of heat at the smallest cost of upkeep. Truly "IT PAYS FOR ITSELF BY THE COAL IT SAVES."

This winter particularly the month of February, has been a great advertisement for Pease furnaces. They give a summer temperature in zero weather. Install your new furnace as early as possible this summer. Let us give you quotations and advice. We have a special department of heating experts which will be glad to advise you without any cost or obligation whatever. But don't put it off till the last minute—do it early so as to get a proper installation. Write us to-day for our free booklet, or see our local Agents.

PEASE FOUNDRY COMPANY, LIMITED, TORONTO, ONT. Works: Brampton, Ont. Branches: Hamilton, Winnipeg and Vancouver. 1232



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There is a small chance that your buildings will be burned, but there is an absolute certainty that they will decay if you neglect to keep them well protected by good paint.

Protection depends upon the character of the paint you use. Some paint permits moisture to go through to the wood, which starts decay and soon ruins the building. The paint that gives complete protection is

Low Brothers High Standard LIQUID PAINT

It adheres tightly and sets in a tough, durable coat that resists moisture and wears for years. It is the one paint that years of outdoor tests have proved will insure greatest protection of your buildings.

Ask your local "High Standard" dealer-agent to give you Paint Information and color combinations for exterior, interior walls, floors, woodwork, etc.

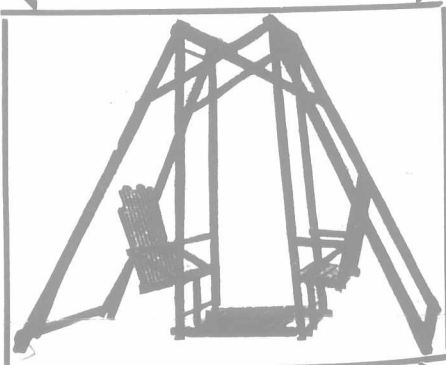
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Have the best looking house in your neighborhood. Our booklets will tell you how—"Homes Attractive From Gable to Gable" and "Guide to Farm Painting." Sent Free to readers of this paper. Write today.

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A Real Summer Need THE STRATFORD LAWN SWING



Just the thing for your Lawn or Garden. It is fine for the youngsters and a source of enjoyment for the grown-ups too. It is inexpensive and is built solid and strong.

If your dealer does not handle our line, write us for Booklet "A," which tells all about this and other Summer and Out-Door Furniture.

The Stratford Mfg. Co.
Limited
Stratford Ontario



EWING'S RELIABLE SEEDS

Reproduce the Choicest Stock

"Like produces like".

Given proper soil and care, Ewing's Seeds will reproduce, in your own garden, before your delighted eyes, the choice, selected vegetables and flowers from which they themselves grew.

Breeding counts in plants as well as in animals, as Ewing's "pure-bred" seeds have been demonstrating by splendid crops for over forty years.

Start right—plant Ewing's Reliable Seeds—and get the most out of your garden. Write now for our Illustrated Catalogue, and if your Dealer hasn't Ewing's Seeds, order from us direct.

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THE BEST FARM LUBRICANTS
CAPITOL
Cylinder Oil

For steam tractors.
Gives maximum of lubrication for minimum of oil used. Thousands of satisfied users testify to its superior lubricating qualities.



PRAIRIE
Harvester Oil

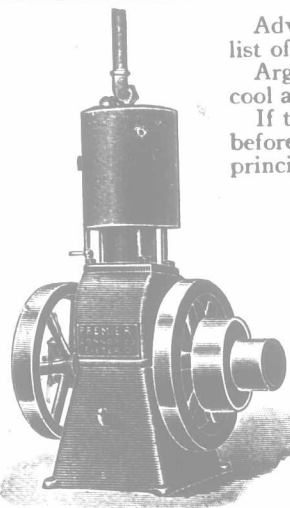
Just the oil needed for farm machinery. Reduces friction and wear to a minimum. Stays on the bearings, and is not affected by weather.

STANDARD
Gas Engine Oil

For all types of internal combustion engines—gasoline and kerosene.

Eldorado Castor Oil
Thresher Hard Oil Arctic Cup Grease

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Ottawa Quebec Calgary Edmonton
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Advocates of Water-Cooled Engines have quite a list of "arguments" against air-cooling. Argument No. 1.—When a blacksmith wants to cool an iron he puts it in water. If the iron was but 1/32 inch thick it would be cold before he could get it into the water. This is the principle of cooling.

The Premier

Thin steel plates fused to the combustion chamber carry off the heat and radiate it to the air so rapidly that the engine cannot get hot enough to burn the lubricating oil even on the heaviest loads.

The Premier is guaranteed to use less gasoline than any water-cooled engine on equal load.

Connor Machine Co., Ltd.
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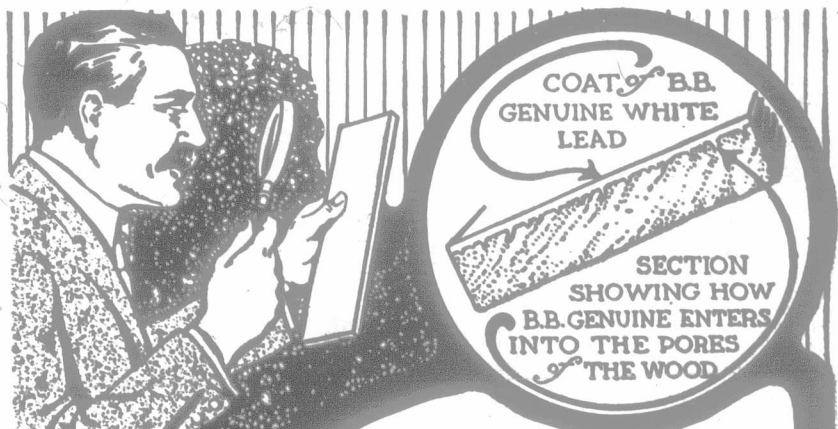
Two Rural Barn Claims are caused by Lightning to every one due to all other causes.

Lightning Rods properly installed are almost absolute protection. They prevent strokes. They carry them off, should they occur.

No building rodded with Universal Rods has ever been damaged by lightning, and they protect many thousands.

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The Rod with the Lock Joint HESPELER, ONTARIO



Penetrating
Qualities

You can mix a superior paint by using a reliable white lead as a base, and the one white lead that stands today unequalled in quality, just as it has stood for generations, is

Brandram's B. B.
Genuine White Lead

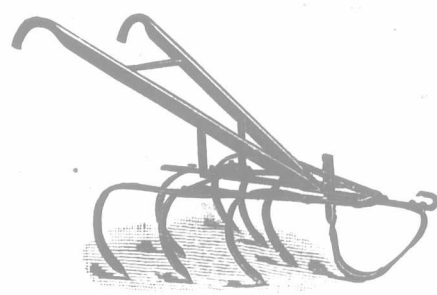
No other white lead has this record - no other white lead approaches Brandram's in fineness and whiteness. Brandram's B. B. Genuine White Lead is the easiest to use and the most durable to employ.

You may try experiments with other brands of white lead; with Brandram's you are sure.

Ask your Dealer.

BRANDRAM-HENDERSON
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Montreal Halifax St. John Toronto Winnipeg

One-Horse Spring Tooth Cultivator



Read the following
Testimonial:

Dear Sirs:
The Cultivator I purchased from you last season is the best one-horse cultivator I have ever used for all kinds of work, and it is also very easy to operate, any small boy can use it.
W. A. NASH, Stoney Creek, Ont.

Dear Sir:
Re my satisfaction with my Spring Tooth Cultivator purchased from you, would say I would not be without one of them for twice the price.
DILBY COLEMAN.

No agent in your locality? Then write us direct to-day for prices and particulars.

THE HALL ZRYD FOUNDRY CO. LIMITED
HESPELER, ONTARIO

Makers of Pilot Stoves, Ranges and Furnaces

FREE Style Book for 1914, of "Quality Line"
Save \$30 Vehicles and Harness

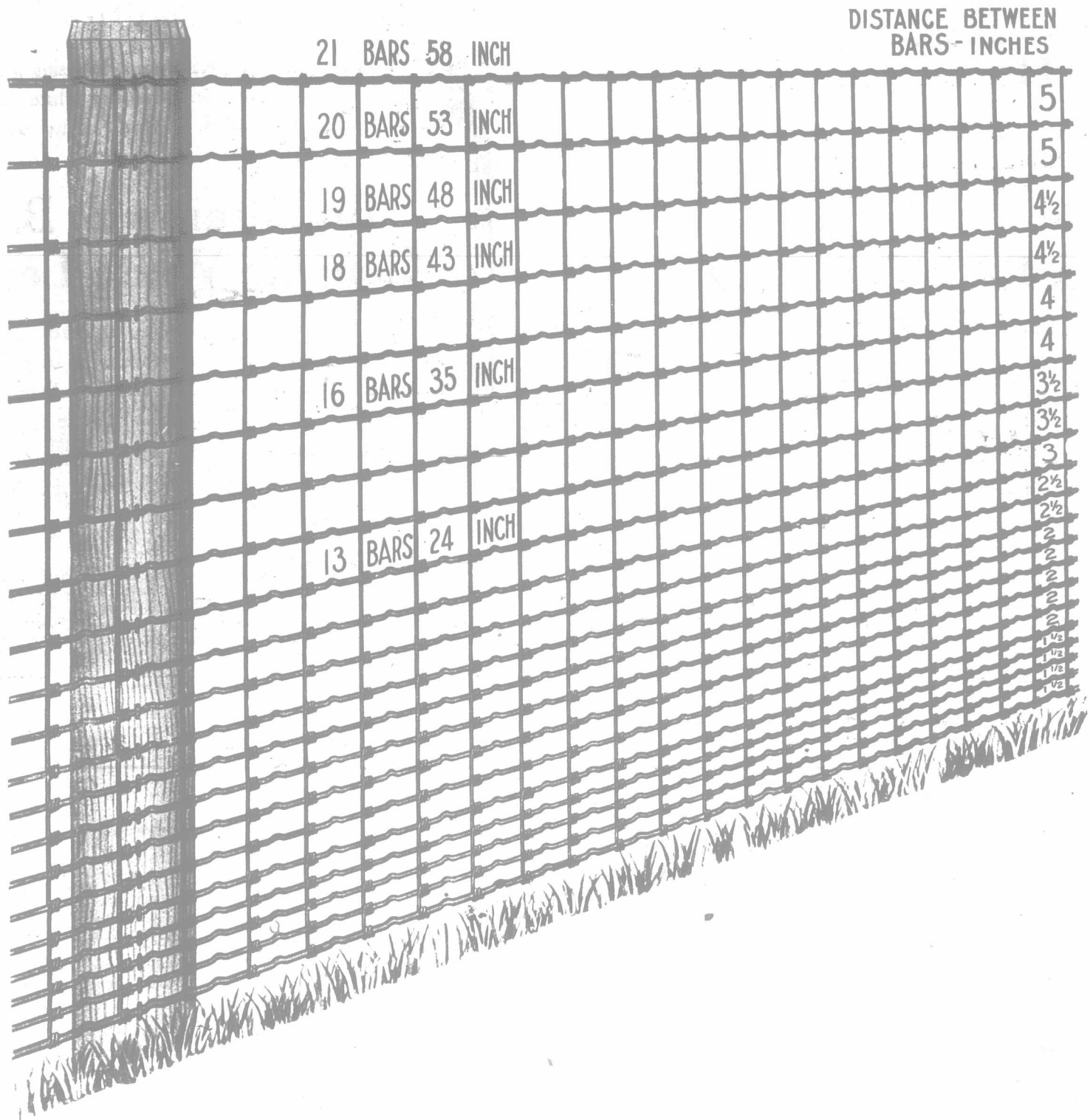


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International Carriage Company
BRIGHTON Dept. "A" ONTARIO

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Poultry and Garden Fence



Secures Enclosure for All Kinds of Poultry, Large or Small

Strong Wires and Close Spacings
Between Horizontals and Uprights

FOR PRICES, WRITE

The Canadian Steel & Wire Co., Limited
Hamilton, - Canada

The Farmer's Advocate and Home Magazine

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AND
SUCCEED

ESTABLISHED
1886

REGISTERED IN ACCORDANCE WITH THE COPYRIGHT ACT OF 1875

VOL. XLIX.

LONDON, ONTARIO, MAY 7, 1914.

No. 1128

EDITORIAL

It is not too late yet to put in a few mangels.

Don't try too hard to educate the market; its tastes are quite fastidious at present. Give it what it demands in the very best condition possible, and let time work its changes.

Be not discouraged at meeting obstacles in farming. Sir William Thomson (Lord Kelvin), used to say to his students "When you encounter a difficulty you are near a discovery".

An American journal says "One trouble with the country is that so many of our bright young men are more interested in the price of gasoline than in that of seed corn." Are they?

If increasing military expenditure and numerically strengthening the militia would prevent war we would say let us have more of it, but this system could never save Canada from attack.

The world will never be rich enough to justify waste. Plan the farm crops so they will blend into a succulent, well-balanced ration for next winter's feeding, and turn it into money through a judicious finishing of farm animals.

Recently a company in the United States issued their annual report, showing a business transaction of \$400,000,000.00. Live stock was the commodity dealt in. Can there be any doubt that agriculture is the foundation of all prosperity.

It is said that man lives on one-third the food he eats, and that the doctors live on the other two-thirds. If the cost of living is soaring as fast as many agitators seem to believe the doctor may soon be on half rations.

The grass is growing fast but is still young and tender. Keep the stock in the stalls as long as possible and give the pasture an opportunity to get a start, which will stand it in good stead throughout the trying dry months of midsummer.

Many parts of Western Ontario were visited recently by a heavy splash of rain. After such rains as these in the spring it is well to run a light harrow over the newly-sown crop as soon as it will bear the horses in order to prevent it running together and baking badly.

It is not too soon to have the association begin to look for markets that will handle the fruit crop. There are towns and villages in the West that never heard of you or your product. Be content with a fair price, and increase consumption for hold-up prices are in restraint of trade and injurious to the business.

The C. N. R. bond question, recently discussed in the Dominion Parliament, demonstrated how really helpless the people are in the hands of clever financiers. The credit of the country could not be jeopardized so the money had to be advanced, and the people did not want to take over a road in financial difficulties, so the financiers still hold the controlling interest and no doubt will proceed to pluck the goose.

The Farm Gate.

There is a type of gate all too common on the farms of this country which goes by the very significant name of a "farm" gate. It is needless to describe a farm gate. It may be in almost any condition but the feature which gives it class distinction is that it is heavy and drags its feet. Sometimes it hangs by one loose hinge and sometimes it is off its hinges altogether. The man who opens and shuts such a gate three or four times daily recognizes the inconvenience which it gives him but seldom realizes what the loss of time means. Good, solid, strong, neat, trim gates with handy and secure fastenings are time and labor savers and add greatly to appearances. Many farms would be benefitted by a few more gates properly hung. The old heavy bars seven or eight in number so common in days gone by and which were wide enough to allow the old-fashioned binder to go through are passing as they should. The various metal gates manufactured in these days are neat, durable and may be adjusted to give little inconvenience. If a person has the timber he may get some good gate material sawn which if properly put together (work which should be done in winter) and afterwards painted will make fairly durable and satisfactory gates. But the main thing is hang them properly and keep them hung. Put your gates out of the "farm-gate" class.

Necessary Fences and Land Encumbrances.

Of what use is a permanent fence unless it is permanently needed to divide fields for grazing purposes or to divide one holding from another? Line fences are necessary, and under present-day conditions road fences cannot well be dispensed with, but there are thousands of miles of practically useless and altogether unnecessary inside fences on the farms of Eastern Canada, and what is worse is that miles and miles of them are in an unsightly, tumble-down, inefficient condition, detracting from the beauties of the landscape, harboring weeds, insect pests and bushy undergrowth, and depreciating the value of the standing very materially. Rails are growing scarcer and scarcer, and this is causing a good many farmers to do away with some of their fences, but too many are allowing a lot of unstaked snake fences to practically rot down on the strips of good land which they occupy. With first-class outside fences and the necessary lane fence leading to the buildings, it is not essential to have a large number of permanent cross fences dividing the farm into small fields as was once the general rule. A few cross fences are in order and come in handy, and especially on a stock farm it is wise to have a number of paddocks near the barn, and besides these a two or three-acre pasture, and from a two to a four-acre field to run horses in at nights or for the use of brood mares and cows about to freshen (a maternity ward) is very handy and can well be made a permanent feature of the farm fencing.

For the large fields, say of from twenty to thirty acres in extent, if it is desired to put in more than one crop in each, and at certain seasons to pasture part of it a roll of wire may be quickly and easily strung across as a temporary fence to separate that portion necessary for pasturing from the part upon which it is not desired to allow the stock. These portable, temporary fences are, we believe, destined to take the place of many of the old fences which were

considered permanent and which were built when rail timber was so plentiful that it was split up and piled into crooked fences simply to get rid of it. Few are the farms but that could do with fewer fences if the proper rotation of crops were managed, and a few temporary wire fences provided.

Money in Modern Marketing.

Too many farmers compete on the same market with other producers who have a decided advantage through location or proximity to that market. On the open market at London, Ontario, there are producers coming from the suburbs of the city, and some from a distance of twenty miles. If those favored by the short distance are not making too much, and they claim they are not, are the remote producers wise in competing with them? True, it is they are working cheaper land but the distance more than offsets the difference in price, and furthermore the truck gardener near town follows more intensive methods and requires a smaller area.

A well-known financier once said that it was a good plan to put all your eggs in one basket and watch that basket, and in this remark is the germ of a great truth as applied to the agricultural world. Too many farmers grow a little of this, produce a little of that, and are never known by any one particular commodity. A few ordinary cows adorn the stables, from which a few pounds of ordinary butter are made. A small flock of ordinary hens produce a number of ordinary barn-yard eggs; they are not grain-fed hens exclusively, so the eggs have nothing to commend them over other eggs on the market. An ordinary garden produces a quantity of ordinary vegetables, and when Saturday comes all this ordinary farm produce is bundled together into an ordinary wagon, taken to market and sold in the ordinary way at a very ordinary price. The whole routine is a left-over custom of primitive trading days.

Modern system demands specialization. The ambitious farmer forges ahead of the rank and file of average producers. He must have some one commodity upon which to establish a reputation and distinguish him from his competitors. Would it not be wiser and more business-like for the farmer living ten miles from the market and working land worth from sixty to one hundred dollars an acre to maintain a herd of heavy-producing cows, and each week take to market one hundred pounds of choice dairy butter labeled with the name of his farm which should be his trade mark, and distinguishing symbol? In addition to this one hundred hens run in the orchard, and fed clean grain would furnish a quantity of eggs that could be advertised as absolutely wholesome eggs, not barn-yard or manure eggs, as they are known on discriminating markets. Let the consumers know through a small advertisement in the papers what you have for them, and in what way it is superior to the ordinary produce of the ordinary marketer. Then when market-day comes around each week be there with your commodity, up to grade, and the buyers will make a path to your stall. As far as profits are concerned the practice of trading in common-place goods has been relegated to the world's garret as an antiquated and worn-out method of marketing.

There are those, however, who claim that it does not pay them to peddle produce on the town market, and their argument is not without

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 Journal,"
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foundation when the actual expenses are taken into consideration. If the farm is situated some distance from town or shipping point there is still a field for specialization, and the produce should be such that frequent trips to the depot are not necessary. Here the finished articles might be driven away on foot twice a year, as a number of finished bullocks or a few loads of hogs would soon dispose of a season's work and sell the crop in a most economical way. Eight, finished bullocks weighing on an average 1,200 pounds, and thirty hogs, finished at 200 pounds each, should not be over-estimating the possible output from a one-hundred-acre farm. One can see at a glance that the marketing of this output would require only a small amount of time, while the remainder could be expended on the farm itself. The reports of markets for two decades reveal the highest prices in September for fall hogs. Farmers wait for the threshing before they finish, with the consequence that the hogs are being sold in October when money is scarce and notes come due with the inevitable result of falling prices. The weakening market is not the result of heavy offerings so much as that money must be had and the hogs are the source of revenue. The market appreciates this condition and takes advantage of it. A producer with business acumen will study markets and the causes of fluctuations, and then with his knowledge of estimates and averages will see when it pays him best. Reviews of past seasons point to September in the fall, and late April and early May in the spring as the periods of highest prices on the hog market.

The best prices cannot be expected, however, if there is not a choiceness and uniformity about the litter or litters. English buyers will purchase Danish bacon F. O. B. without any fear as to the quality of the produce. Uniformity and high quality is a feature of their trade and the output is always up to grade. This is made

possible by a uniformity of the swine of that country. One may drive one mile, ten miles or one hundred, and the hogs he sees are all the same. Specialization has passed the individual stage in that little country. It is an attribute of the whole nation. Proper finish and quality one year after another is a distinguishing feature that makes a farmer known to the buyers, who always keep his farm in mind and find it when they want the goods. To progress it is necessary to be above the average, and the producer must maintain more than the average quality of stock, must have more than the average knowledge of markets and values, and on the whole must get beyond that ordinary hum-drum file of average producers.

A Plea for More Paint.

All nature takes on color in the spring and in keeping with her efforts man may add greatly to the general appearance of the structures with which he has either beautified or defaced the spots of earth on which they stand by applying a coat of paint. We were going to say a "fresh" coat of paint but in riding through the country, one sees such a small percentage of out buildings that have yet received their first painting that the word "fresh" would not apply. No one fails to appreciate the difference in appearance between a farm-steading with well-painted buildings from the dwelling house down along the line of driving shed, implement shed, main barn on to the piggery and even to the hen house in the sheltered far corner of the farm-yard and yet painting has been badly and often inexcusably neglected.

Speak to a group of men about painting their buildings and it will be revealed that of the two advantages generally recognized from the practice—appearance and economy—nine out of ten will think of the former first and will in a sense forget all about the increased wearing power which paint gives wooden and other structures. Right here seems to be the reason that more paint is not used on country buildings. The man on the land is practical and must see plainly the economy of a practice before he accepts it on his own farm. Perhaps he gets beauty enough from the large supply of it which Nature bestows round about him and does not care to add to an already generous supply or to enter into any beauty-show competition with nature. He has been told, so many times by his city cousin about the beauties of nature and the gorgeous surroundings of farm life that he takes it for granted that the landscape in his locality is a fit subject for the best artist without adding any color to his farm buildings or to the posts sustaining his front fence. It is because people have placed appearance before economy in connection with painting that paint is not at present acting as a preserving covering on more farm structures. We would not detract from the appreciation of the enhanced appearance of painted structures but we would urge people to place more weight on the economy of periodically painting the house, the barn and other outbuildings as a preservative to increase the longevity of these farm structures. Nothing approaches the mixture of oils and white lead with coloring matter to "brighten up". Get a correct aspect of the economy of the thing. Dollars are in it in these days of high-priced building materials and no man can afford not to preserve his buildings. He insures them against fire and he should insure them against the action of the weather. There is money as well as virtue in the smelly, sticky mixtures, forming paint. Apply them freely.

Quality the Fairest Basis.

All products from the egg to the heaviest steer or gelding turned off the farm should be sold on a quality basis. The progressive farmer should not longer put up with the flat rate prices which apply to so many of his products. It is time purchasers changed their system of buying and if they do not see it the producer should give them a lesson. The city business man advertises "goods that are different." He strives to have and to hold some exclusiveness in what he offers to his customers and upon his success in

keeping his store more or less exclusive depends a large measure of the profits finding their way into his cash tubes month after month. To be exclusive requires effort and especially is this so in connection with agricultural products, but it is the finishing touches which command the price and when they are put on and the matter demonstrated to the right kind of buyer there is usually little difficulty in obtaining a steady market at an advanced price.

Time was when all eggs were only eggs and sold at the same price per dozen and in many places this is still the case, but, where it is, the man producing the really high-class article must accept a lower price than his eggs are really worth in order that the dealer may not lose money on the inferior lot furnished by the careless poultry keepers. But there is a way to get free from the shackles of average or inferior quality which bind the producer of better eggs to his more careless brother producers. All he needs to do is to take special precautions with his eggs, stamp them with date of laying and grade them and sell them through an egg circle and he gets the exclusive price.

Practically the same thing is true of dairy butter. Butter a few years ago was just butter. It is different now. The man who has a good dairy herd kept under recognized sanitary conditions, is cleanly in his operations and endeavors to keep everything in connection with his product above reproach and then wraps the butter in special papers with the name of the dairy stamped thereon does not long need to put up with the average price. He has an exclusive article—goods that are different—and it commands a better price as it should.

Carry the same principle throughout the products of the farm. The man with a reputation for feeding a uniform, high-quality bunch of cattle each year, which really are his trade mark, generally pulls a little higher price than the fellow who may have any old type of cattle in his stalls. The same is true of pigs and lambs, and even with horses the buyer will generally pay a little more where he knows the class of horses handled. It pays to be exclusive. There is money in farm products that are different, and yet there are so many products for which, so far, no premium has been placed on quality. For example the creamery. A small percentage only of creameries handle cream on a quality basis and yet there must often be even more than a difference of two cents per pound fat in the quality of cream supplied. Under such conditions there is little incentive for the producer to take pains with his product. This is only one of many such cases where the producer is not given due recognition for his care. He should first be sure his goods merit the higher price and then should insist upon getting it. In time it must come.

Nature's Diary.

A. B. Klugh, M.A.

Plants which are abundant both in number of species and individuals in our May woods are the Violets. They appear in various colors—violet, dark blue, pale blue, yellow and white, but whatever their color the form of the flower stamps them all as Violets—members of the genus *Viola*. The flower has five petals, two standing almost straight up, one spreading out at each side and a broader one beneath. This lower petal gives the bees and butterflies a resting place when they are seeking the nectar, and it is prolonged backward into a spur, which is of greater or less length depending upon the species under consideration. The spur forms the nectary of the Violet and in order to reach the nectar the insect must thrust its tongue through a little door guarded by both stamens and pistil. The insect thus becomes laden with pollen and carries it from flower to flower.

Most of the Violets produce another kind of flower besides the showy ones, little flowers which are borne on short stalks, which have no petals and never open. These flowers are perfect self-pollinated, and in many species produce an abundance of seed. The seed from the showy, cross-pollinated flowers would tend to produce plants inclined to vary, while those from the small non-opening flowers would tend to carry on unchanged the characteristics of the plant which bore them.

The handsomest of all our Violets is the Hooded Blue Violet. When it grows in damp open places the flower stalks become very long and the flowers of a truly tremendous size for a Violet,

and of a beautiful deep blue. This species belongs to the group in which the leaves spring from the crown of the plant and not from an aerial stem as they do in many species. The group in which the leaves appear to spring from the root (they really come from a very short, subterranean stem, for no leaf ever came from a root yet) are called the Stemless Violets, while the group in which the leaves are borne on a stem above the ground are called the Leafy-stemmed Violets.

Another extremely beautiful species is the Long-spurred Violet. The flowers are large, the petals are Lilac-colored with a violet spot near the centre, and the lower and lateral ones are striped with purple. It belongs to the leafy-stemmed group, and as the name implies its distinguishing characteristic is the very long spur.

There are several species of stemless white Violets to be found in our woods and swamps. Their flowers are small, but when examined closely are very pretty on account of the chocolate veining of the white petals. We have but one leafy-stemmed white Violet, the Canada Violet and it is a large, upstanding species. Both our yellow Violets are leafy-stemmed, and the main difference between them is that one species is more downy than the other.

That "Voice of the evening" the Whip-poor-will, is back again in its haunts. It is one of the birds which is often heard and seldom seen. All who dwell where there are any extensive areas of bush are familiar with its oft-repeated call, but few have any idea what the bird looks like. It may often be seen in the woods by those whose eyes are trained to observe, as it sits length-wise of a limb or fallen tree-trunk, but by the uninitiated it is frequently passed by as a knot or some protuberance of the bark, so well do its colors blend with the bark of the trees. In the male, the general color of the upper parts is dark brownish-gray, streaked and minutely spotted with brownish-black. The wings are dark brown spotted with reddish-brown. The four middle tail feathers are colored like the back, while the three lateral ones are white in the terminal half. The throat and breast are similar in color to the back, with a transverse band of white on the fore-neck. The rest of the under parts are paler than the back and mottled. The female is similar in coloration to the male, but the lateral tail-feathers are reddish-white towards the tip only, and the band across the foreneck is pale yellowish-brown.

The wings are long and pointed and the feet are small. The bill is a mere horny tip to an immense mouth. This large mouth, which can be opened until the whole head seems to be opened, is of great service in scooping in moths and other insects which fly at dusk, while the bird is on the wing. The flight of the Whip-poor-will is very soft and silent, and it flits among the trees like a huge brownish moth.

The eggs are two in number and are deposited in a hollow or rotten log, or on a dry bank among the dead leaves. The eggs are elliptical white or cream-color, handsomely marked with yellowish-brown and lavender. When uttered close at hand the call is heard to be preceded by a "chuck". This species flits silently away to the south early in September.

THE HORSE.

Joint-Ill---Navel-Ill or Septic Arthritis.

Many theories have been advanced re the cause and nature of navel-ill in foals. Some claim that it is caused by what is generally called "leaking navel," technically known as "pervious urachus" in which more or less of the urine escapes through the navel cord. Those who have had experience have observed that this is not a fact. In some cases the two troubles co-exist, but in many cases either condition is noticed without being accompanied by the other, hence there is not necessarily a connection. Pervious urachus, when not complicated can usually be successfully treated, while "joint-ill", unless skillfully treated in the very early stages, usually proves fatal, and if in an advanced stage very seldom permits of a perfect recovery. Some claim that "joint-ill" is a disease of weakly foals; others that it is a disease of foals that get too much milk; others that it is caused by some undetermined alteration in the dam's milk; some that it is due to cold and exposure on damp ground; some that it is due to the nature of the dam's food; some that it is due to the failure of the foal to get the first milk of the dam, called "colostrum"; some that it is congenital, being contracted in an undetermined manner during foetal life. In fact each has his own opinions on the subject, but none can advance satisfactory evidence to establish their correctness. All these theories have been discarded in the light of modern veterinary science.

That the disease is due to a germ that gains entrance to the blood, has been proven beyond a doubt. A bacteriologist can isolate the specific

germ in the exudate, caused by the disease in all cases. The germ gains entrance to the system through a raw surface opening, generally, if not always the navel opening, enters the circulation, has an affinity for the joints, lodges there, multiplies very rapidly and causes the disease, hence it is often called "navel-ill." While scientists now generally admit that the disease is caused by a germ some claim that it gains entrance during foetal life, hence is congenital. This view is not supported by evidence, and is held by few.

The germ that causes the disease exists in the soil, in dust, on stable floors, and doubtless in some cases on the hair of pregnant mares that

joint may be affected. The trouble is often thought to be from injury by the dam treading upon the foal or other causes. The symptoms increase in intensity sometimes quickly, at others more slowly. The swellings increase in size and soreness; the patient becomes weaker, less able to move and lies most of the time. If helped to its feet it is lame and sore, but in some cases will nurse fairly well, but soon lies down again. As the symptoms increase in intensity the general debility also increases, and the desire for nourishment diminishes. The joint or joints involved become puffy, and if they are lanced or burst a muddy-colored liquid escapes. In many

cases the articular cartilages of the joints become destroyed, when manipulation will reveal a grating sound caused by the ends of the bones rubbing against each other. When this stage has been reached it is a humane act to destroy the patient. The patient will live a variable length of time, depending largely upon the care and attention it receives.

Preventive Treatment is the most important, and if we admit the theory advanced it can plainly be seen that this consists in preventing the entrance of the germ into the system. This can be done (where the germ exists) only by cleanliness and antiseptic measures. All dust, cobwebs, etc., should be swept out of the stable and the stall should be regularly and thoroughly cleaned, but it is good practice to scatter slaked lime on the floor daily before providing fresh bedding. It is good practice to give the stall a thorough coat of hot lime wash with 5 per cent. crude carbolic acid, or if whitewash be objectionable give it a thorough washing with hot water with 5 per cent. of the acid. It is also good practice to wash the external genital organs, tail and hind quarters of the mare occasionally with an antiseptic, as a 5 per cent. solution of creolin or other coal-tar products. When a mare is to foal on grass, of course, these precautions cannot be taken, but there is little danger (probably none) of the germ existing on grass, but may exist in sand or clay void of grass. The most essential preventive measure that can be observed in all cases is local attention to the navel as soon as possible after birth, and several times daily afterwards until it dries up and heals. Cases of pervious urachus favor the appearance of the disease, as it prevents the healing and drying up of the navel opening. The breeder should have on hand a bottle of some strong antiseptic and germicide when his mare is about to foal. This may be a 10 per cent. solution of carbolic acid, formalin, creolin, znoleum or other coal-tar product, or a solution of corrosive sublimate. Some use tincture of iodine full strength. The writer prefers a solution of corrosive sublimate 30 to 40 grains to a pint of water. This is a



"Please sir, help along a poor railway wot has lost all it had."

are stabled or grazed in quarters where it exists. This last fact accounts for the occasional very early symptoms of the disease sometimes noticed. The germ gaining entrance to the foal during birth, the trouble is much more frequently seen in foals that are born in the stable than in those that are born in the pasture field. In some seasons the disease is much more prevalent than in others, and more frequently seen in some localities than in others. Owing to these facts we must acknowledge that certain climatic conditions and certain geographical conditions favor the presence of the germ, but just what the conditions are has not been determined.

very strong solution, but not sufficiently strong to exert a caustic or corrosive action, and it is an excellent germicide, and practically non-irritant for external application. Whatever is used it should be freely applied as soon as possible after birth, and four or five times daily afterwards until the navel has become thoroughly dry and healed, which is usually the second or third day. When these precautions are properly observed there will seldom



Rosie Pride.

Two-year-old Clydesdale mare, winner at leading exhibitions last fall, imported by Graham Bros., and now owned in the United States.

Symptoms.—The symptoms are evidently soon manifested after the germ enters the circulation. From a few hours to a few days, and in rare cases, a few weeks after birth, the foal is noticed somewhat dull, lies a great deal, manifests stiffness or lameness on one or more limbs. An examination will reveal a swelling, heat and tenderness of one or more joints, often, but not always, the hocks or knees, but may be the stifles, hips, and shoulders, fetlocks or pasterns. In fact any

very strong solution, but not sufficiently strong to exert a caustic or corrosive action, and it is an excellent germicide, and practically non-irritant for external application. Whatever is used it should be freely applied as soon as possible after birth, and four or five times daily afterwards until the navel has become thoroughly dry and healed, which is usually the second or third day. When these precautions are properly observed there will seldom

be a case of joint-ill, but it may occur even under the most careful preventive treatment, and we are not justified in assuming that the theory and practice are at fault because they occasionally fail in results.

Curative treatment is often ineffective even when given early. The use of serums and antitoxins especially prepared for the purpose and which can be administered only by a veterinarian have been successful in a reasonable percentage of cases, hence it is wise for a breeder to employ this veterinarian as soon as possible after the first symptoms are noticed. Even amateur treatment may occasionally be successful. It consists in bathing the joints long and often with hot water, and after bathing rubbing well with camphorated liniment, as one made of 1/2 oz. tincture of iodine, 2 drams gum camphor, 4 oz. extract of witch hazel, 1 pint alcohol and water to make a quart. The foal should be given 5 to 10 grains (according to size and breed) of iodide of potassium in a little of the mother's milk three times daily, and it should be helped to nurse at least every hour if it be not able to help itself. The mare should be well fed on milk-producing food, as bran, crushed oats and raw roots or preferably grass if in season, and should be given 1 to 1 1/2 drams iodide of potassium three times daily. Such treatment may be successful in arresting the ravages of the germ and destroying those present. When the disease has reached that stage where the articular cartilages are destroyed it is wise to destroy the patient, as even though careful nursing may preserve life the animal will always be a cripple. WHIP.

Many Percherons Change Hands.

We have heard a good deal of late about the slackening of the horse demand. The trade on the market is said to be a good deal duller than it was a while ago. Horses seem to have been selling rather freely in the United States, if we may judge from a report which the Secretary of the Percheron Society of America has compiled. Between November first, 1913, and April first, 1914, 4,935 transfer certificates were entered on the Percheron records, 1,836 of these were for animals sold before November first, and of the 3,099 remaining, which were for animals actually sold in the time mentioned, 1,653 were for stallions, and 1,446 for mares. This actual record (which is not complete) of sales made during the five months named shows that the Percheron trade has been active across the border. It is stated on good authority that more sales have been made by small farmers and the smaller breeders than was formerly the case. Personal reports from a great many of these farmer-breeders justify the conclusion that prices obtained for American-bred horses have been more satisfactory than in the past.

In the sales, Illinois leads with 315 stallions and 399 mares, closely followed by Iowa with 225 stallions and 165 mares. Indiana stands third, while the sales reported to the American Association to Canada were 88 stallions and 44 mares, a total of 132 in the five months. It is reported that Indiana has been especially active in the purchase of stallions, while Illinois, Ohio and Iowa, the oldest breeding States have been heavy purchasers of mares. This is in accordance with practical experience for well-informed horsemen. This is due to the fact that when the heavy horse has once demonstrated his advantages over the light animal for farm work, females of the heavy breeds find more ready sale.

Sore Shoulders.

Horses that are regularly worked with properly fitting collars that are kept clean, seldom suffer from sore shoulders, but it is different with young horses just starting to work and with those of any age that have had a few months' idleness. Even with the latter classes sore shoulders are not common when the collar fits properly, the draught properly adjusted and collar and shoulders regularly cleaned. We speak of "ill-fitting" collars. This naturally suggests the question "what constitutes a proper fit". The collar should be so long that the teamster can easily pass his fingers between the bottom of the neck and the collar. If there be not this extra room there is a danger of the horse choking from pressure of the collar on the windpipe. When under certain conditions there is an expansion or increase of the depth of the neck, it should fit neatly on top of the neck; if too wide it causes trouble on account of the unevenness of pressure. While if it be too narrow it pinches. It should also fit neatly all along the shoulder. If too wide there is more or less of a rolling motion and if too narrow it pinches, either of which conditions must cause trouble. There is much similarity in the conformation of the shoulders of most horses. Most shoulders are somewhat prominent from the point upwards for a certain distance, then somewhat hollow for a certain distance, then again prominent to the crest, which varies greatly in width according to the class and condition of the animal. On this

account, collars made to a standard pattern will fit most horses, provided they are of the proper size. At the same time some horses have peculiarities of conformation of shoulders and in such cases a standard collar will not fit properly, hence its use will be followed by shoulder trouble. On general principals each horse should be fitted with a collar and he alone should wear that collar. With the exception of the collar the same harness may with satisfaction be worn by different horses, but a horse's collar should be his alone.

If the owner or the teamster has not an intelligent idea of how a collar should fit, he should get a harness maker to attend to it for him. All harness makers are not collar makers. In fact the latter is properly a trade by itself, but any harness maker should be a good judge of how a collar should fit. If a horse have any peculiarity of the conformation of shoulder, he should be especially fitted, and if necessary a special collar made for him. The fitting of a collar should not depend upon the adjustment of the harness and the tightness of their buckling. The collar should fit properly and the harness should be adjusted to it.

A horse that has been idle for a few months and then put to work in a properly fitting collar should do well for a time, but in most cases it will soon be noticed that the collar is too large, both in depth and width. This is due to the fact that the muscles have become less in bulk, but probably harder in consistence by reason of pressure, and he may also have lost flesh, which decreases volume in shoulder as well as in other muscles. If this be not attended to, either by supplying a fresh collar or the wearing of a sweat pad, there will surely be trouble. When the collar fits properly, the hames are properly adjusted and the teamster keeps the collar clean, takes care that the mane is not allowed to get between neck or shoulder and collar, removes the collar at noon and brushes or rubs the shoulder clean before putting it on again, sore shoulders are not likely to occur. At the same time, trouble is sometimes seen, even in cases where apparently all preventive measures have been observed.

Shoulder troubles are of various kinds. The most common is soreness unaccompanied by swelling, the skin becomes wrinkled and dry, followed by a falling out of the hair and afterwards by rawness of the skin. In such cases an astringent and antiseptic dressing should be applied frequently. Probably the best lotion for this purpose is one made of one ounce each of acetate of lead and sulphate of zinc in a pint of cold water, of course in all shoulder soreness a rest should be given if possible as it is very hard to treat while the cause is kept up.

In other cases enlargements are noticed. These are caused by the collar bruising the tissues and are of different natures. In some cases the swelling appears suddenly, is of considerable size, soft and fluctuant to the touch, and not very sore. These are called "serous abscesses" they contain a thin bloody-looking fluid called "serum". A free opening should be made through the skin into the abscess at the lowest part to allow free drainage and the cavity flushed out three times daily until healed with a 5 per cent. solution of carbolic acid or some other good antiseptic.

In other cases the horse shows tenderness and an examination reveals, a slight swelling quite sensitive to the touch or pressure of the collar. This increases in volume and soreness but is more or less unyielding to pressure. Most of these after a time become somewhat soft in the centre, they contain pus and are called "purulent abscesses". Treatment is the same as for serous abscesses. In other cases the soreness and enlargement continue but no indications of softness in any place is noticeable. In these cases the tumor should be punctured and probed to search for pus. If even a very small quantity of pus be found the opening should be enlarged to allow free drainage and treatment as above followed when the swelling of the tissues will gradually disappear as the wound heals. If no pus be present, the enlargement is a fibrous tumor and dissection the only successful treatment. The tumor must be carefully dissected out, the wound stitched with the exception of the lowest part, which must be left open for drainage and the wound treated as an abscess. If necessary to work a horse following any of these operations a breast collar must be used.

What are called "sit fasts" are those cases where the shoulder becomes sore, the skin becomes detached in a circle, but a portion in the centre remains healthy and attached, preventing a falling off of the deadened skin. Treatment consists in dissecting the attached piece of skin and treating as ordinary sore shoulder. It is not uncommon to notice various little hard lumps the size of marbles or smaller just under the skin. In many cases there is no rawness, but more or less soreness. The surrounding tissues may swell but after a few days rest the swelling disappears, but the little lump remains. These are little fibrous tumors and the only successful treatment

(when they do not form pus) is dissection. Sore necks are usually harder to treat than sore shoulders and are often more painful. In many cases there appear little fibrous growths which cause recurrent appearance of little boils. In such cases they should be freely cut open, the fibrous tissue dissected out and the wounds treated as above. WHIP.

Summer Care of the Mare and Foal.

Editor "The Farmer's Advocate":

It is often annoying to have a little colt get mixed up with the lines and harness of the team working in the field, but the little fellow is a valuable growing animal and we must exercise patience with it. Some always allow their foals to run with the mares at work, while others never allow it. It is better to allow the foal to run with its dam all the time if the foal is not inclined to give trouble and if the driver of the team is careful and considerate. One main reason why it is better for the foal to run with its dam all the time is that it can take nourishment which is best for the real young animal of any kind. It is not good for either the foal or the mare to shut the youngster in the stable and keep it away from its mother for more than three or four hours. The colt will become hungry and suffer while the mare's udder will become distended and painful, causing her to suffer and worry. Some mares are such heavy milkers that their udders get painfully full within three or four hours.

By all means the foal should have a chance to suck at the noon hour and in no case should the mare be driven to a distant field or to town when the colt will be compelled to go without its noon meal. For an all-day drive to town or when being all day away from home in some distant field with the mare allow the foal to go along. Under no circumstances should the foal be allowed to follow the mare when she is working to a binder or mower. Only last year we had a fine Percheron colt cut badly in one foot in this way. We were careful to watch the little fellow when it came close to the mower but suddenly it got frightened at something and came running up from the rear when we were not watching. It jumped over the bar but was caught by the knife in one hind foot, severing the skin at the hock. It is a wonder its tender little foot was not cut entirely off. In all cases of this kind the driver is a factor to consider. If a hired hand must use the mare, or your own boy, be sure that he is quick, observing and careful with horses.

The colt may be easily taught to remain away from its dam without worrying. If the mare is not kept away for too long a time, it is better to keep the foal in the stable than to allow it to follow. If in the rush of work on particular days the mare must be kept in the field overtime, then the mare should be unhitched and taken to the stable for the colt to suck in mid-forenoon and mid-afternoon.

As the colt grows older it can stay away from its dam better than when young. When it is six weeks to two months old if some fine hay is given to it to eat it will not suffer hunger during the day. When it learns to eat the desire to drink water begins and after that period it should be offered water every day. The mare suckling a foal and doing regular work at the same time has a double burden to perform hence she should be worked, fed and cared for accordingly. When she is brought home at noon hot she should always be unharnessed and allowed to cool off before the foal is allowed to suck. The milk is not good for the colt when the mare is exceedingly hot. She can rest better, she will be cooler and the foal will be in less danger with the harness off in the stall. The two should have a roomy stall alone.

With hogs it is said that feeding the sow is equivalent to feeding the pigs. With brood mares it means more. Not only must the mare suckling a foal be nourished with a variety of the best feeds but she must have feeds that go to form milk, and some that furnish energy for doing work. The brood mare is more than a sow or cow giving milk; she works besides, which they do not, hence she must have better nourishment. If she is poorly nourished it means she will become weak and poor and the foal insufficiently nourished and likely to become poor and checked in growth. In addition to hay and corn to furnish energy for work the mare with a foal in summer should be fed with some oats; wheat, bran and shorts to better balance her ration. She cannot work hard and furnish milk on timothy hay and corn alone. If possible feed her some clover or alfalfa hay as they are rich in mineral and protein for furnishing milk.

For the good of the colt at least, if the youngster is confined in the stable during the day, turn the mare and colt out to the pasture every night and Sunday. The developing foal must have more exercise than it can possibly secure in a roomy stall. When it grows older and will eat it will obtain extra feed in the pasture.

Beware of barbed wire fences in lots and pastures with little colts.

Those who raise valuable pure-bred horses often do not work the brood mares with foals, claiming that more is gained when the mare is not worked. On the general farm the brood mare is expected to make half of a two-horse team all the time. If all the work animals are mares there is no choice but to work all alike. When, however, extra horses are on hand with no foals at their sides the brood mares should be given all the holidays and half holidays possible. They may also be given lighter work at times to save their strength. Since the mare is 'making extra money in raising a foal she need not be worked so hard in any case as other horses. It is unreasonable and unjust to ask more of them than they are able to do. If one has a team of brood mares and breeds them every year he ought to have at least an extra horse for driving and odd work to save the mares as much as possible. With the extra horse each mare can be given a half holiday every two days. After the foal begins to eat well it should be given some good hay and grain every day. Oats, corn and wheat bran are a good grain mixture for the growing foal, in addition to some such hay as bright, sweet clover. It should be fed almost all it will eat of hay and grain for fast development.

Johnson Co., Ill. W. H. UNDERWOOD

LIVE STOCK.

National Record Board in Annual Meeting.

The National Record Board met in the Prince George Hotel, Toronto, on Monday, April 27th, to transact their annual business. The assembly was made up of the Record Committee proper and representatives from the various Dominion live stock associations with the exception of the Holstein-Friesian Association which has not yet come into the National Records. Among those present were: Wm. Smith, M.P., Columbus; Col. Robt. McEwen, Bryon; H. M. Robinson, Toronto; Robt. Miller, Stouffville; Judge McGillivray, Whitby; T. D. Elliott, Bolton; A. Proctor, J. M. Gardhouse, Weston; J. Watt, Elora; B. A. Bull, Brampton; A. P. Westervelt, Toronto; P. Christie, Manchester; Capt. T. E. Robson, London; W. F. Stephen, Huntingdon, Que.; John Gardhouse, Highfield; John A. Boag, Queensville; Col. D. McCrae, Guelph; John McKee, Norwich; R. H. Harding, Thorndale; Dr. J. A. Couture, Quebec; Hon. N. Garneau, Quebec; H. D. Smith, Hamilton; L. O. Clifford, Oshawa; James Bowman, Guelph; Robt. Ness, Howick; Harry Smith, Hay; W. A. Dryden, Brooklin; H. M. Pettit, Burlington; John Rawlings, Forest; J. E. Brethour, Burford; J. Wesley Allison, Morrisburg; John Bright, Dominion Live Stock Commissioner and Jno. W. Brant, Sec'y-Treas. of the National Record Board.

Wm. Smith, Chairman of the National Record Board, presided and after the minutes were read and approved, business was at once proceeded with. The question of representation was not discussed at any length, but the condition rendering it possible for representatives from the West to attend the annual meetings of the live stock associations was appreciated, and on motion of Harry Smith, it was agreed that recommendation be made to the Committee of the National Record Board to hold the annual meeting as nearly as possible co-incident with the annual meetings of the different associations.

A matter concerning the importation of Thoroughbred horses was discussed by Robt. Miller, who said that interested parties had been influential in initiating a campaign to remove some of the restrictions governing such importations. This matter was discussed in the Senate where the move was championed on Feb. 26th, by one of the members of the Upper House. It will be understood that such importations are under the supervision of the Department of Customs. Pure-bred stock for improvement purposes come in free of duty, but the Inspector of Customs acts upon the advice of the National Record Board as to the bona-fide character of all certificates and papers of identification. The National Record Board carries out its duties as prescribed by the different breed associations included in the Board, but they are strongly opposed to making any changes that will render it possible to import horses into this country without proper certificates and papers of identification issued by the Record Offices of the country from which they come. Mr. Miller explained how Thoroughbred horses were brought in, in bond to be raced at the annual racing meets and selling races and then turned over to buyers, and expressed himself as opposed to any modifications of the rules now laid down. The entire assembly, in sympathy

with this view, unanimously adopted the following resolution.

Moved by Robt. Miller, seconded by Robt. Ness "That having read the enquiry and statements of The Hon. Senator Casgrain contained in the Senate debates of Feb. 26th, 1914 that we are still of the opinion that it would be unwise, practically impossible, to change the regulations governing the importation of Thoroughbred horses, his arguments all proving and making it clear that the regulations governing the importations of Thoroughbred horses should rather be more stringent, and modified items on the statements made by Senator Casgrain go to prove that the identification and recording of Thoroughbred horses in the United States have not been as thorough as in the case of other breeds; that to change the regulations as suggested would tend to weaken the whole system of National Records; that it would have a tendency to place our National Records in a position of inferiority in comparison with the records of other countries while at the present time they occupy a position that is admitted by all to be superior to that of any other system of records in the world."

Co-incident with the foregoing discussion, the matter was brought up regarding the introduction of other breeds of horses to improve and develop the French-Canadian Horse in the Province of Quebec. It appears that in 1905 the Federal Government took over from Dr. Couture, the registration books of the associations of that Province. Later in 1910 the Minister of Agriculture entered into an agreement with the French-Canadian Horse Breeders' Association allowing them to make use of any one of four recognized breeds of horses after passing the inspection of four authorized inspectors, and approval by the Live Stock Commissioner. This agreement was to last for five years and any introduction of

The Cattle Situation.

It is interesting to note some of the remarks of correspondents who send in returns from various sections of Ontario to the Department of Agriculture and from which the bulletins are prepared by the Bureau of Industries. A few of them are worth quoting.

Three Huron correspondents put it this way, "Americans are buying up yearlings and are paying enormous prices to induce farmers to sell."

"Fat cattle are scarce and there are so few three-year-olds that you would think there must have been no calves three years ago."

"Farmers are gradually awakening to the fact that the sooner a beast is developed and finished the greater the profit, consequently, they are trying to finish them (and are succeeding too) at not later than two years old. The box-stall method is employed for the smaller cattle and the loose-shed methods for larger ones."

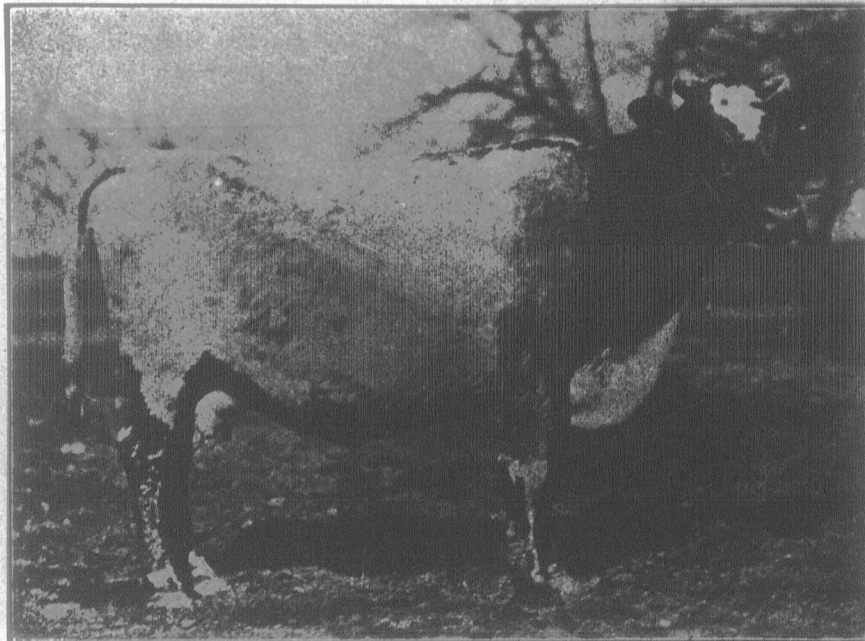
This is striking evidence of the change in feeding-cattle conditions in such a County as Huron where large numbers are turned off annually, but Huron is not the only county to show the effects of these conditions.

A Perth correspondent says, "Most of the stock placed on the market have been two-year-olds. Steady feeding and early maturity are now desired." A correspondent writing from Waterloo county says that there have not been as many fat cattle fed as in former years. A number of farmers are keeping all their calves and intend raising them. This is a hopeful indication, but it is a natural result as soon as the price of beef goes up then there is an effort put forth to raise more calves but it is more or less of a slow process and it will be years before the market will be over-stocked.

A Brant county correspondent states the case

even more strongly. He says, "Fat cattle are about as numerous in this locality as hens' teeth. Store cattle are a little scarcer than last year owing to the high prices paid by cattle buyers who scoured the country and bought almost anything in that line that had hair on it."

Down in Haldimand things seem to be about the same, one correspondent stating that judging from the large quantities of hay shipped away he did not think it possible that there is one-half the number of cattle kept that there was a few years ago. Unless the style of farming changes he predicts that there will soon be some poor land around that locality. Another correspondent from that same county states that there has not been enough live



Mina Gem.

Milking Shorthorn in the herd at Weldwood. Photo taken when the cow was dry.

alien blood into the French-Canadian Horse was to take place during that period. Nothing has been done as yet, but they have finally agreed to make use of Standard-bred blood to improve the breed. As only two more years remain before the expiration of the allotted time, the breeders propose to use four Standard-bred horses this year, and four more during the season of 1915. These horses thus used are to be taken in and after approval may be registered as French-Canadian Horses, and their progeny will be considered as pure-bred French-Canadian. This was purely an agreement with the Department of Agriculture in 1910 regarding which the National Record Board was not consulted and in nowise an alteration of the constitution under which they were accepted as an affiliation of the National Record Board. This procedure will of course run to the expiration of the time, as at present the Record Board has not power to alter or amend the agreement, but a feeling of discontent prevails among the Committee of the Board that such methods were adopted in order to improve an established breed instead of resorting to the old time and proven practice of selection.

Notice of motion was made by Robt. Miller, that at the next annual meeting steps would be taken to alter some of the minor clauses of the constitution but notice in writing will be made sixty days prior to such time as the rules of the constitution require.

The Officers of the previous year were re-elected, including the Chairman, Wm. Smith, M.P.; Representing heavy horses, Peter White, K.C.; Pembroke; dairy cattle, W. F. Stephen; beef cattle, Robt. Miller; light horses, Hon. N. Garneau; Sheep, J. M. Gardhouse; Swine, J. E. Brethour; Secretary-Treasurer, Jno. W. Brant, Ottawa.

stock to consume the crop grown and quantities of hay and straw have been sold that should have been fed on the farm, for while it has been bringing a good deal of money it has been robbing the land.

The same thing seems to have been the case in the eastern part of the Province, Lennox, and Addington correspondents stating that a lot of young stock was shipped out last fall with some older cattle and fewer animals per acre are kept than was the case a few years back. However, a few very good fat cattle will be available for the market.

In Prescott, in the east, fat cattle and store cattle are reported very scarce on account of the great sale that took place last fall. With the exception of horses all stock is reported scarce and dear in Russell county, and in Victoria a correspondent states that "too many calves were killed for veal. When a butcher comes along and offers a man \$10 to \$12 for a month old calf he usually takes it for before he had to wait for a year to get that much money for the animal."

These are only a few of the many indications that from one end of the Province to the other, and it is more than Province-wide, there is a scarcity of cattle and with this scarcity has come the practice of feeding off stock at an earlier age, which, provided the proper finish is put on that stock, is the most profitable method of feeding. Among other things brought out in these reports were: that an increased quantity of corn is being used as dry fodder and ensilage. There is more mixed feeding practiced than formerly and the silo is standing in greater favor than ever before. In some districts farmers are doubling up the number of their brood sows due to the high price of pork.

Balanced rations are being studied more than formerly and roughage and concentrates are being mixed to better advantage. Most places report feed plentiful and on the whole it has been a very good winter, but the same old dearth of farm help and even more marked than ever before, is complained of in many districts.

Breeding Primitive Sheep.

Editor "The Farmer's Advocate":

A line of work which is coming to receive more and more attention within recent times is the breeding together of seemingly inferior or primitive types with the so-called improved forms. The value of such experiments has been made evident through the knowledge gained by Mendel's law. Investigations on this order are being conducted by Mr. Elwes, of Colesborne Park, Gloucestershire, England, a sheep breeder of long and wide experience. There are many primitive breeds of sheep in isolated localities throughout the British Isles. Originally these sheep inhabited the pastures of the lowlands, and many of the modern, improved types have sprung from these in times past. But gradually they were crowded out of their original habitat to isolated and barren regions, chiefly in the highlands. Here, through the hardships which they had to endure, both as regards scanty food and rigorous climate, they have developed into types, which, because of their small size, wild disposition and slow maturity, have totally unfitted them, in the opinion of many, for breeding purposes. But Mr. Elwes has recognized that these breeds possess many valuable characters, and that the objectionable ones are not so bad as they may seem to be. For this reason he has undertaken, with much thoroughness, a series of experiments in crossing these primitive breeds with the breeds now popular in England. In so doing he has aimed for several points:

"First, to produce a breed capable of enduring the extremes of wet, cold and heat, which my district (Gloucestershire) suffers from, with a death rate not exceeding two or three per cent. from all causes.

"Secondly, they must be able to winter on grass alone without suffering from lameness, to which all of the improved sheep that I have tried, especially the Down breeds, seem to have an increasing, and probably hereditary, tendency.

"Thirdly, to produce and suckle their lambs without the shelter of a ewe pen, and without assistance from the shepherd, which is often necessary in the improved breeds.

"Fourthly, to get a fat lamb in July and August without any more artificial food than may be necessary to prevent the ewes from scouring in spring when the new grass comes; or, if the lambs are kept over winter, to make a small carcass of high-class mutton, not exceeding 40 to 50 pounds dead weight at 18 to 20 months old, off the grass.

"Fifthly, to produce as far as possible, without sacrificing the carcass, a fleece of fine, soft wool.

Although this work has only been in progress a few years, already Mr. Elwes feels his investigations to be of much value. He has recently exhibited a large number of these hybrids at the Royal Agricultural Society Show at Bristol, and at the same time issued a small book describing in detail the various primitive breeds, their habitats, and his own results in crossing these types with the better-known breeds. It is only possible to give a few of his results here, but these will be sufficient to indicate the success of his experiments.

The Old Horned Wiltshire breed exists only in small flocks in a pure state. They are chiefly characterized by the very short wool which is shed early in the spring; hence they are of little value as wool producers. But the rams of this breed, if crossed with Welsh, Scotch or Down ewes, have a high market value, since they attain a good weight when very young.

The pure Shetland sheep, which produce the most valuable of any wool in England, are found in the Shetland Islands. Here they live under the hardest of conditions. When brought to sheep farms in England they do exceedingly well, although the wool which they produce is not as fine a grade as that produced in the Shetland Islands. The color of the wool (moorit) is evidently a fixed character, as it persists in the new surroundings, provided the natural conditions of living are maintained as nearly as possible. Shetland rams crossed with Herdwick ewes produce hybrids which have a grade of wool much superior to the Herdwick breed. On the other hand, crosses between Shetland and Cheviot bring about a great improvement in the carcass, while the softness of the wool is not much diminished.

The Soay sheep, from the Islands of Soay and St. Kilda, are the smallest of the primitive types and very closely allied to the wild Mouflon of the Islands of Corsica and Sardinia. They are long lived and very prolific, but they seem less able to stand a harsh environment than other primitive types. However, these sheep are undoubtedly of value for crossing, since the offspring can endure

a difficult environment better than the parents. Crossing the Soay with Old Wilt produces thrifty sheep, the ewes of which always have twins. A particularly good cross is that of the Soay with Southdown, both for fat lambs and a type of "miniature, hardy, fine-wooled sheep, capable of thriving under conditions which the pure Southdown cannot endure."

Another breed, which Mr. Elwes has found very valuable for crossing, is the "Spanish" or Peibald sheep. These sheep are extremely hardy, prolific, of an excellent quality of mutton, and have little tendency towards lameness. The ewes are excellent mothers.

Aside from the practical value of the results obtained, Mr. Elwes is collecting a mass of data relating to the laws of inheritance, which, when completed, will be of great value to the breeder of sheep.

Maine.

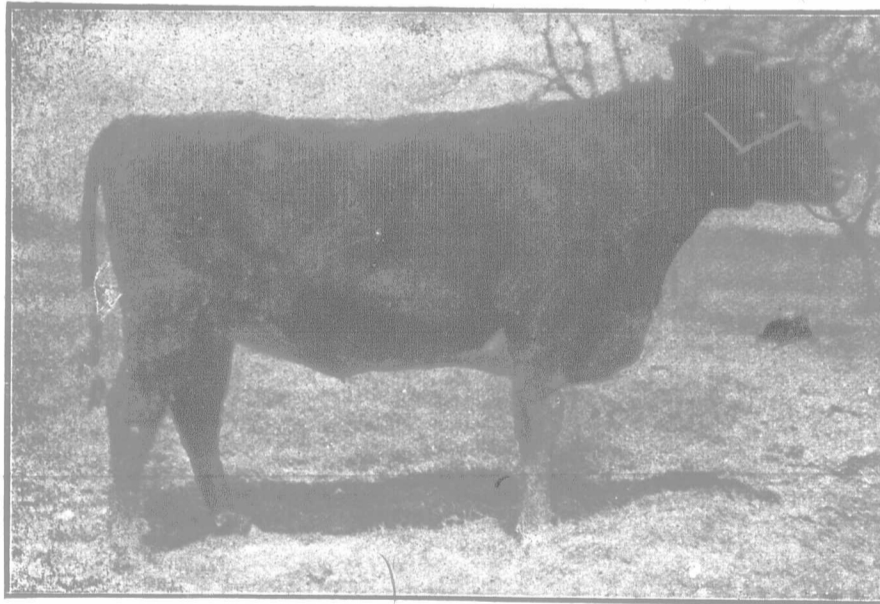
M. DEWITT PEARL.

Warble Flies.

Editor "The Farmer's Advocate":

In the spring "warbles" may be found on cattle throughout Canada. It was formerly thought that there was only one species of fly, whose larvae produce these warbles, occurring in Canada, but the recent investigations of Dr. S. Hadwen, of the Health of Animals' Branch (See Bulletin No. 16, Health of Animals' Branch, Department of Agriculture, Ottawa) and of the Entomological Branch have shown that two species *Hypoderma bovis* and *H. lineata* occur in Canada from Nova Scotia to British Columbia. To the non-expert person these two species of flies and their maggots, grubs or larvae, as they are variously called, are somewhat similar in appearance.

Warbles are a serious tax on the farmer and tanner. Their presence entails the following: loss of flesh in beef and dairy cattle, reduction of milk and other strains in dairy cattle, and very great loss in the manufacture of hides, owing to the presence in them of the holes made by the



Rosemary.

A two-year-old Shorthorn heifer in the herd at Weldwood.

maggots. Thirty years ago it was estimated that in the United States the annual loss caused by the warble fly was about ninety million dollars. I am informed that it is not unusual in many parts of Canada to deduct two dollars from the value of every steer on account of warbles. Dr. Hadwen, as the result of inquiries made by the Health of Animals' Branch, estimates that the annual loss to hides through warbles in Canada is between 25 and 30 per cent.

Yearlings and heifers suffer most from the attack of these insects. The "warbles" are tumors caused by the larvae or "maggots" of the warble fly. The larvae sets up irritation beneath the skin, with the consequent production of pus and blood upon which it feeds.

The warble flies are abundant during the summer, and fly in the fields from June to the end of August. They are about half an inch long and covered with hairs like a bumble bee, the hairs being black, white and yellow or reddish brown. They fly in the bright sunshine BUT DO NOT BITE OR STING, which makes all the more remarkable the fact that their presence will cause cattle to stampede and rush wildly about. The biting flies, commonly called "bull dogs" or "gad flies," belong to a totally different family of flies, known as tabanids.

The eggs of the warble fly are laid on the hairs of the animals by the fly during the summer and are firmly attached to the hairs, according to Dr. Hadwen's observations. Most of the eggs are laid apparently on the legs and hoofs of the cattle, and rarely on the back and upper sides. How the maggot reaches its final position under the skin has not been determined

with certainty. It may either bore straight into the skin or it may be licked into the mouth, and from there works its way through the tissues to reach its final position beneath the skin. Prof. Carpenter, of Dublin, Ireland, who for nearly ten years has been conducting experiments on this insect and methods of control, has found young maggots embedded in the tissues of the gullet of young cattle slaughtered in August and October. Dr. Hadwen has also found young maggots in the throat in August and November. As a result of a series of experiments carried out by Carpenter, in which the yearlings were muzzled to prevent the maggots entering by way of the mouth, it was found that five muzzled animals had an average of only two warbles each, while fifteen unmuzzled animals, which could lick off the eggs, had an average of over six warbles each. From this result Prof. Carpenter remarks one may conclude that the normal mode of entrance is by the mouth. Strose has found that some of the larvae probably enter the body through the skin. He also found, as other observers have found, that the full-grown larvae leave the host chiefly during the night and early morning. By whatever way the maggots gain entrance they finally arrive beneath the skin on the backs of the animals about February, and then gradually give rise to the "warbles." When the maggots are wandering through the tissue before reaching the back they are smooth, but having arrived beneath the hide they moult and become spiny. A hole is now made in the tumor or warble, through which the maggot breathes by means of two openings or spiracles at its tail end. The maggot becomes full grown from the middle of April to about the end of June, being then about an inch long. The "ripe" maggot works its way out of the warble and falls to the ground, where its skin hardens to form a brownish-black case or puparium, from which the fly escapes in about four to six weeks.

REMEDIAL MEASURES.

It was formerly thought, and the belief is still widely prevalent, that the flies could be deterred from depositing their eggs on the cattle if various dips and smears were applied during the summer months. The investigations of Prof. Carpenter and others have shown that no reliance can be placed on such preventives, although I have had from Saskatchewan a reliable report on the use of sulphur. Where cattle are dipped for ticks "warbled" hides are prevented no doubt by the destruction of the eggs and young larvae.

The housing of cattle during the heat of the day or pasturing where access to shade and water can be secured will do much to reduce the number of warbles and diminish the nuisance resulting from the attacks of the flies which dislike water and are most active in bright sunshine.

All evidence points to the fact that the best results can be obtained by the systematic squeezing out and destruction of the maggots in the spring before they leave the warbles. It will be readily understood that if the maggots are thus destroyed in all the herds throughout a whole district, the number of warble flies will be considerably reduced. Co-operation is necessary. In Denmark this method has been adopted with considerable success, and co-operation in the systematic destruction of the maggots has resulted in a marked decrease in the prevalence of warbles in those districts in which the work has been carried on. There is no doubt that, if this work is thoroughly done, the warbles in any given locality can be reduced to harmless proportions. Further, by the employment of a special man, the cost has been shown to be very small, in Denmark from two to five cents per head.

The best method of destroying the maggots is that of squeezing them out of the warbles, which can be easily done when they are ripe. The first examination and destruction should take place in April, and two others in May and June respectively. If the skin is hard it may be softened by washing with a solution of salt and water, using half a pound of salt to three gallons of water. The maggots may also be destroyed by smearing the warbles with a mixture of equal parts of kerosene and pine tar carefully mixed. This mixture fills up the breathing pores of the maggot which dies in consequence. This method, however, is to be less recommended than that of squeezing out the maggots, and it should not be confused with the summer smearing of the backs of the cattle which was formerly recommended,

but which has been shown to be useless as a preventive. Whenever it is possible cattle should be allowed to have access to shade trees and water in the summer, as the warble flies dislike water and are most active in bright sunshine.

The biting flies of tabanids, which attack cattle and horses and suck their blood, breed in water, their larvae being aquatic in habit. The stable fly (*Stomoxys calcitrans*) which is a biting fly, somewhat resembling the house fly in general appearance and size, frequently causes serious trouble on the farm by its blood-sucking habits. It should be clearly understood, however, that **THE WARBLE FLY DOES NOT BITE**, being unable to do so by the structure of its mouth parts. By its persistent attacks in order to deposit its eggs on the legs and lower regions of the sides of the cattle, it creates an extraordinary fear.

As we are anxious to ascertain the relative abundance of the two species of warble flies, I should be glad if farmers and stockmen would send specimens of warbles to the Entomological Branch for examination. They should be placed in moist earth in a tin or wooden box, and may be mailed free if addressed "The Dominion Entomologist, Ottawa." The name and address of the sender should be enclosed in or written upon the box if a letter is not sent with the specimens. In the summer specimens of all flies which are found attacking cattle and horses will be especially welcome. These should be sent in small and strong boxes, as flies and insects sent in envelopes or matchboxes are invariably crushed beyond recognition when they arrive.

C. GORDON HEWITT,
Dominion Entomologist, Ottawa.

There is a world shortage of live stock, especially cattle, and the populations of all civilized nations are growing faster than their meat supply. If the law of supply and demand still holds sway there should be a healthy future for the live-stock industry.

THE FARM.

Farm Engineering.

DRAINAGE IN QUICKSAND.

Tile drainage is admitted to be the best and cheapest form of drainage for most soils. There is no reason why they should not last for an indefinite period if they are properly laid. Most farmers have within the last few years studied into this matter and are prepared to undertake the ordinary job, but there are many special difficulties which they are liable to meet with. Perhaps as common a trouble as any is to find at the bottom of the ditch the troublesome quicksand. Not only will the difficulty then be found in laying the tile, perhaps in digging the ditch, but also in preventing the tile from becoming full of the sand after laying for a while. This is due to the fact that the sand will run with the water. The first point to notice is that tile draining in quicksand is best done after a continued dry spell. Then the movement of the sand is not so free.

The next point is to use long tile. Most of the drainage tile are made only twelve inches long. They may be used, of course, but much easier work will be met with if, in place of the ordinary tile, longer lengths of from two and one-half to three feet are used. Sewer tile or sewer pipe make good tile for this class of work. First quality of sewer pipe need not be purchased. The pipe which should not pass inspection for sewer use will be satisfactory for this purpose, and would cost much less than the other. This long tile has a better bearing surface, and is more likely to "stay put."

A third point to watch for is the establishing of a proper grade with the elimination of any pockets or level places along the line. At least an eight inch fall in every one hundred feet is desirable. Twelve or even fourteen inches is not too much, although it is more than is needed in most cases. The fall must be sufficient to prevent an accumulation of sediment, and there must be no place where the sediment may come to rest and give trouble. That is, the grade must be distributed along the whole length of the line.

In most cases a small amount of concrete laid as a floor in the bottom of the ditch will well repay the expenditure necessary. It not only makes the firmer bed, reinforcing the long tile, but it also renders it much easier to get the distributed grade. Under no circumstances should any material, such as wood, be used for this bed, because of the certainty that it will rot within a short time, making the whole drain worthless. When concrete is used in this manner, to get a perfect grade, the best way is to support a long cord or line which is given the proper slope and is placed just over the concrete. Then a pole may be pressed into the concrete to form a sort of form to make a groove for the tile. The top of this pole as it lies in position should be just

under the line, and so it makes the groove of the proper grade. Placing the tile in the groove then insures a perfect job.

In laying the tile, the lengths should be close without wide joints. Then cover the joints with a thickness of burlap or of building paper, placing on top of the piece as laid a trowel full of soil to hold it in position. The tile may then be covered with the soil, or even the quicksand taken from the ditch. It is much safer, however, to put in about six inches of top soil or gravel, and then filling up in any way. Do not under any circumstances fill up the first few inches with any kind of material such as wood, brush, hay, grass, sawdust, etc., which might attract the roots of crops above. The gravel, cinders, broken brick or similar material will result in a more efficient tile system, for it will allow a quicker absorption and drainage.

Nova Scotia.

R. P. CLARKSON.

How to Grow Mangels.

With the increased acreage sown to corn each year people have been thinking that the root crops were of very little importance in this part of the country. However, it must be remembered that notwithstanding the fact that silage has taken the place of a large proportion of the root crop on many farms there are still over 200,000 acres of roots grown annually in Ontario, about half of which are turnips and the remainder divided between mangels, sugar beets and carrots, mangels forming by far the largest portion.

The mangel crop has of late years been growing in favor. Feeders who have tested mangels bank on them as one of the best succulent feeds, especially for young stock in winter, and, too, on account of it being necessary to sow the mangels early in the spring the cultivating and hoeing of the various hood crops is distributed over a wider season and no great rush is necessitated by all of the hoeing coming on at the same time, as is the case when the entire acreage is put into turnips or corn.

The best time to sow mangels is as early in the spring as it is possible to get them in, the usual practice being to sow the cereal crops and immediately following these to prepare the land for mangels and sow them. Very often where this practice is followed considerable difficulty is experienced in keeping the mangels clean during the summer. We believe it would pay to harrow the land over and cultivate it, if possible, as soon as it is ready and leave it while some other land is being sown to cereal crops, and after it has lain a week or so give it another thorough cultivation before sowing the mangels. This would, doubtless, destroy a good many weeds in their infancy. Of course, it is generally conceded to be good practice to have the mangel ground fairly well prepared in the fall of the year. Better crops usually result where the manure has been applied in the fall and ploughed down lightly. If the land gets two ploughings the previous autumn so much the better. Where this is the case it is not necessary to plough at all in the spring although many prefer gang ploughing and working lightly. We believe it is almost as necessary to test mangel seed as it is to test the seed corn. Very often one notices patchy stands due, no doubt, to inferior seed. Most of our mangel seed comes from Europe and cases have been known where the seed has been kept from year to year until it got very old. Some care should be taken in selecting seed and we believe that many mangel growers could profitably save a few roots each spring and plant

them to grow their own seed. The plants which come from a root will, if they do well, produce one-half pound of seed, so only a few roots would be required to grow seed enough for the average farm.

Root growing is generally believed to be more expensive than corn growing and if small or average crops are grown it is expensive in these days of high-priced labor, but, as pointed out by P. A. Boving, when speaking on the subject at the Guelph Winter Fair, the big crop of roots is not too expensive to be exceedingly profitable. The mangel crop does best on rich, loamy soil, but it must be remembered that the soil must be in good tilth and be rich in plant food as mangels are gross feeders. Get them in as early as possible. If a plot has not been manured in the fall which is generally considered the best practice we would not hesitate about sowing a few acres of the crop on spring or winter-manured land. Of course the manure is more available to the crop if it has been worked up and incorporated with the soil the fall before. Mangels do very well on sod and where sown on this class of soil there is usually not quite so much hoeing as where they are put on a field following a cereal crop which has been more or less dirty. We would not advise sowing the mangels on land that is too weedy as there is considerable trouble usually in keeping the crop free of weeds and it also requires more time to thin mangels than turnips.

Some authorities claim that the reason mangel growers in this country get rather indifferent stands is that they do not put on enough seed per acre. About four to six pounds is all the average turnip drill with holes for mangel seed will sow per acre with all the holes open. If the seed were distributed evenly and all of it grew, no doubt, this would be sufficient and we have seen some excellent crops from this amount of seed, which should be enough if properly distributed. However, if the seed has been tested and germination is not high and there is any doubt about the evenness of the distribution it would be safer to put on more seed. It generally requires a little more where the grain drill is used for sowing.

Some sow on the flat and some in drills. As a general thing slightly heavier yields come from sowing on the flat, but it must be remembered that when sowing in this manner it requires more work in hoeing and if the land is weedy it might be advisable to drill up. We have seen some excellent crops grown in drills and all things considered where much hoeing is necessary would prefer to have the drills, not too high. Where the crop is sown in drills it is advisable to keep the one-horse cultivator going every few days which retains moisture and prevents weeds getting a start and also aids the young germinating mangel seeds to break through the top soil preventing crusting. Many successful growers who sow the seed in drills with the special turnip and mangel seed drill follow the drill with the heavy roller, often weighted. This squeezes the drills out fairly flat, makes hoeing the land more difficult but often aids in the germination and early growth of the mangels.

Where mangels are sown on the flat it is an easy matter to utilize the ordinary grain drill, stopping up all the tubes but those required to place the rows the distance apart desired. From 28 to 32 inches should be far enough. Where the land is clean and fairly free from weeds this is one of the best methods. It is quick and if the seed is sown thickly enough and put in deep



Preparing the Seed Bed.

Disking a fall-plowed clover sod at Weldwood, in preparation for sowing oats. Photo taken April 28.

enough the ground may be worked from time to time while the young plants are germinating with a light harrow, much as corn ground is harrowed, while the corn is coming through. It requires more seed where this practice is carried out as some of the young plants are pulled in the process.

Frequent cultivation while the crop is coming through and afterwards until it is large enough to permit of cultivating and hoeing is the foundation of success in mangel growing. The crop usually requires two hoeings, the first being the thinning process and the second hoeing to kill weeds which come on after or which have been missed.

There are many good varieties, but a great many feeders prefer the globe or intermediate shapes to the long varieties. A leader for some time has been the Yellow Leviathan, closely followed by Giant Yellow Intermediate. There are those, however, who still pin their faith to the long varieties, some still preferring the Mammoth Long Red which is a very heavy cropper, but is a little more difficult to lift in the fall than the other types. There are many firms each having a name for special varieties of the various types. Mangels may be sown with success up to the first week in June, but it is usually advisable to get them in before May 24th, if possible.

Canada Should Mill Her Own Wheat and get the By-products for Feed.

With so much agitation about the high cost of living in Canada, and the appointment of commissions to suggest ways and means to ameliorate conditions and reduce the living expenses of our people certain arguments presented by J. Lockie Wilson, Superintendent of Agricultural Societies, at a recent banquet in Clinton, Ont., are illuminating indeed. Some of the estimates regarding production and consumption as gleaned from his address throw considerable light on the economic conditions regarding production, manufacture and consumption in Canada.

Canada is known as the breadbasket of the world and each year approximately 100,000,000 bushels of wheat are exported to other countries. This is valued at about \$1.00 per bushel, amounting to \$100,000,000. The point in connection with this and worthy of consideration is that the price of wheat compared with that of fifteen years ago has not altered to any appreciable extent, yet the by-products from this commodity have increased at an alarming rate. Formerly bran could be procured at from \$8.00 to \$10.00 per ton, whereas at present in many towns throughout the country it cannot be had even at \$25.00 a ton. Mr. Wilson's argument is that if we wish to reduce the high cost of living, we must first reduce the articles that go to produce cheap beef, pork, butter, cheese, eggs and poultry. Furthermore every bushel of wheat exported represents in the by-products alone fertility to the extent of twenty-four cents making in the total exportation a dissipation of \$24,000,000 worth of fertility from Canadian soil. This will result in a depletion of Canadian farms and in addition to this it assists the foreign producer through the easy acquisition of cheap feeding stuffs to compete more successfully with the Canadian producer in our own markets and on the markets of the world.

One bushel of clean wheat makes 44 lbs. of flour and 16 lbs. of bran and shorts. The two latter articles combined would mean the exportation, through the quantity of wheat sent out of many millions worth of cheap feeding stuffs.

More light is thrown on the argument by the information that our Canadian wheat after being loaded and re-loaded onto trains, loaded and re-loaded onto ships, crossing the ocean, and in all totalling a distance of nearly 6,000 miles is finally ground into flour in a foreign country and the bran from this process is sold to London buyers for \$20.00 a ton, thus giving the dairy producer of the Mother Country a \$5.00 per ton advantage over the Canadian producer of dairy products. While Canada is known as the bread basket of the world, yet in the heart of this great wheat producing country bread sells for 6-2-3 cents per pound. This is the price in Calgary. Other prices are 5 cents per pound in Winnipeg, 5½ cents per pound in Fort William, 4 cents in Toronto, 5½ cents in Montreal, 3½c in Quebec, 4-2-3 cents in Halifax, but most astonishing of all, after this wheat has gone through the various processes of transportation and milling, it is sold to the London consumers for 2½ cents per pound. What effect must this have upon the English, Scotch and Irish prospective emigrant who reads of Canada as being the great wheat producing country, yet at the same time finds the price of bread to be 6-2-3 cents in the heart of this country? Some claim that hard Canadian wheat is mixed with a softer grade during the milling process but this adulteration can in no wise account for the great discrepancy in price.

If this 100,000,000 bushels of wheat were

ground into flour, it, together with the by-products, would be worth \$132,244,900, and the by-products could be left at home to facilitate the necessary adoption of mixed farming in the West and rebuild some of the depleted farms that have suffered from exclusive wheat growing. The consumption of these by-products is almost absolutely necessary if mixed farming is to be adopted in the West, but it is not only there that agricultural producers suffer most. Dairymen throughout Canada claim that bran at \$25.00 per ton is not a very profitable investment but it is a necessity in order to compound a balanced ration for their animals and retain the health and vigor of the herd.

Canada, of course, cannot consume the total amount of flour milled from its wheat, but the United States mills a large quantity of our wheat and their own production and lays it down in foreign markets. Why cannot Canada do the same thing?

Mr. Wilson's suggestion in this connection is that, whereas the Government has established a precedent in the control and operation of Government-owned elevators, could they not build mills in conjunction with these elevators and mill Canadian wheat? What he says is "Would it not be a good plan to let militarism rest for one year and divert the annual expenditure of \$14,000,000 into this more productive channel. This would at least build fifteen magnificent, up-to-date flour mills and give the laboring men of the country cheaper flour, and the necessary cheap food for their cattle and reduce materially the high cost of living." Furthermore if we have not the most efficient machinery known in the flour-producing industry, its origin and place of manufacture should be ascertained and then the bars should be thrown down, allowing it to come in duty free, in order that we may have the last word in roller-process machinery. This has been done on other lines and should be adopted in connection with this great industry.

Transportation companies would not suffer through this transformation of the staple industry as the higher value of manufactured commodities would warrant a higher traffic rate and a more even distribution throughout the year of farm produce subsequent to the adoption of mixed farming would be more remunerative to the railroads. Furthermore if the established milling industry were injured by Government-owned and operated mills, this complication could be ameliorated by subsidizing and bonusing private milling companies so much per ton on the manufactured products, thus placing them on a par with their previous position.

Canada's policy is to utilize the raw materials and convert them into the finished article and this suggestion Mr. Wilson claims is in no wise opposed to this principle. If it is a good industry for Minneapolis and St. Paul, would it not also be a good industry for Canadian milling centres? We have the cheapest power in the world. Our falling waters are being converted into the great "white coal" and disseminated for farmers' use and a large amount of water power now going to waste in the Dominion might be converted into a great industry that would give employment to many men, provide cheap by-products to our agricultural producers and ultimately redound to the benefit of producer and consumer alike.

Experience With Silage.

Editor "The Farmer's Advocate":

Raising the doubt that well-matured corn is not the most valuable for ensilage is somewhat disturbing to those of us who believe in and have advocated that idea. To settle the question beyond a doubt is work for our Experimental stations. Although trying to have my corn advanced to at least the glazed state before cutting, in my nineteen year's experience I have failed often enough to have data for comparison. On "looking backward" I am surprised to find that the corn cut before any grain was formed and allowed to dry for a few days was eaten more readily than better-matured corn. On the other hand immature corn cut and put in green was the most unsatisfactory silage I ever had. Vinegar is the word that should describe its condition. To secure a travelling box I was forced to cut early for a few years; shocking the corn to guard against rain injury. This plan involved considerable work but the silage was very satisfactory, and I had no difficulty in inducing even my hogs to eat a large amount and profitably so. Having a silo-filling outfit of my own, during the last four years, corn has been better matured but the hogs object, and it is not satisfactory as far as they are concerned at least. I cannot feed as much safely to my cattle either. To any one who has the room in his barn and can make it convenient for filling and feeding, there is no better place for a silo than in the barn. My first was put in barn, and I have never seen any dampness on the roof or any injury in that respect.

I would say re flat-topped covers on silo, don't let the rain seep through into your silage.

There is no objection for a few weeks after filling, but later it is straight injury. Don't put a silo roof on which only has a little gothic window for filling. Have at least one section of roof removable for light and convenience in filling. Am intending to plant somewhat more thickly than usual this season, and will cut my crop a little before the cooking stage; waiting in the meantime for our experimenters to decide when to cut so as to get the most value from our crop.

Wellington Co., Ont.

R. D. NODWELL.

The Corn Crop and its Needs.

Year after year the corn belt, as that region is commonly known wherein corn does well, is being pushed farther and farther northward. Over the greater portion of the older-settled districts of Eastern Canada corn in some form or other can be grown successfully, if not for husking purposes for silage, which means so much to the live-stock farmer. So much has been said and written about the corn crop that very little remains unsaid, but as it is about corn-planting time, no doubt, many points will come up in the minds of growers, especially beginners. It is necessary to get strong, vital seed of a suitable variety, and to plant this on land operated under a suitable rotation of crops and followed up by a thorough, frequent and complete cultivation. For those districts lying outside of South-western Ontario it is advisable to select hardy strains of seed. Growers must not confuse strain with variety. There are several strains of each variety of corn, and where at all practicable it is wise to buy seed corn from districts in which the soil and climate are much the same as the soil and climate where the corn is to be planted.

SOIL PREPARATION.

It is a little late now to enter into a discussion of the soil and preparation previous to planting. The question of manuring has always been one about which there has been a difference of opinion. Some prefer to put the manure on in the fall and plough it down; others favor winter manuring which, on account of the scarcity of summer labor, has its advantages; while still others apply the manure shortly before spring ploughing and put in the corn and reap large crops. The amount per acre should not be less than from ten to fifteen good big loads.

As with the question of manuring there is also a difference of opinion as to the relative values of spring and fall ploughing for the corn crop, but taking it one year with another and on all classes of soil we would prefer spring ploughing. Land which has been fall ploughed is likely to run together more or less, and, as the practice now is to sow the greater portion of the corn crop on old sod or clover sod, fall ploughing leaves a danger of considerable grass-growing up on the land before the farmer is able to get on this land in the spring. He must get his cereal crops in first, and this necessitates leaving the corn ground until later and giving the grass a chance to get a start, which causes extra work and makes it more difficult to get the proper seed bed for the corn. On some of the lighter and well-drained soils there is not so much to be said against fall ploughing, but it is generally believed that by allowing the clover to grow up on the land until sometime in May, just previous to the corn planting, say from the middle of May until the 24th or even later, and then ploughing it in with the manure a warmer seed bed is obtained. This is an important consideration, as upon the start which the corn gets in the spring depends a great deal of success or failure of the year's operations. Most people prefer putting corn on sod, but good crops may be grown on stubble land well manured and well cultivated. To work up the sod the disk harrow and the drag harrow soon make a fine job, and if care is taken the spring-tooth cultivator may also be used to good advantage. As soon as the land is warm enough and in good tilth plant the corn. Most people roll before planting, especially where markers are used and a hand planter operated. The rolling increases the warmth of the soil, and makes it much easier to follow the marks made by home-made or other markers.

SELECTING SEED.

It is useless to say very much at this season about selecting seed as most of the seed to be planted has already been bought, but for the benefit of those who may not as yet have bought their seed and who go to their village store and buy shelled corn in bulk, we may say that this is not the best method of buying seed. When possible it is advisable to select the seed corn in the fall from the stalks as they grow in the fields, but those having to depend upon corn from other districts cannot do this, but should insist upon getting their seed corn on the cob. However, a great many do not do this, and even where they do it is advisable to make tests of the seed before planting. In no case would we think of planting shelled corn bought in bulk without first testing it. Take 100 or 200 representative seeds from the bag and test them for germina-

tion, or if bought on the cob take six kernels from each cob, two from near the ends and two from the center from, opposite sides of the cob, and test these for germination and vitality.

Some successful growers grade their seed, separating the small from the larger kernels. In this respect it is advisable, if grading is not carried throughout, to discard all the kernels coming from the butts and tips of the cobs. The operation of planting is simpler than it used to be in the days when it was necessary to make the holes with a hoe, drop the corn by hand and cover it up. The most up-to-date corn growers use check-row planters to put in their corn, which simplifies the matter greatly. Most growers plant their corn from three feet six inches to three feet eight inches each way in hills, and plan to put in three to four kernels in a hill. Some, however, put in more kernels than this, and cut out the extras with the hoe at the first hoeing. This means a little extra work, but where there is any doubt about the vitality of the seed or where grubs or crows are likely to be bad, it is sometimes good practice to allow a little extra when seeding.

CULTIVATION.

As stated before most people prefer to sow their corn on ground well rolled down. The first operation after planting is to go over the field with a light harrow. This, after the rolling, leaves a very fine mulch on top and holds the moisture well. Some give the field three or four strokes with the harrow before the corn is nicely up, others harrow once immediately after planting, and harrow again about the time the corn is coming through. When the corn gets from two to three inches high it is necessary to stop harrowing, and even at this height it is well to harrow during the middle of the day when the sun is very warm and the young plants are somewhat wilted. They are not nearly so likely to break by the process if harrowed at this time of day, as if the operation were done in the morning or toward evening. Besides making the soil mulch to conserve moisture the harrow kills millions of young sprouting weeds, thus fulfilling all the objects of good cultivation at the one stroke.

We would emphasize this harrowing process because it undoubtedly saves more labor with the corn crop than any other one cultivation which the crop gets. As soon as the corn is big enough and the rows may be followed easily, commence cultivation with the two-horse cultivator going both ways. It is well to cultivate once a week for a time, and by all means give five or six cultivations during the growth of the crop before it is too large. Be sure to cultivate after each rain as soon as the soil is dry enough. When the corn reaches that size when it is breaking down by the two-horse cultivator, one or two cultivations may be given with the one-horse scuffer. Many continue cultivation until the silks begin to appear on the corn.

Corn planted in squares permits of cultivation both ways, requires very little hoeing, but it is advisable to go through at least once with the hoe and cut out those weeds which escape the cultivator. Corn planted on sod does not usually get so dirty as that planted on stubble or other land. Some farmers, however, who grow a small acreage and some growing a larger acreage prefer to sow their corn in rows one way only. It is desired when planting in this manner that a stalk of corn should be growing every eight to twelve inches in the rows, or if fine autumn feed is desired it may be sown more thickly.

In selecting varieties and types it should be remembered that the rougher Dent corns almost invariably mature late, consequently, for all those sections in northern and eastern localities, cobs showing very rough kernels should be avoided. Corn upon the butts of ears matures later, and upon the tips earlier than the good corn from the centre of the cobs. When it comes down to choosing varieties there are many good and suitable for most localities. For northern sections it is doubtful if there is a better variety than Early Learning. Wisconsin No. 7 is one of the best ensilage corns grown, and Early White Cap is another very suitable variety. We have had good success with these at Weldwood, and another corn which has given us equally good returns is Bailey. Reid's Yellow Dent does very well in some parts of Western Ontario. Of the Flints, Compton's Early and Longfellow are among the commoner varieties grown, and each is a good yielder, fairly early in maturing and gives good results.

Corn is one of our crops which will permit of greater extension. No other known crop yields so much feed per acre as good silage corn. Many farms in the country could stand to increase their acreage, and most of them would get better results by paying a little more attention to the preparation for sowing and cultivation, to the selection of the seed, and to the cultivation after the corn has been planted.

If the farmer is the backbone of the country it does not signify that he is to be sat upon.

A Dual Purpose Tape Line.

By Peter McArthur.

Trouble—nothing but trouble! When the five hundred apple and cherry trees, with which we are completing the new orchard, had been properly heeled in to await planting, I decided that I could get the rows straight without spending six dollars for Greening wire, the only kind that is easy to stretch across a field. The man from whom I borrowed the wire I used last year is on the other side of the continent, and I could not impose on his good nature a second time. As I looked at it, the proposition seemed quite simple. The field in which the trees were to be planted was surrounded by straight wire fences that had been placed on carefully surveyed lines. This should enable me to start right, and, besides, I would merely be continuing the rows that had been planted last year. As soon as we were ready to start I struck the first difficulty. At the ends of the rows of last year's orchard there is a strip of sod that we had to leave last fall on account of the haystacks that were on it. Of course, we could plant the apple trees and the cherry fillers in the sod, but it would be a hard job to do the ploughing properly after the little trees were put in. After considering this carefully we decided to start the new planting at the far end of the field beside the road, and have the sod ploughed. It is well known that when tunnels are being dug the engineers work from opposite sides of the mountain, and meet exactly in the middle. With the wire fences to guide us we should be able to do the same. Moreover, I had a tape line that looked as if it were made for such work. It is an heirloom, known to be over a hundred years old, that was presented to me last winter. It is a beautiful tape line with a case of hand-sewn leather, brass mountings, and two little ivory rollers for the tape to run on. I was really anxious to use it, and felt that I could do anything with it. But more of that anon—as they say in the novels.

Starting from the last row of last year's trees we measured carefully to the road with our beautiful, historical tape line. After some careful figuring we located the two corner trees to a nicety, and drove in a row of little stakes forty feet apart for the planting. Then we began. When the first row was finished it was a joy to look at. Sighted lengthwise it was as straight as if the line for it had been marked by a bullet. Making more careful measurements we put in the second row, and looked at lengthwise it was also a joy to behold. But having two rows planted we were now able to begin sighting in the other direction. The first squint I took showed that if I followed out as begun the new rows would trespass on neighboring farms instead of meeting the rows in last year's orchard. I began to doubt those stories about engineers making their tunnels meet in the middle of a mountain. We could see at a glance that the wire fence we were using as a guide was perfectly straight. We had been very careful in making our measurements, and yet, our rows of trees would not run parallel with the fence. We argued about it for awhile, and then decided that the only thing to do was to measure over again to see if we had made any mistakes. Then the trouble began in earnest. It was found that some of the rows instead of being forty feet apart were a trifle less than thirty-nine feet. The two of us who did the measuring were perfectly certain that we had taken the figures correctly. After arguing about this for awhile without getting anywhere we decided to measure again so as to make sure, and behold, some of the rows that had been thirty-nine feet apart now proved to be forty, while other forty-foot rows were only thirty-nine! I don't know as I ever felt quite so much as if I had been bewitched. Try as we would we couldn't make those measurements come twice the same. At this point someone made the startling discovery that the two sides of the tapeline were different. Although both began the same, when one side measured forty feet the other measured a little less than thirty-nine. The cause of our trouble was immediately evident. In handling the tapeline with the wind blowing it did not always lie flat, but was very likely to have a twist in it when stretched out. Sometimes those who were doing the measuring would both be reading on the same side, and at other times on opposite sides. If you add to this difficulty the inequalities in the ground you can figure out for yourselves all the possibilities of getting the rows twisted. In putting in those first two rows of trees I think we developed first two rows of trees I think we developed most of the possibilities, and, as I realized it, I sat down on the edge of a furrow to think things over. The situation was like that you often find in popular novels. When everything goes wrong with the hero he sits down quietly and looks up at the other characters with a slow, sad smile. But the slow, sad smile did not help to solve the difficulty. I was in about

as bad a fix as the comic opera man who was condemned to play billiards

"With a twisted cue
On a board untrue
And elliptical billiard balls."

A further examination of the precious heirloom brought out the fact that one side had the quarter inches marked on it while the other had only the inches, but which side was wrong in its measurements? Possibly both sides. Before proceeding we got a carpenter's square and measured the thing carefully. It was found that the side on which only the inches were marked was correct, while every foot on the other side was a quarter of an inch too long. But why on earth should an instrument which had apparently been made so carefully have a mistake of this kind? It could serve no useful purpose that any of us could think of, though it was quite obvious that if the owner of this tapeline used the long feet when measuring lumber that he was buying and the correct feet when he was selling, he could make a considerable profit. But I hated to think that anyone had ever had a tapeline especially made for such tricky practices. On thinking the matter over I remembered that one argument I had heard advanced in favor of the metric system is that the foot used in different countries is often of different lengths. At the noon hour I looked the matter up in the Encyclopaedia, and found that the official foot of Prussia is about a quarter of an inch longer than that of Great Britain. It is entirely probable that this tapeline, which bore evidence of being hand-made, was made for some lumberman in England who was dealing with Prussia. With one side of the tape he could get the Prussian measurements, and with the other the British measurements. But, whatever the explanation, it was a "dual-purpose" tapeline and should be used with care when planting an orchard that abutts on the road where everyone who passes can see whether the rows are straight.

Having unravelled the mystery of the tapeline we resumed operations. By this time the sun had moved around to a point where we could see the rows of little trees in last year's orchard, and we were able to sight by them. We had no difficulty in getting the trees perfectly straight across the field where few people will see them. We had all our trouble with the rows that are fully exposed to view, and everyone who passes will see the worst side of the work. However, the rows might be worse than they are, and as the trees are all about forty feet apart it will make no real difference in the future value of the orchard. The worst that people can do to us is to make comments of the kind made at a navy's funeral. The men who had gathered were trying to think of something pleasant to say of the late lamented. Finally they all agreed that he was a good shoveller. When this point was apparently settled one strictly conscientious mourner remarked, "Yes, he was a good shoveller—but not what you would call a fancy shoveller." Those who pass on the road will be likely to remark that we are not fancy tree planters.

THE DAIRY.

A Uniform, Rich Cream Best.

If tests were made of the cream as taken from the separators on the farms of the country, we venture to say that they would vary anywhere from slightly over 15% up to above 40% fat. Some precaution should be taken, especially during the summer months, to keep the percentage of fat in the cream as uniform as possible. To do this care must be taken in the turning of the separator that the speed be maintained throughout. One of the best American authorities on the subject states that every person should be urged to separate a heavy-testing cream during the hot weather in summer. Heavy cream will keep better and besides it allows of a great deal more skim milk for calf feeding on the farm.

Another strong point in favor of rich cream is that it will cost less, during the season, for transportation charges and also there will be less wear and tear and expense in handling. Regardless of all this, however, the main thing is that the quality will be much better. This same authority recommends and rightly so, that cream should always be purchased according to quality making a difference of at least two cents per pound butter fat. He recommends that No. 1 cream should test 36% or over, be smooth and sweet or almost sweet to the taste with an acid content of not more than .4%. No. 2 cream should test not less than 22% and with an acid content of not more than .7%. Around 40% is quite a rich cream, but as stated there is a great saving in skim milk for the calves in transportation and in handling. Care must be taken, however, not to get the cream too rich as there is danger of loss if the separator is not working properly.

Cheese Chat No. 2!

Editor "The Farmer's Advocate":

Very recently we met on the street, in a city, a man who had been buying cheese for a well-known firm, and who I supposed was still in the business. I said, "well how is the cheese market?" "No good," he replied, "although I'm not in the cheese business now," he added. "How's that?" "Well, I'll tell you," he said, "the farmer is getting everything at present and still he is not satisfied." I remarked, "no wonder the farmer is not satisfied when receiving only about one dollar per hundred pounds for milk sent to the cheese factory. With increasing cost for cows—almost any sort of a cow costing from \$75 to \$100; feed and labor more expensive all the time, is it any wonder he is dissatisfied?" "Well, if the farmer isn't making money out of cheese, I don't know who is. In any case I'm out of it for good." "What are you doing now?" "Oh, I'm secretary of _____" naming a firm in a Western Ontario town. "No more cheese for me." "It's no good," he repeated a second time. After a little further conversation, the writer passed on, and he started thinking more than ever about this "cheese business." He thought most of the way home on the train, and wondered if there was no solution of the difficulty which as the German said, "we are against it up."

In a previous "Chat," the writer said, it looked as if our Canadian Cheesemakers, in certain factories at least, should consider the making of a type of cheese more especially suited for the local market. We are conducting a series of investigations into this question at the Dairy Department of the O. A. College, details of which will be given later. As an indication of the line of work we are doing, we may mention an experiment made on April 24th, when 300 lbs. milk were made into a cheese which weighed 32.88 lbs. If this is figured out, it will be found that it required only 9.1 lbs. milk to make a pound of cheese. Similar milk on the same day, and on preceding and succeeding days took from 10.5 to 11.3 lbs. milk to make a pound of green cheese, as ordinarily made for the export trade. This special cheese contained 43.6 per cent. moisture, whereas our regular cheese contained from 34.2 to 35.5 per cent. moisture. Here lies the difference. Our Canadian makers have been too much afraid of retaining moisture in their cheese—possibly with good reason considering the nature of the milk received, the class of ripening (curing) rooms in which the cheese are ripened, and the fact that the cheese were likely to be held for some months before reaching the consumer.

In this work we have been greatly assisted by Mr. Adamson, who is an experienced cheesemaker, recently from England, and who has been making this class of cheese for quick consumption in the English market. For some time we have been advising the leaving of more moisture in Canadian cheese; not, as we have pointed out, with the idea of selling the consumer plain water, because we have assured him that the water of cheese is different from water in butter, or water added to milk, because these contain practically no nutrients, whereas cheese water has dissolved in it some protein or muscle-forming material, some ash or bone-forming matter, and some lactose or milk sugar, although this latter is largely changed into lactic acid, or compounds of lactic acid in a short time.

As Mr. Adamson says, the English cheesemaker, and the English farmer are the better pleased if they can sell "a bit of water for six or eight pence a pound." Our Canadian cheesemakers need to learn how to sell cheese water at ten cents to twelve cents per pound, thus adding to the profits of the business. What we should like to see, is the experiment made commercially in say a two vat factory, making the cheese in one vat according to the recognized Canadian method of making cheese, and the other vat according to the newer method of leaving about 40 per cent. moisture in the green cheese, and see how these suit our home trade, and what the difference in returns would be for a factory handling 10,000 to 12,000 lbs. milk daily.

Taking the figures, 9 lbs. milk and 10.5 lbs. milk, to make a pound of cheese, which is convenient for easy figuring, and represents the new method, and the lowest comparable data in this case with the standard method, we should have 1,111 lbs. cheese from 10,000 lbs. milk in the one case and 952 lbs. in the second case, not taking into account fractions of a pound, which makes a difference of 159 lbs. cheese in the daily make which at 10c per pound is \$15.90; which in a short season of 200 days amounts to the astonishing sum of \$3,180. We are aware that this looks like romancing, but if any person could go into our cheese factory districts and show how \$3,000 could be added to the revenues of two-vat factories or for each 10,000 lbs. daily delivery of milk in larger factories for the season, such a person would be considered not a "Romancer", but a veritable Apostle of Good Works for Cheese Dairymen. We are quite aware that in actual practice these things work out differently

from what they do on paper, but we have thrown out the suggestion hoping that some of our cheesemakers who can do so, will test the matter during the season of 1914. We would add a word of caution against any large use of the plan at first.

H. H. DEAN.

POULTRY.

Annual Meeting of Poultry Authorities.

The seventh annual meeting of the American Association of Instructors and Investigators in Poultry Husbandry will be held August 5th, 6th and 7th, at Macdonald College, St. Anne de Bellevue, Que. This Association is composed of poultrymen who are connected with Agricultural Colleges, Experiment Stations, State, Provincial and Federal Governments in the United States and Canada. It is an international association of wide repute and since its inception, some six years ago, it has done much to further the interests of poultry culture in America. Through the organization of this Association the educa-



Wyandotte Cockerell.

In one of the breeding pens at Weldwood.

tional and investigational phases of the poultry industry have been well outlined and defined and the Association is also concerned in the commercial side of the business. The annual meetings of the Association are held at Agricultural Colleges in various parts of the country. This year the Poultry Department of Macdonald College will have the honor of entertaining the Association. The officers for the present year are: President, Prof. J. C. Graham, Mass. Agr. College, Amherst, Mass.; 1st Vice-Pres., Prof. W. F. Kirkpatrick, Conn. Agr. College, Storrs, Conn.; 2nd Vice-Pres., M. A. Jull, Macdonald College, Que.; Sec'y-Treas., Prof. H. R. Lewis, N. J. Agr. College, New Brunswick, N. J. Directors, 1912-14, Dr. Raymond Pearl, Exp. Station, Orono, Me.; Prof. J. E. Halpin, Wis. Agr. College, Madison, Wis.; T. E. Quisenberry, Exp. Station, Mountain Grove, Mo. 1913-15, Prof. W. R. Graham, O. A. College, Guelph, Ont.; Prof. Jas. E. Rice, Agr. College, Ithaca, N. Y.

THE APIARY.

Markings on Italian Bees.

Since beekeepers have resorted so much to the practice of Italianizing their colonies in order to produce good worker bees of a peaceful temperament, it is advantageous at times to be able to recognize the hybrids from the pure Italian bee or the common bee. A little observation of the bee's anatomy reveals the abdomen to be made up of six rings or segments which fit together in a telescope manner. When the bee is full of honey the abdomen is extended until it is longer than the wings, which ordinarily are about the same length as the body. During the fall of the year, when they are going into winter quarters, the abdomen is very much contracted, and they do not at all resemble the rich, brightly colored bees of the honey-flow season.

All honey bees, common or Italian, have four bands of bright color, one on each of the four centre rings of the abdomen, but none on the first or none on the last. These bands of bright-colored plumage are quite pronounced when the worker bee is first hatched, and when they come out of the hive to play around at first one is liable to remark that they are the prettiest lot

of bees ever seen, but during the hard work of gathering honey and moving to and fro in the hive this band becomes worn off and they are very dark and shady. This accounts for the glossy dark color of the robber bees, for this band, which is only hair or down, becomes worn off when they are working through small crevices or pushing through clusters of bees.

The three yellow bands which distinguish Italian bees are neither down nor plumage, but the color is fast in the hard horny substance which forms the protective covering of the body. The first band may be seen on the first segment next to the thorax or waist of the bee. The second yellow band is on the second segment, and this is followed on the same segment while young, by the bright-colored band common in most bees. In pure Italians there is a third band on the third segment. These are the distinguishing marks of the Italian bee, and when the observer is fully aware what he is looking for there need be no mistake.

Hybrids and crosses usually have only the two bands for a slight interspersing of black blood will cause the third band to disappear on many of the bees.

There are Italians with four or five bands, but they have been bred particularly for their appearance and coloring, and in this connection somewhat resemble our breeds of poultry which have been bred for plumage alone. Oftentimes vigor, hardness and prolificacy are sacrificed when obtaining these characteristics.

Varieties of Bees.

To the average person who recognizes a bee as a bee and fights it off in convulsive fits, there is very little difference in their appearance, neither do they recognize varieties, but in this country there are several species of bees, all of which have their commendable and undesirable points and differences.

Up to within a few years ago the black or German bee was the common variety throughout the country, and they have done much to establish the reputation which is so generally unfavorable to the honey bee. They are vicious and nervous, and are harder to handle than many of the other varieties. When the cover of the hive is removed they go hither and thither, and even form large clusters of bees and fall to the ground. They are not as good workers as the Italian bee, and they are more inclined to rob. It may be said, however, that comb honey produced from the common black bee is a little whiter than that produced by other kinds. The caps are raised, and under it there is a slight cavity of air which gives the product a very neat appearance. There are many shades of the common black bee, but they are quite easily recognized by their nervous and pugnacious character.

About 1884 a strain of bees known as the Carniolans were introduced, and some large apiaries are given over almost entirely to this variety in the vicinity of Brantford, Ont. These bees have gained favor with quite a few beekeepers. They are said to be gentle, but they have not always proved themselves worthy of this reputation. They resemble the black bee to a considerable extent, especially in color, and swarming propensities which prevents them from meeting with universal favor. However, one commendable feature in their favor is that they deposit a very small amount of propolis, in many cases almost none. This in comb honey production is a very desirable attribute, and recommends them to many beekeepers.

Resembling the Carniolans and common black bee are the Caucasians, which are said to have the most gentle disposition of any of the honey bees. However, generally speaking, they are no more quiet than the pure Italians. They have their advocates and their critics regarding their ability to gather and store honey, but all are agreed that they are bad propolizers. They stick and smear the inside of the hive badly with chunks of gum, which condemns them to many as bees for comb honey production.

Perhaps the oldest and most revered of all varieties of bees are the Egyptians. According to inscriptions on monuments and pyramids they have been known and reared for over 4,000 years, and during the different seasons of the year they were transported up and down the Nile in order to meet the different season conditions. They are smaller than the general run of bees, and will not hybridize with the European varieties. They somewhat resemble the Italian in the appearance of the yellow bands, but in addition to this they have a coat of white hairs which adds to their appearance.

The Albinos, not very common here, are a cross between the Italian and Holy-Lands. They resemble the Italians in appearance, but the workers as honey makers are decidedly inferior to their progenitors. The Banat, Tunisians, Giant Bees of India, Cyprians and Holy-Lands or Syrians are all distinct types and varieties of bees, but in this country they have never gained a foothold which has been held by the common black bee, and later supplanted by the Italians

on account of their gentle disposition and honey-gathering qualities. This latter strain is most generally popular in this country. They insure a greater freedom from foul brood; they are more pleasant to handle; their swarming propensities are not so pronounced, and crossed with the common bee will give a vigorous worker and satisfactory colony.

HORTICULTURE.

Phases of Potato Growing in Ontario.

Editor "The Farmer's Advocate":

A noticeable feature of potato growing in Ontario is that in the last few years the production of this crop has increased very rapidly, and is, in fact, still increasing. In the past five years the production has increased by nearly one-half. To-day Ontario is producing about 30,000,000 bushels of potatoes. Quebec produces about the same amount. Ontario's production is two-and-one-half times greater than that of New Brunswick, three times that of Nova Scotia, and about five times that of Prince Edward Island. But notwithstanding the fact that Ontario produces about one-third of the potatoes grown in Canada, she imports potatoes from New Brunswick and Nova Scotia. Not only do producers in these two provinces ship potatoes into Ontario markets, but they obtain a higher price, and their goods are given the preference. This is an astounding fact; it seems almost incredible; but that this condition exists is Dominion-wide knowledge. The natural question which arises from knowledge of this state of affairs is, why is it so?

The answer is not hard to find. There are several reasons why our potatoes are placed in the background by those produced by our sister provinces. Probably the chief reason is that of uniformity. This uniformity is made possible by one thing and that is the fact that a single variety is grown in one locality, and in larger quantities. Another equally important factor which makes potatoes from these provinces popular in Ontario is the system of marketing. Maritime province producers study our markets and supply the product as required by the consumer. On the other hand the Ontario producer has not studied the market; he does not produce a uniform article nor has he attempted in the past to get the best results from his crop.

However, a change is taking place in Ontario in regard to the potato crop. The production is increasing, whereas, up to 1906, it was steadily declining. The increase may be due to one of two things, viz: The good prices obtained for the crop at the present time, or a desire to cope with Maritime producers. Or it may possibly be due to both these factors. But, to whatever it may be due, I believe it will have a good effect on the production of this crop in Ontario. There are several factors contributing to the successful production of potatoes, and in order to be successful we must conform to these principles. Only when our producers have recognized these principles, and coped with them, will we be able to successfully compete with all outside producers, and hold our own, or rather, regain our own.

In the first place, we must have a large amount of one variety grown in a locality. The variety should be the best suited to that locality, and also one which will conform to market requirements. Next, we must have a uniform product produced. This will be given by growing a single variety in a district, and by proper grading. The general market of Ontario requires a large sized potato white, free from rot or scab, clean in appearance, shallow eyed, and dry. Thirdly, better culture is necessary for best results. The method of cultivation should be the method best suited to the particular locality, best varieties must be grown, and it is necessary to spray in order to secure the best results.

Potatoes have been grown at the rate of over 700 bushels per acre at the Central Experimental Farm, Ottawa, in small plots. Of course we can not expect such large yields on our farms, as the average farmer cannot give the time required in order to get the very best results. But there is absolutely no doubt that the average yield could be largely increased.

Potatoes do best on a rich, deep, warm, friable, sandy loam, well drained, and with a moderate supply of moisture at all times, and they should be well supplied with decayed or decaying vegetable matter. This is best supplied by plowing down clover or sod. Barnyard manure is not recommended for use directly on the crop, but may be applied liberally on clover or other sod the fall before potatoes are to be grown.

Potash is the substance most difficult for the plant to obtain in sufficient quantities. It has been found that the application of potash will give almost as good results in many instances, as are obtained when potash, phosphoric acid and nitro-

gen were all applied. This may be applied before the seed is sown in the spring as sulphate of potash. Muriate of potash will give as large a yield but it tends to make the tubers waxy.

Sets should be cut from medium or large potatoes, planted as soon after cut as possible, and covered. If the potatoes are to be held after cut, for some time before planting, the yield may be increased by coating the sets with landplaster, gypsum, or lime. Sets should have a large amount of flesh, and two or three eyes. A large amount of flesh is necessary in order to give the young plant a good start. It has been found that planting at four or five inches gives the largest yield. They should be planted in rows about thirty inches apart, and 12 to 14 inches in the rows. The yield can be very greatly increased by cultivation. The oftener the potatoes are cultivated the larger the yield. Level cultivation will sometimes give larger yields than ridging, and vice versa. Where the soil is loose and liable to suffer from drought at any time level culture is probably best, but where the soil is both loose and moist, and where the soil is heavy ridging is advisable.

The crop of marketable potatoes can be almost doubled by having two or three weeks' growth in September. Spraying is necessary, as the yield will be in proportion to the number of uninjured leaves. The cost of spraying an acre with Bordeaux mixture, to which has been added about three-quarters of a pound of Paris green and two extra pounds of lime, per 40 gallons of mixture, will be very moderate. This expense is often returned many fold in the crop.

Potato scab spores can be destroyed by immersing seed potatoes in a solution of formalin, 1 pint to 35 gallons of water, and leaving in the solution for two hours. The spores will live in the soil for a number of years, so a rotation of crops is essential in order to produce clean potatoes. Potatoes should not be grown on land which has produced scabby potatoes for at least four years. Potato diggers can be used to good advantage. The potatoes should be dug during dry weather, so that they will be dry when stored. If potatoes are suffering from late blight, it is best to leave them in the ground as long as possible. It is usually more profitable for farmers to market their potatoes in the fall than to store them, unless good storage facilities are to be had on the farm. Potato sorters can be used to good advantage, saving time and labor and giving a uniform article. It is estimated that the cost of growing a 250 bushel crop of potatoes per acre will amount to about \$50.00. Better culture gives a larger yield, and this, as a rule, means more money per acre. In the next place, it is essential that each farmer carry on experiments to determine which method of culture is best suited to his land, and what fertilizers are most profitably applied. This latter question is one which is most important in the production of all crops, and is especially so in potato growing. Coupled closely with the culture, is the rotation of crops, the rotation also, must be suitable to the local conditions. Potatoes do best after sod or clover, fertilizers being applied to these crops.

Lastly, we come to the question of varieties. This is probably the easiest difficulty to cope with, and yet it is one of the most important. This is an easy matter to deal with so far as the individual is concerned, as comparative yields have been worked out by our experiment stations, and the results obtained are accessible to all. But notwithstanding this fact we find that a large percentage of our farmers still continue to grow the poorer varieties, and the result is that there are very few sections in Ontario where a carload of potatoes of one variety can be collected for marketing. This naturally gives us a very motly looking shipment, and it is no wonder that our potatoes are discarded in favor of those shipped here from the Maritime Provinces. There are hundreds of varieties of potatoes grown in Ontario at present, but it is pleasing to note that the number of varieties is decreasing, and the larger yielding, better-quality potatoes are gaining in favor with the producer. Those tested at the Ontario Agricultural College, which have given the best results are: Davies' Warrior; Empire State; Rural New Yorker No. 2; Beauty of Hebron, and Howard. These are late varieties. Early Eureka and Early Ohio are two of the best early varieties.

If the Ontario farmers were growing only potatoes of these varieties there would be a considerable increase in the average yield per acre, and also in the price per bushel realized when the potatoes were sold. The average yield of these varieties at the Ontario Agricultural College varies from 220 to 240 bushels per acre for the different varieties, but over 335 bushels per acre have been obtained. It is therefore apparent that the general adoption of any of these varieties in any section of Ontario, would greatly increase the average production. The average production in Ontario varies from 84 bushels to 159 bushels per acre.

One method of bringing about these changes

is through co-operation in the distribution of seed. This could be done by the farmers in a district purchasing their seed through a committee, which they would appoint, and the distribution of the seed to the farmers. Or seed might be distributed through the Farmers' Institute. Were such a course followed in any district there could be no doubt as to the result. A uniform product could be obtained, carloads of potatoes could be shipped to the best markets and the best prices obtained, and the Ontario production could quite easily compete with all outside competitors on our own markets, and could, in time, extend its scope to foreign markets.

Simcoe Co., Ont.

C. H. CURRAN.

Powdery Scab of Potatoes.

A good deal of interest and some indignation was manifested a short time ago when it became known in Canada that owing to a certain disease called, "The Powdery Scab of Potatoes," which had developed in some of the Eastern Provinces, namely, Prince Edward Island, Nova Scotia, New Brunswick and Quebec, the United States had placed an embargo on Canadian potatoes entering that country.

The potato is fast becoming one of the more important crops in Canada, and warrants a good deal of attention on the parts of growers. Few, indeed, are the farms upon which this crop is not grown, at least for home use. Every precaution should be taken in the planting and cultivation of potatoes to aid in holding in check, and in stamping out all potato diseases. This Corky or Powdery Scab has been made the subject of a bulletin, recently issued by the Division of Botany of the Dominion Department of Agriculture, and written by J. W. Eastman, Chief Assistant Botanist. Through fear of introducing the disease potatoes may enter the United States only under the very rigorous system of certification. This includes a certificate to the effect that the potatoes were raised in an area in which neither Potato Wart (Potato Canker) nor Powdery Scab exists. There is no difficulty about the former, but the latter, while not known to the growers as serious, is distributed in such a way that it is practically impossible to delimit areas which can be certified free from it. It is, therefore, important that methods directed towards the eradication of this disease be followed out with the co-operation of all growers.

According to Mr. Eastman there is only one other disease with which Powdery Scab is likely to be confused, and that is the common scab, with which almost every potato grower is familiar. In most cases, however, the two diseases are readily distinguished by one familiar with the symptoms, but in some cases the microscope is necessary for complete certainty. A typical case of the Powdery Scab shows the skin of the potato raised up in circular, oval or elliptical pustules with an even outline, and when young, covered by the smooth unbroken skin of the tuber. A case of the common scab differs in the more irregular margin of the spots, and by having a rough surface irregular and corky or sometimes forming an irregular pit. As the Powdery Scab spots reach maturity the skin covering them is easily broken, when there is disclosed a mass of greenish or brownish powder from which the disease takes its name. On rubbing away this powder it will be found that the pustule is bounded beneath by a smooth brownish membrane which limits it quite sharply from the normal tissue. Potatoes rubbed in transportation may show this as the only remaining indication of the disease. This powdery mass is made up of very minute round spores, and under the right conditions of moisture, warmth, etc., every spore may break, and the living contents emerge as a so-called swarm-spore.

When a crop of potatoes affected by the disease has been dug, many of the scab spots will have been broken and spore-balls scattered in the soil, on the implements, or shoes, etc., and in this way may be spread from field to field. Up to the present it has not been determined how long the spores will remain in the soil.

The first precaution is to collect all refuse from affected crops and burn. Disinfect all implements, containers, etc., used in handling the crop. It is strongly recommended also that land very badly affected should be seeded down with grass or clover.

The affected crop is not injured for consumption, except, according to experience in Canada, in very rare instances. An affected crop may be used for domestic purposes or it may be fed to stock, but previous to feeding the potatoes should be cooked to prevent the spread of the spores in the manure. It is a wise precaution also to store an affected crop in the field in which it is grown in pits, and all refuse from the potatoes, such as peelings, etc., should be boiled before feeding to animals or should be burned. Sound tubers from affected fields should be treated the same as affected tubers, and if a crop has been stored and sold, bins in which it

has been kept and containers, baskets and sacks should be disinfected, or, in the case of cheap sacks, should be burned. The chief means of spreading the disease is by carelessness or ignorance in planting diseased tubers or those from a diseased crop. Nearly all diseases of potato crops originate in this way. Avoid planting apparently sound tubers from a diseased crop. Plant the seed in land which is known to be free from the disease. It is also well, especially where planters are operated on a co-operative basis, that is from farm to farm, to have the machine thoroughly disinfected.

DISINFECTANTS.

Disinfectants cannot be relied upon to make diseased tubers fit for planting, but should be used on sound seed to eliminate the chances of introducing this and other diseases. One pound of commercial formalin to thirty gallons of water, and soaking the potatoes in this solution before cutting for one and a half hours is a good disinfectant. Corrosive sublimate gives even better results than formalin with some organisms. It is purchased in tablets in such size that one dissolved in a pint of water makes a one to one thousand solution by weight. Its chief drawback is that it is intensely poisonous and corrodes metals. Soak the seed for an hour and a half in a one to one thousand solution, or better, for three hours in a one to two thousand solution, observing precautions regarding subsequent contamination from contact with bags, planting machines or other implements carrying spores of the disease. For washing baskets, bins, implements and sterilizing bags, etc., the solution of corrosive sublimate one to one thousand is reliable, or a strong solution of formalin one pound of the commercial substance to one gallon of water may be employed.

Summing up the precautions the bulletin mentions six:

1. Use only "seed" from a crop free from the disease.
2. Disinfect such "seed" to destroy any stray disease germs.
3. Use land known to be free from the disease. In most areas this will have to be land not previously planted to potatoes.
4. Do not plant potatoes again in land which has shown the disease. If possible seed such land down to grass.
5. Isolate the crop from any field showing the disease, and take all possible precautions to avoid the spores from this crop being scattered where they may infect other potatoes.
6. Pay special attention to the cleaning, and, if necessary, disinfection of implements which may carry the disease.

This bulletin may be had upon application to Publications Branch of the Department of Agriculture, Ottawa.

Asparagus in the Garden.

As a source of profit and dainty relish for the table, a bed of asparagus in the garden has few superiors in the vegetable world. Although, it requires from two to three years before results are obtained, the grower is well rewarded for the waiting period by the subsequent crops.

Asparagus may be grown from seeds or roots, but one year may be gained by growing from crowns or roots purchased from seed firms. If the gardener wishes to produce his own plants one ounce of seed is sufficient for about 50 feet of drill, and with good care and cultivation it should produce 400 plants. They may be sown fairly early in the spring and covered about one inch deep. These seeds germinate very slowly, and gardeners sometimes sow radish seed along with them. They come up very quickly, and mark the drills in order that cultivation may begin at once and furnish vegetables as well. When the plants are one year old the roots may be transplanted to the permanent bed.

Transplanting may take place as late as the first of June, but if the ground can be gotten into shape it will be preferable to do it earlier. Any long sprouts that may have started should be broken off when the plants are set out. The land should be deeply ploughed and well manured before receiving the roots. In an ordinary garden 100 plants will furnish asparagus enough for one family, but any extras are readily disposed of on local markets. The distance apart is a matter of opinion. For a long-lived bed perhaps four feet each way would be a safe distance to set, but under ordinary conditions three feet by three feet will give good results.

Asparagus roots should be planted at some depth in the soil, but they only require about three inches of covering at first in order that they may germinate quickly. In order to produce the proper depth it is wise to plough a furrow six or eight inches in depth, and plant the roots at the bottom where some surface soil has been distributed. As cultivation takes place through the summer and the shoots are growing up new earth may be added to the furrow, and by midsummer the land should be level. When the roots are planted any nearer to the surface than this the roots of the plant force up to the

surface and interfere with cultivation. Furthermore, where bleached sprouts are desired, it is well to have them some distance down in the soil in order that they may be cut beneath the surface.

Cultivation should be thorough throughout the summer, and by fall the shoots should be about three feet high. During the second year a few cuttings may be taken, but it is well to let as many as possible remain in order to store up food material in the root system. In subsequent years cuttings should not be taken any later than the latter part of June, as the crop of young shoots depends largely upon the amount of food material stored up in the root system.

Raspberry Anthracnose.

Raspberry growers are not unacquainted with the small pale colored spots with very definite margins which appear on the canes during the summer and autumn. This is known as Anthracnose and does considerable damage to the black varieties especially, but it is not rare even on the reds. In extreme cases these diseased areas or spots become so prevalent as to even girdle the cane. This causes a marked decrease in the crop and a diseased and unhealthy condition of the berry plantation throughout.

So far, best results have been obtained from the cleaning out of the old canes as soon as the berries have been gathered. This doing away with the old canes removes a source of infection for the young shoots which grow on later into the fall. Some experiments have been carried on at the University of Cornell and it is found that sprays on the dormant plants had very little effect but a spray of a one to one solution of sulphate of iron in the summer when the young shoots are about ten inches high and again after the fruit has been harvested is efficient and will reduce the percentage of diseased canes from 90 to 15 percent.

FARM BULLETIN.

Cement Posts.

Where cement is easily obtained and proper aggregates are available, which applies practically to the greater part of Canada, farmers are finding it profitable to substitute concrete posts for posts of wood. Wooden posts are temporary at best, and in some localities decay within a very few years.

Concrete posts are indestructible, keep in better alignment than wooden posts, and, under normal conditions, cost little more if as much as the latter. In some sections of the country they can be made cheaper than a good wooden post. Their fireproof and everlasting qualities make them especially desirable. A simple type of post can be easily made on the farm. A farmer may make his own molds or he can purchase them from one of the various concerns that manufacture molds on a large scale. Farmers sometimes club together in purchasing factory or metal molds, thus reducing expense to the individual. This is a very good plan, as metal molds do not warp or decay.

The easiest and cheapest wooden mold to make is the straight mold, or one for a post which does not taper. Such molds are merely long boxes having various devices for making the moulding of the post a simple matter. On account of the amount of lumber saved and the ease with which these molds are filled, straight molds are generally made in "sets" or "gangs," by constructing several side by side with a continuous bottom and end pieces.

Posts should be reinforced with a rod or wire in each corner. In most cases round bars three-sixteenths or one-fourth inch in diameter are used.

After the molds have been oiled or soaped, the concrete should be placed in them at once. If, for any reason, the concrete stands thirty minutes before using, it should be thrown away and a new batch mixed, for cement, if it has once partially set, makes weak, dangerous concrete, even though it is rettempered by turning or adding water. After the molds are filled evenly to the depth of three-fourths of an inch or one inch, according to the spacing of the reinforcing rods or wires, the reinforcement should be laid in, properly spaced by means of at least three "fool-proof" wire spacers. The concrete should then be poured in until the molds are filled within three-fourths of an inch or one inch of the top, when the remaining reinforcement is fitted in place in the manner described above and the molds are completely filled. To render the concrete more compact, a crowbar or a pinch bar should be placed under each corner of the mold successively and moved up and down quickly. This vibration makes the concrete more compact by shaking out the air bubbles, but there will be very few of these bubbles if the concrete is thoroughly mixed and of proper consistency. If desired, the exposed corners of the post may be beveled with an "edger," and the open face given a neat finish by using a trowel immediately after

the surface water has been absorbed and before the concrete has become too hard.

The following are exceedingly important precautions:

Do not expose the newly-made posts to wind, hot sunshine or frost.

Do not remove the mold from the green post until thoroughly hardened, which generally requires two or three days. Even then the post must remain on the bottom board in the shade and not be disturbed for at least a week. During the first two days keep the post wet and covered with canvas, burlap or other clean material, and dampen it thereafter each day for about a week.

THE MIXTURE.

In mixing concrete, if unscreened "bank-run" gravel is decided upon, it should be used in the proportion of 1 part of cement to 4 parts of gravel. For crushed rock or screened gravel (which is much better than "bank-run" gravel), the concrete should be used in the proportion of 1 part of cement, 2 parts of sand, and 4 parts of rock or gravel. All measurements should be made with the material poured loosely into the measuring box, and the box, when full, should be carefully leveled.

World's Competition in Grain and Sheaves.

Owing to a development of field husbandry labors and an appreciation of the value and importance of pure seed grain the Executive of the Canadian National Exhibition, held annually in Toronto, has this year appropriated \$800 to be divided into prizes of \$100 each for the best exhibit of grain sheaves. The field for competitors is unlimited as the provinces or states of any country in the world may compete in this class. In addition to the \$100 prize a World's Sweepstakes Trophy will also be awarded.

Following is a list of field products that will be considered in this class:

Wheat	Spring	\$100.00
	Fall	100.00
Barley		100.00
Oats (White)		100.00
Corn on the cob	Flint	100.00
	Dent	100.00
Beans		100.00
Peas		100.00

The grain proper will be put up in two bushel sacks with a sheaf attached. The corn is to be on the ear and crated ready for market, beans and peas are shown in sacks only.

Several conditions are attached to this class and a few of the more important ones are given below:

1. All exhibits must be grown by the Exhibitor and be the product of the crop of 1913 or 1914.
2. The exhibits will become the property of the Exhibition.
3. Exhibit shall consist of two bushels of grain in sack accompanied by one sheaf taken from the field in which the grain was grown. Such sheaf must be tightly bound and not less than eight inches in diameter where tied.
4. No Government, Experimental or Demonstration Farm or Institution receiving any financial aid from a Government or Municipality can compete.

Guelph Winter Fair Prize List Increased.

The Executive Board of the Guelph Winter Fair met in the office of R. W. Wade, Director of the Provincial Live Stock Branch, at Toronto, on Tuesday, April 28th, 1914. In a revision of the prize list about 20 per cent. was added to the classes for horses, cattle, sheep and swine. Some few of the classes remain unchanged but the majority have been increased to that extent. The Fair will begin on Saturday, December 5th, and continue till 10.30 p.m. on Thursday of the following week. Unlike previous years, the Winter Fair will precede the West Toronto Stock Yards Show, but will allow sufficient time for the transportation of the stock to Toronto.

So far, the special prizes remain the same as for 1913, with the exception of an additional special of \$50.00 donated by the Standard-bred Association for horses of that breed. It is divided as follows: \$25.00 for the best stallion and \$25.00 for the best mare and foal, the foal to be considered.

The Prince of Wales' Prize will this year be competed for in the sheep classes.

Owing to the value of all females fit for breeding, especially in the beef classes, the regulation calling for a statutory declaration that the animal is intended for slaughter when shown in such classes has been repealed and the exhibitor may now dispose of his entry or retain it for breeding purposes as he may desire. Furthermore the membership fee of the different live-stock associations will not be collected by the executive

at time of entry, but will be payable to the secretary of the association to which the exhibitor belongs.

Calgary Famous for its Horse Show.

The cities of the Western Provinces have been treated to many good horse shows this spring, but that held at Calgary, on April 14th to 18th, has been the most successful of the spring series of shows. In this event light horses were the predominating element, over 1,200 being entered in the different classes. Draft horses though were well represented and the honors were quite equally divided between the different breeds. Clydesdales were good but Percherons were on a par or a little better. Belgians and Suffolk-Punches were also unusually conspicuous and the Shire breed was represented by many massive high quality horses. James McCurdy of Napinka, Man., judged the Clydesdales and Shires; Robt. Graham, Bedford Park, placed the awards on the Percherons, Belgians and Suffolk-Punches; Alex. Galbraith of Brandon, Man., judged the Hackneys, Standard-breds and Roadsters, while Thoroughbreds and Hunters were placed by Commandant Feline.

In the aged Clydesdale stallion class was Laird of Barsallock by Hiawatha Godolphin, being shown by Angus McIntosh of De Winton. This horse won his class and later the championship of all the male Clydesdales. In the four-year-old class Scotland's Gallant was conspicuous at the head as was Torr's Choice by Johnson Victor, in the three-year-old class, the largest line up of the Clydesdale horses. In the Canadian-bred Clydesdale stallions over two years of age, Baron McLaws, shown by John McConechy of Maycroft, was first as was Lord Minto by King's Seal in the class for stallions two years old and over. Baron McLaws was considered the best of the Canadian-bred stallions and was awarded the championship in those classes.

Clydesdale females were numerous and of good quality and at the head of the aged mares came Maggie Fleming by Royal Chattan. In the three-year-olds Throsk Ruby, the first prize winner and champion at Edmonton, was chosen for first place. Thos. McMillan won first on Royal Maud in the yearling filly class and she later competed against Maggie Fleming for the championship but had to take second place and receive the reserve championship ribbon, the highest honor going to Maggie Fleming.

The Percheron classes were considered by many the strongest of the draft breeds. They were uniformly large throughout and the quality and conformation of the candidates was pleasing to lovers of the Percheron breed. Jureur, the massive stallion owned by J. C. Drewry of Cowley was placed above Alex. Galbraith's Garou. These horses are well known to Percheron breeders and both were in good form. Fortune by American took first in the four-year-olds for Alex. Galbraith, but was almost equalled by J. C. Drewry's Pontiac, both had quality and action, but Fortune had the more substance and size. The three-year-old class was not exceedingly large but Hero the winner was a good individual. Lycaon took second in this class and Hercules third. In the open championship classes Jureur won easily and the reserve ribbon went to Fortune owned by Geo. Lane. The Percheron mares lined up in numbers but Upper Bros. of Calgary won premier place on Rosine. She has been a successful shower in the United States and her placing was in no wise a surprise. C. R. de la Vergne secured second place on Glair, third going to Lily of the Valley owned by Y. Drake of Elbow River. Rosine was queen of the ring when the open championship honors were told out.

Shires show considerable improvement over former years and their massive form, improved quality and sufficient bone auger well for the future of that draft breed in Western Canada where horses of weight, substance, quality and action are so much desired. The championship stallion class was not very difficult to judge, premier place going to A. C. Shakerley on Leos, the aged stallion winner, while reserve honors went to W. G. Hansom on Drove Sir Watkin. Mr. Shakerley also won the female championship on Birdsell Silver Fir 2nd, while Murray Hendrie took the reserve championship on High River Mary.

Alberta shows have always had a fair display of the Suffolk-Punch blood. They have gradually gained prominence in that Province and the exhibition was this year favored with some extraordinary competition in this breed. In draft horses they exhibited some keen competition and food for consideration for the judges. Morston Sampson which won first place for Baker & Hunt

in the aged stallion class received the championship ribbon and like honors went to F. J. Martell on Colleen in the females.

Belgians, at this show, made up for a little lack of quality and substance of former years. They were brought out in show shape and possessed of good quality. Nicol de Ter, W. W. Hunter's champion of 1913 repeated his victory in the aged class and won the championship.

Sarah, winning the class of aged mares for Solomon & Cohen followed up her success by the capture of the coveted ribbon at the conclusion.

Hunters, jumpers and carriage horses were very conspicuous and added to the entertainment and interest of the show. Over 1,200 entries made up this part of the exhibition and stand as evidence of the interest and attention which is focused on the horse in the Western Provinces.

Ontario Agricultural Legislation, 1913-14.

Agricultural matters occupied a good deal of attention at the session of the Ontario Legislature, which concluded with the end of April. Following figures represent the provision made for the carrying on of Agricultural work through the Department of Agriculture, giving also a comparison with the previous year:

Federal Minister of Agriculture announced his willingness to increase his subventions by 50 per cent. The Provincial Department has met this by contributing their share, and the present season should see a decided increase in the entries. Competitors are being allowed to enter two crops instead of one as formerly.

	(Including Capital Account)	
	1913	1914
1.—Civil Government, Printing Reports and Bulletins, Statistics, Miscellaneous.....	\$ 79,700.00	\$ 69,218.18
2.—Agricultural College.....	368,366.00	395,658.00
3.—Agricultural and Horticultural Societies' Branch.....	156,925.00	163,905.25
4.—Live Stock Branch.....	51,500.00	54,125.00
5.—Institutes.....	41,025.00	41,200.00
6.—Dairy Branch.....	64,000.00	64,175.00
7.—Fruit Branch.....	62,988.50	64,175.00
8.—Colonization and Immigration.....	141,650.00	140,776.37
9.—Ontario Veterinary College.....	148,820.00	208,300.00
10.—District Representatives.....	40,600.00	40,600.00
11.—Demonstration Farm.....	10,000.00	10,000.00
	\$1,160,574.50	\$1,252,132.75

The increases are very largely on account of the construction of buildings and includes some revotes. The decrease of \$10,000 in the first item is accounted for by the transfer of the forestry work, for which this amount was formerly voted under the Department of Agriculture to the Department of Lands, Forests and Mines. The work is, of course, being still carried on under Prof. E. J. Zavitz, whose duties have been rearranged and enlarged by the change.

BUILDINGS.

Although over a quarter of a million dollars is provided on capital account, it will be used chiefly to complete buildings already announced. At the O. A. C. this summer will see the completion of the new dining-hall for the boys. Many who have seen this handsome grey stone structure have pronounced it the finest building on the grounds. It is to be equipped with every modern convenience practicable, and will be in charge of a trained dietitian, a graduate of Macdonald Institute. Upwards of 500 students will be able to sit down to meals at the same time. Provision has been made for a wing to accommodate the maids, and the space thus made available, as well as the old dining-room space in the old building, is being made over into dormitories for the boys. In this way it is expected accommodation for an additional fifty will be provided. This will be of considerable assistance, but with dining accommodation for 500 and dormitory accommodation for less than 300 it is evident that further provision must be made in the near future, and plans to this end are now under consideration. There is also an item in the estimates to provide for the re-painting of the college buildings. Further provision for college buildings may be expected in the Federal grant appropriation, out of which the new Field Husbandry building and the new Poultry building have already been secured.

The present year will likewise see the completion of the new Ontario Veterinary College, for which a splendid home is being provided on University Ave., Toronto. It will be provided with the most modern equipment, and should meet the demands for veterinary education in Ontario, or in fact in Canada, for many years to come.

EXTENSION OF WORK.

The Ontario Agricultural College, like the general public, has been experiencing the "increased cost of living," and hence the appropriations for the purchase of supplies have been augmented. There are also increases in the maintenance of buildings and stock as well as the usual salary increases for the staff. Before the next term opens it is expected an additional man will be added to the Animal Husbandry Department and another to the Pomology Department to meet the increasing demands for instruction and information on live stock and fruit.

With slight variations provision has been made for carrying on the work respecting Institutes, Dairy Instruction, Fruit and Live Stock, and Fall Fairs by the Department at Toronto. In regard to Field Crop Competitions, which are conducted under the Agricultural Societies Branch, an important advance has been made. This work has, for the last couple of years, been receiving special financial encouragement from the Federal Government, and a short time ago the

WORK IN NEW ONTARIO.

The appropriation for the Demonstration Farm at Monteith, in Temiskaming District, is being maintained. In addition to its work in testing out cereals this farm is being made quite a live-stock centre, and should have a material influence on the future of the North in this way. It is now planned to extend its usefulness in another way. A ditching machine is being purchased for the farm, and in addition to draining the Government lands it will be available for work in the neighborhood. One field on the farm was drained last year with excellent results. As this is the first ditcher to be taken into this district the results will be worth watching.

DISTRICT REPRESENTATIVE LEGISLATION.

One of the bills put through by the Minister of Agriculture places District Representative work on a statutory basis. The bill is a simple one, and confirms the work under the guidance of the Minister of Agriculture. Where a representative is appointed in a county the county council is required to contribute \$500 per year. To simplify the matter as much as possible it is provided that the expenditure of this money may be supervised by any one the county council may name for this purpose. The extension of this work is now being very largely financed out of the Federal grant. (Although there are already thirty-seven permanent offices it is expected a few more will be opened this year; Wentworth, Halton and Port Arthur being among the places asking for men.)

Another bill, placing on a Statutory basis work already begun, was that respecting the advertising of agricultural resources by counties. Under this the Government agrees to contribute one-third of the expenses of such advertising, providing the total cost does not exceed \$1,000. Already several counties have availed themselves of this plan with excellent results.

An amendment to the Agricultural Societies' Act enables societies to participate in the Rainy Weather Insurance Fund to the extent of 60% instead of 50% as in the past.

CHANGES IN THE STALLION ACT.

Important changes were made in the Stallion Enrolment Act, as already announced in these columns. These, briefly stated, include: 1, compulsory inspection; 2, reduction in the number of inspectors; 3, elimination of scrub stallions after 1916, and of all grades after 1918; 4, reduction in charge for inspection from \$5.00 to \$3.00, and transfer from \$1.00 to 50 cents; 5, making the Act apply to all Ontario instead of merely Old Ontario. The amendments were discussed at one meeting of the Agricultural Committee, composed mostly of farmer members, and elicited little criticism. Some members, notably McArthur of Middlesex and Fallis of Peel, pointed out the need of protecting the small buyers from the large importers, claiming that many pure-breds brought into the country were not high-class individuals. The Minister announced that provision would be made in the regulations, by which all importations would have to be inspected before being sold. A suggestion was made by Geo. S. Henry (East York) to the effect that certificates should be conditional to some extent on the number of foals produced, and this may receive consideration later. When the bill was

under consideration in the House, Anderson (Bruce) moved an amendment providing that any county council might pass a by-law exempting such county from the terms of the Act. This was urged in the interests of the grade stallion owners, but was not regarded as a practical plan and so received little support.

Another bill, in the interests of better live stock, was a measure to protect pure-bred cattle from the wandering "scrub" bull. The owner of the bull is made responsible for seeing that the animal does not run at large. He is liable to be fined in case the bull is found off the premises, unless led by halter, and he is liable for damages in case any pure-bred cow is gotten in calf by such bull at large. In several cases in the recent past breeders of pure-bred cattle have suffered considerably because of the depredations of scrub bulls. If a cow valued at \$500 or more is served by an inferior male it can readily be seen the loss is very heavy, and it is hoped the knowledge of liability for such damages will make owners more careful.

FERTILIZER PROPOSITION.

At the first meeting of the Agricultural Committee, at which Findlay G. Macdiarmid, (West Elgin) was elected chairman, an interesting fertilizer proposition was submitted. Dr. J. S. Island appeared before the Committee and explained an invention of his own for the manufacture of nitrates from the atmosphere. He quoted authorities to the effect that the deposits in Chili, the present chief source of supply of nitrogen in the world, would be exhausted in 1924, and urged the necessity of making other provision. He cited the cases of Norway, where the manufacture of nitrogen from the atmosphere had developed rapidly, until now 550,000 horsepower was being used for this purpose. He said he had been perfecting a process which he believed was better than anything yet known, and would reduce the price \$10.00 to \$15.00 a ton at least. With cheap power available he thought it could be manufactured to advantage here. He asked the Government to bear the cost of thoroughly testing his plan, amounting to at least \$5,000, with a view to later reducing and controlling the price to the farmer. The Committee was much interested, and the Minister of Agriculture announced that he was asking Prof. R. Harcourt, of the O. A. C., to go thoroughly into the proposition before any action could be taken.

Toronto Treated to Another Horse Show.

On the evening of April 28th, 1914, the Armouries, Toronto, were opened to domicile for the remainder of the week, the Twentieth Annual Canadian National Horse Show. The main part of the Armouries had been converted into a large arena. The entire ceiling and walls were decorated to conceal the bareness of the structure, and illuminated with myriads of lights. For scintillating costumes and pageantry of fashion this show is in a class by itself. Not like other shows the entries are all of the spectacular kind. Carriage horses, jumpers, hunters and roadsters make up the majority of the numbers, while a few teams in harness and delivery rigs are sometimes brought out to emphasize the practical end of the horse business. There were in all about eighty-six classes, but the number of horses present was not large enough to eliminate the necessity of many horses appearing on various occasions. This presents innumerable difficulties to the judges, as the winning of the

blue ribbon on one occasion suggests that the horse is worthy of it on all occasions, unless points are allowed for appointments or jumping ability. Too many blue ribbons going to one candidate or exhibitor is liable to breed dissent, and, although the judges did their best, it was not always calm weather in the arena. Three stables were withdrawn as a result of dissatisfaction, leaving the remaining classes shorn of some interesting competition. The horses themselves were not to blame for this, and remained to the last the center of attraction for hosts of visitors who have a deep-seated liking for the carriage and roadster horse, and the excitement of the chase.

Clydesdales were exhibited in harness in the single and team classes. The names of the entries will suggest to readers the qualities of the horses, as they have been shown on different occasions and have made a very good showing indeed. In the single class for mare and gelding, first, second and third went to the entries of the Dominion Transport Co., Toronto, and fourth went to Britnell & Co. In a class for teams, first and fourth went to the Dominion Transport Co.; second, to Geo. Mournahan, Grand Valley, and third to Wm. Dalley, Toronto. In two of the breeding classes the numbers and qualities of the entries were up to, and in some cases surpassed, that of previous years, while in one, the class for Hackney stallions, only one was exhibited, and that by Crow & Murray. Their horse, Lord Hermoine, had it all his own way, as the other candidate entered, Harviestown Fanatic, did not come into the ring.

Eight Thoroughbred stallions responded to the bugle, and this class has had few better horses in the history of the Canadian National Horse Show. The awards were placed by Lieut.-Col. Wm. Hendrie, and resulted in the blue going to Selwick, owned by Jas. Bovaird, Brampton; red to Nealon, owned by A. Robt. Davis, Toronto; third to Martin Doyle, property of Hugh Wilson, Oakville; fourth, to Prince Hohenlohe, owned by Jas. Bovaird, and fifth, to Gay Boy, owned by David A. Campbell, Barrie. Nasbaden, a well-known Thoroughbred stallion, suffered a slight injury on the evening before he was shown, and consequently was not placed in the money. Standard-bred stallions made an exceptionally strong class, one of the best seen in Toronto for many years. Jim Todd, from the stables of Miss K. L. Wilks, Galt, went to the top, with Judge Parker, property of A. Robt. Davis, a close second. Third went to the hero of many a hard-fought contest on both sides of the line, Mograzia, by Moka, also from the Galt stables, and fourth to Lord Goshen, exhibited by Patterson Bros., Agincourt, Ont.

The heavy harness horses and high steppers held the attention of the spectators throughout. Some well-known horses were candidates for honors, and right nobly did they perform. In the novice classes (not exceeding 15 hands, 2 inches) Crow & Murray, of Toronto, won on Governor. Second and third went to A. Yaeger, of Simcoe, on Princess, and Queen Eisenham, while fourth place was reserved for Derby Squire, the property of C. W. Stewart, Hamilton. In the novice class (exceeding 15 hands, 2 inches), first went to Miss E. Viau, of Montreal, on her princely Duke of Connaught, which stood above Crow & Murray's Applause. In the open classes Sir H. M. Pellatt's Lord Kitchener stood above Fireworks from the stables of Sir Douglas Cameron, Winnipeg. These animals are well known in horse circles for their conformation, style and superb action, and with the display furnished by other noted individuals in this class (not exceed-

ing 15-2) made an exhibit pleasant to watch. In another class of this kind, (exceeding 15-2, Miss Loula Long from Kansas city took the blue ribbon, denoting first place, on Revelation, one of her line of carriage horses. Crow & Murray were second on Wild Rose and Earl Grey, Miss Viau's candidate went third.

The teams of carriage horses were equally spectacular, and that class not exceeding 15-2 was won by the Winnipeg stables on Fireworks and Flourish. Revelation and Realization, driven by Miss Long, won her the blue among those exceeding 15 hands, 2 inches; second place going to Earl Grey and Duke of Connaught for Miss Viau. Wild Rose was again victorious in the retinue of high steppers, shown singly, leading England's Pride, owned by Major C. W. McLean, of Pointe Claire, and the brilliant Fireworks from the West. Highest honors of the entire harness class went to Crow & Murray on Governor, and reserve championship was bestowed on Miss Long's Revelation.

Prominent horses among the jumpers were Touraine, Eglinton, Dictator and Coburg, shown by the Sunny Brook Farm, Toronto, and Harbourough, Fairchild and Fred Stephens, the property of Hugh S. Wilson. H. R. Tudhope also had a pleasing hunter in Marquis, which won in the class for amateur middleweight hunters. Flashlight, the property of G. W. Beardmore was also a popular horse. In the crucial test for championship, Touraine won over the heavy-weight hunters, Marquis was champion of the middleweights, while Fairchild received premier honors over all lightweight competitors.

In the high jumping contest H. H. Short, of Ottawa, received the ribbon. His horse, Marathon, a noted winner, cleared the fences at 6 feet 4 inches, which is 6 inches below the record for 1913. Visitors were deprived of some pleasing performances by the absence of the Hon. Clifford Sifton's noted line of jumpers. They have performed some spectacular feats before Toronto admirers of the horse, but this year they have been doing the Western show circuit.

The saddle championships were dispensed to Miss Loula Long on Nancy Garland, (not exceeding 15 hands 2 inches), and to Hugh Wilson's Harbourough (exceeding 15 hands 2 inches).

The Dairy Bill Passes.

The Dairy Industry Act introduced in the House of Commons some time ago by the Hon. Martin Burrell, Minister of Agriculture, passed its third reading last Friday, and will soon become law. Some opposition was again raised against it, but the cause of the dairymen of Canada finally won out and butterine and renovated butter must stay out.

Naval Graft Scandal.

The disclosure has been made in naval graft scandals that Admiral Matsumoto, of Japan, received a \$200,000 bribe from the agent of the Vickers' Shipbuilding concern, in connection with the contract for the cruiser Kongo. The agent's commission was \$575,000. There are fat things in the naval armament business but not for the people. The Admiral will be courtmarshalled.

A thorough system of drainage means the extermination of the mosquito, say the scientists, and this has been carried to such a degree around Khartoum that it is said that land owners are fined twelve shillings for every mosquito found on their premises.

Toronto, Montreal, Buffalo and Other Leading Markets.

Toronto.

Receipts at the Union Stock-yards, West Toronto, on Monday, May 4th, were larger, amounting to 133 cars, comprising 1,953 cattle, 3,709 hogs, 368 sheep, and 459 calves. There was a fair trade, at steady prices, excepting for hogs, prices for which were lower. Choice steers, \$8 to \$8.25 for loads; good steers, \$7.75 to \$8; medium, \$7.50 to \$7.75; common, \$7 to \$7.40; bulls, \$6.50 to \$7.50; canners, \$3.50 to \$4.50; milkers, \$60 to \$102; feeders, \$7 to \$7.60; stockers, \$6 to \$6.75; calves, \$6.50 to \$10.50. Sheep, \$6.50 to \$7.75; yearling lambs, \$8.50 to \$9.50. American yearling wethers, clipped, sold at \$8.50; spring lambs, \$7 to \$10.50. Hogs, fed and watered, \$8.75; \$8.40 f. o. b. cars; \$9 weighed off cars.

REVIEW OF LAST WEEK'S MARKETS

The total receipts of live stock at the City and Union Stock-yards for the past week were:

	City.	Union.	Total.
Cars	10	242	252
Cattle	140	3,303	3,443
Hogs	186	5,136	5,322
Sheep	54	185	239
Calves	70	1,212	1,282
Horses	28	76	104

The total receipts of live stock at the two markets for the corresponding week of 1913 were:

	City.	Union.	Total.
Cars	18	252	270
Cattle	355	2,880	3,235
Hogs	318	7,223	7,541
Sheep	109	445	554
Calves	155	835	990
Horses	3	53	56

The combined receipts of live stock at the two markets for the past week show a decrease of 18 cars, 2,219 hogs, and 315 sheep; but an increase of 208 cattle, 292 calves, and 48 horses, compared with the corresponding week of 1913.

Receipts of live stock at the two markets for the past week were comparatively light in all the different classes, espe-

cially cattle. This had the effect of advancing values in nearly all the fat-cattle classes from 20c. to 30c. per cwt. over the previous week. Steers and heifers, 1,000 to 1,150 lbs., had the call, and sold readily, the supply not being equal to the demand. Heavy steers not properly finished, were slow sale. There was a strong demand for stock and feeding steers, buyers from different parts of Ontario, as well as the States, which caused prices to be very firm, as there was not enough to go around. Fresh milkers and forward springers of good quality were in demand. The deliveries of sheep, lambs and calves, were light, which caused prices to remain firm, but no higher, as values have reached their limit. Hog prices remained steady at last week's closing quotations.

Butchers.—Choice steers, 1,250 to 1,350 lbs. each, sold at \$8 to \$8.25, and two or three loads of extra quality brought \$8.30 to \$8.40, and \$8.50 for one load only; good to choice steers and heifers, \$7.75 to \$8; medium steers and heifers, \$7.50 to \$7.75; common, \$7 to \$7.40; choice cows, \$7 to \$7.50; good

cows, \$6.50 to \$6.75; common cows, \$5 to \$5.75; canners, \$3.50 to \$4.50; choice bulls, \$7 to \$7.50; good, \$6.50 to \$6.75; common bulls, \$6 to \$6.25.

Stockers and Feeders.—The market for stockers and feeders remained steady but strong. Choice steers, 800 to 950 lbs., sold readily at \$7.40 to \$7.50; good steers, same weights, \$7.25 to \$7.40; medium, \$7 to \$7.25; stockers sold at \$6.25 to \$7, but few at the former price.

Milkers and springers.—The demand is for choice, heavy, fresh milkers or forward springers, and these bring high prices, ranging all the way from \$75 to \$100 each, with an occasional large Holstein or Shorthorn of good milking qualities, at \$110, \$115, and even \$125 was paid for one choice cow this past week. There are, however, quite a number of medium to good cows that sell from \$55 to \$65 each.

Veal Calves.—The demand has been and continues to be greater than the supply for all classes of veal calves, and prices have been high and firm all winter, and even now still continue. Choice calves



Small Deposits Welcome

If you wish to start a Savings Account do not hesitate because you have only a small sum to begin with; you will be welcome at our office. Some of our large accounts began as deposits of \$1.

It is our aim to have customers come to us with the feeling that we will attend to their business with pleasure.

The Bank of Nova Scotia

Capital - - - - \$ 6,000,000
Surplus - - - - \$11,000,000
Total Resources - - \$20,000,000

BRANCHES OF THIS BANK in every Canadian Province, and in Newfoundland, West Indies, Boston, Chicago and New York

sold at \$9.50 to \$10.50; good calves, \$8.25 to \$9.25; common to medium, \$6.50 to \$7.

Sheep and Lambs.—Receipts of sheep and lambs were not half large enough to supply the demand, and of course prices were very firm, but no higher, as values have reached the limit of the purchasing powers. Sheep—Ewes sold at \$6.75 to \$7.65 per cwt.; rams, \$5.50 to \$6.50; yearling lambs, \$8.75 to \$9.75 per cwt. Spring lambs also have been scarce all week, and prices were exceedingly high, ranging from \$5 to \$11 each, the bulk going between \$7 to \$10 each.

Hogs.—Although the deliveries have not been what you might call heavy, prices have ruled steady all week. Selects, fed and watered, \$9; \$8.65 f. o. b., and \$9.25 weighed off cars.

TORONTO HORSE MARKET.

There was a liberal supply of horses at the Union Horse Exchange the past week, and again there were several buyers from the East. Two cars were bought and shipped to Quebec, and one to Montreal. There were many farmers from various points in Ontario who bought several small lots of work horses, and, as usual, there was considerable local demand for heavy horses, as well as expressors and wagon horses. Trade was fair, all things being considered, and prices remained about steady, as follows: Drafters, \$200 to \$250; general-purpose horses, \$175 to \$225; expressors, \$160 to \$225; drivers, \$100 to \$150; serviceably sound, \$30 to \$75.

BREADSTUFFS.

Wheat.—Ontario, No. 2 red, white or mixed, \$1.01 to \$1.02, outside; Manitoba, No. 1 northern, 97¢, track, bay points; No. 2 northern, 95¢; more at Goderich. Oats.—Ontario, new, white, No. 2, 39c. to 40c., outside; 41¢ to 42¢, track, Toronto; Manitoba, No. 2, 40¢; No. 3, 39¢, lake ports. Rye.—Outside, 63c. to 64c. Peas.—No. 2, 98c. to \$1, outside. Buckwheat.—No. 2, 73c. to 75c., outside. Corn.—American, No. 3 yellow, 74c., all rail, track, Toronto. Barley.—For malting, 57c. to 58c. Flour.—Ontario, 90-per-cent. winter-wheat patents, \$3.90 to \$4, bulk, sea-board. Manitoba flour—Prices at Toronto are: First patents, \$5.70; second patents, \$5.10, in cotton, 10c. more; strong bakers', \$4.60, in jute.

HAY AND MILLFEED.

Hay.—Baled, car lots, track, Toronto, \$14 to \$14.50; No. 2, \$13 to \$13.50. Straw.—Baled, in car lots, \$8.50 to \$9. Bran.—Manitoba, \$25, in bags, track,

Toronto; shorts, \$26; Ontario bran, \$24, in bags; shorts, \$25; middlings, \$28.

TORONTO SEED MARKET.

The following are the prices wholesale seed merchants are quoting to the trade: Red clover, No. 1, \$19 to \$21 per cwt.; red clover, No. 2, \$17.50 to \$18.50 per cwt.; alsike, No. 1, \$21 per cwt.; alsike, No. 2, \$17 to \$18.50; timothy, No. 1, \$8.50 to \$9.50 per cwt.; timothy, No. 2, \$7.25 to \$7.50 per cwt.; alfalfa, No. 1, \$14 to \$15 per cwt.; alfalfa, No. 2, \$13 to \$13.50 per cwt.

COUNTRY PRODUCE.

Butter.—Receipts continue to be large, and prices steady. Creamery pound rolls, 31c. to 32c.; creamery solids, 27c. to 28c.; separator dairy, 27c. to 29c.; store lots, 24c. to 25c.

Eggs.—Receipts continue to be heavy, and prices steady, at 21c. to 22c., the bulk selling at the latter price.

Cheese.—Old, twins, 15¢; large, 15c.; new, twins, 14¢; large, 14c.

Beans.—Imported, hand-picked, \$2.25; Canadians, hand-picked, \$2.25; primes, \$2.10 per bushel.

Poultry.—Receipts principally cold-storage, which were quoted as follows: Turkeys, 21c. to 25c.; geese, 14c. to 15c.; ducks, 14c. to 20c.; chickens, 17c. to 23c.; hens, 14c. to 17c.

Potatoes.—Car lots of New Brunswick Delawares, \$1.10 per bag; car lots of Ontarios, \$1 per bag, track, Toronto.

Honey.—Extracted, 9c. per lb.; combs, per dozen, \$2.50 to \$3.

HIDES AND SKINS.

No. 1 inspected steers and cows, 13c.; No. 2 inspected steers and cows, 12c.; city hides, flat 13c.; country hides, cured, 13¢; calf skins, per lb., 16c.; lamb skins and pelts, \$1 to \$1.50; horse hair, 35c. to 40c.; horse hides, No. 1, \$2.50 to \$4.50; tallow, No. 1, per lb., 5¢ to 7c.

FRUITS AND VEGETABLES.

Last season's growth of Canadian fruits and vegetables are becoming scarce as the season advances. Apples—Spies, No. 1, per barrel, sold at \$7 to \$7.50; No. 2 Spies, \$6; No. 3 Spies, \$3.50 to \$4; beets, \$1.75 to \$2 per bag; carrots, \$1.75 per bag; parsnips, \$1.50 per bag; turnips, 75c. per bag; onions, Canadian reds, \$2.50 to \$2.75 per sack, and very scarce at that. This season is already represented with green onions, at 25c. per dozen bunches; leaf lettuce, 30c. per dozen; radishes, 50c. per dozen bunches; mushrooms, 75c. per lb.

Montreal.

Live Stock.—Supplies of cattle were on the light side on the market last week, and there was a very good demand from butchers. Prices remained fairly steady. Choice steers sold at 8¢ to 8½¢ per lb.; fine sold at 7¢ to 8c.; good at 7½¢ to 7¾¢; medium, 6½¢ to 7c., and common down to 5c. Yearling lambs sold at 8c. to 9c. per lb., and old sheep at 6c. to 7c. per lb. Calves ranged from \$3 to \$7 for common, and up to \$12 for good. Spring lambs sold at from \$3 to \$6 each, according to size and quality. Live hogs were in fair demand, and Ontario selected stock sold at 9¢ per lb., weighed off cars.

Horses.—Dealers reported a moderately active trade. Supplies were not large, nor was demand very pressing, so that prices continued practically unchanged. Horses weighing from 1,500 to 1,700 lbs., sold at \$275 to \$300; light draft, weighing from 1,400 to 1,500 lbs., \$225 to \$275; broken-down, old animals, \$75 to \$125, and choicest saddle and carriage animals, \$350 to \$400 each.

Poultry.—The market showed no change, quotations being as follows: Turkeys, 22c. to 24c. per lb.; ducks, 16c. to 18c.; chickens, 19c. to 21c.; fowl, 16c. to 18c., and geese, 14c. to 16c.

Dressed Hogs.—The market showed very little change, but there was a good, brisk demand for all lines. Abattoir-dressed, fresh-killed hogs, sold at 13¢ per lb. Smoked meats were unchanged, being 18c. per lb. for medium-weight hams, and 19c. for breakfast bacon, while selected Windsor bacon sold at 22c. per lb., and boneless Windsor at 24c. Lard sold at 13¢ to 14c. for pure, and 10½¢ for compound.

Potatoes.—The market for potatoes showed increased firmness owing to light offerings of supplies. Green Mountains,

in car lots, quoted 5c. higher, at 95c. to \$1 per bag of 90 lbs., while Quebec stock was quoted at 85c. to 90c. In a smaller way, prices ranged from 15c. to 20c. higher.

Honey and Syrup.—There was a good demand for syrup, and supplies were liberal. The price was about 7½¢ per lb. in wood, and 7½¢ to 8c. in tins, making prices of tins 65c. to 70c. each for small, and \$1 for large. Honey was hardly dealt in at all. White-clover comb honey was 15c. to 16c. per lb.; extracted, 10½¢ to 11½¢; dark comb, 13c. to 14c., and strained, 7½¢ to 8½¢ per lb.

Eggs.—Demand for eggs was active, and as a consequence everything offered was early absorbed by packers. Quotations continued firm, being 22c. to 23c. for wholesale lots of straight-gathered eggs, and 25c. for selected stock, with No. 1 stock at 21c.

Butter.—The receipts of new-made creamery increase every day, and the result of the offerings was a decline. Quotations of choice stock were in the vicinity of 23c. to 23½¢ per lb., while next grades were about 1c. below these prices.

Cheese.—Receipts of cheese also showed some increase in the local market. The quality, as might be expected, was not of the very finest. Prices were lower, being 12c. to 12½¢ for Western, colored, and a ¼¢ below these prices for white.

Grain.—The market for oats was generally weaker, and prices were about ¼¢ lower. No. 2 Western Canada oats were quoted at 43c. per bushel, ex store, in car lots, and No. 3 at 42½¢.

Flour.—The market for flour showed no change. Manitoba first-patent flour was quoted at \$5.60 per barrel, in bags; seconds being \$5.10, and strong bakers', \$4.90. Ontario winter-wheat flour was firmer, at \$5.25 to \$5.50 for patents, and \$4.70 to \$4.90 per barrel for straight rollers, in wood.

Millfeed.—Supplies of millfeed were light; firm and unchanged. Bran sold at \$23 per ton, and shorts at \$25, in bags, while middlings were \$28, including bags. Mouille was \$30 to \$32 per ton for pure, and \$28 to \$29 for mixed.

Hay.—The market was quite firm, owing mainly to the fact that there has been a considerable quantity of hay shipped out of the country recently. Prices were the same as the previous week, being as follows: No. 1 pressed hay, car lots, Montreal, track, \$15.50 to \$16 per ton, while No. 2 extra good was \$14.50 to \$15, and No. 2, \$13.50 to \$14.

Seed.—Demand was quite active. Prices were: Timothy, \$10 to \$11.50 per 100 lbs., Montreal; red clover, \$22 to \$24 per 100 lbs., and alsike, \$20 to \$24 per 100 lbs.

Hides.—Beef hides were 13c., 14c. and 15c. for Nos. 3, 2 and 1, respectively, call skins 16c. and 18c. for Nos. 2 and 1, and sheep skins, \$1.20 to \$1.25 each, and lamb skins, 15c. each, with horse hides ranging from \$1.75 for No. 2, to \$2.50 each for No. 1. Tallow sold at 1½¢ to 3c. for rough, and 5c. to 6½¢ for rendered.

Buffalo.

Cattle.—Another liberal supply of cattle last week at Buffalo. Market was improved somewhat over the preceding week, prices ruling steady to strong, with considerably more life to the trade. Topy shipping steers ranged from \$8.90 to \$9, the last figure, however, taking only a few odd head. All of the Eastern buyers wanted cattle. Something like fifteen cars of Canadians, and these sold at good prices, kinds not being of the best, and ranging mostly from \$8 to \$8.25. Reports of Canadian shipping steers that have ranged from \$8.65 to \$8.85, are that they have proven good killers, showing a percentage of close around sixty per cent., but there have been very few to make such a high-killing percentage. Some Canadian steers killing around 53 and 54 per cent. have proven dear, and reports from Chicago are that quite a few of the Canadian shipping steers prove disappointing in the killing average. However, it depends altogether on the way the Canadians are finished up, for, as stated, some of these steers have shown most satisfactory killing, and the buyers have been more than pleased with them, while other buys of those not finished up in hard fat have proven dear. Yearlings prove good sale, especially where fancy, and

will bring the price on any market. At the present time they are quotable from \$8.50 to \$8.75, and will be taken readily by local packers, but they must be fancy. Local packers are paying good strong prices for anything choice to prime in the handy order, whether steers or heifers. They must be on the light order, however, and carry plenty of finish, and excellent quality. It is a guess as to how large, away-up-from-the-ground steers, with plenty of heft, will be received. Supply of fat cows and heifers has not been sufficient to meet the demands for the past month or so. Killers in Buffalo grab the heifer stuff early, and fat cows are bringing high prices, compared with medium kinds of steers. Jewish outlet is holding up cow prices to a considerable extent. Stock and feeding cattle appear to be going higher, \$7.85 being paid for feeders averaging around 650 lbs., and \$6.75 for little heifers, weighing less than 575 lbs. Even with these high prices, the demand is not being met, there being orders for a large number of cars of all kinds that cannot be filled. Heavy bulls and medium sausage kinds are selling draggy; as the hot weather approaches, these heavy bulls are due to go lower. Milkers and springers, strong. Quotations follow:

Best 1,350- to 1,450-lb. steers, natives, \$8.75 to \$9; best 1,200- to 1,300-lb. steers, natives, \$8.50 to \$8.75; best 1,100- to 1,200-lb. steers, natives, \$8 to \$8.40; coarse and plain, weighty steers, natives, \$7.65 to \$7.85; fancy yearlings, baby beef, \$8.25 to \$8.50; medium to good, \$7.75 to \$8; best Canada steers, 1,350 to 1,450 lbs., \$8 to \$8.25; best Canada steers, 1,150 to 1,250 lbs., \$7.75 to \$8; extra good cows, \$6.75 to \$7.25; best cows, \$6 to \$6.25; butcher cows, \$5 to \$5.50; best heifers, \$7.50 to \$7.75; medium butcher heifers, \$6.75 to \$7; stock heifers, \$6.25 to \$6.50; best feeding steers, dehorned, \$7.50 to \$7.85; fair to good feeding steers, dehorned, \$7 to \$7.25; best stock steers, \$7.25 to \$7.50; common, light, stock steers, \$6.50 to \$7; extra good bulls, \$7 to \$7.25; stock bulls, common to good, \$5 to \$6; best milkers and springers, \$75 to \$100.

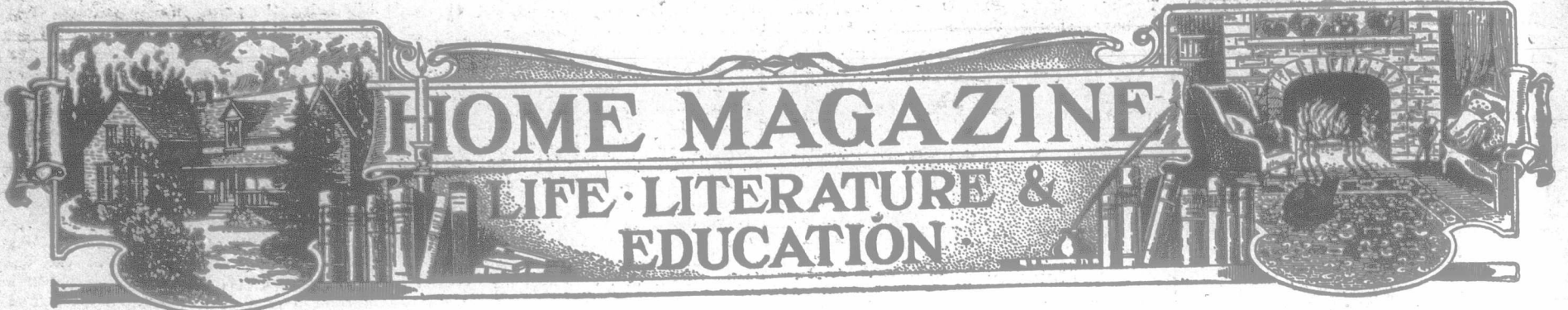
Chicago.

Cattle.—Beeves, \$7.15 to \$9.50; Texas steers, \$7 to \$8.10; stockers and feeders, \$5.50 to \$8.15; cows and heifers, \$3.50 to \$8.50; calves, \$6.25 to \$9. Hogs.—Light, \$8.20 to \$8.50; mixed, \$8.15 to \$8.45; heavy, \$7.95 to \$8.45; rough, \$7.95 to \$8.10; pigs, \$7.15 to \$8.20; bulk of sales, \$8.35 to \$8.45. Sheep and Lambs.—Sheep, native, \$4 to \$5.65; yearlings, \$5.40 to \$6.50; lambs, native, \$4.90 to \$7.15.

Trade Topics.

Lighting the farm home by electricity, while not altogether a novel idea, is a convenience which comparatively few farmers appreciate. To be able to light the house with electric light, just the same as city houses are lighted, and to have these lights in the barns, to use the electric current to operate cream separator, wood-cutter and washing-machine, are conveniences certainly worth considering. The Northern Electric Company, Limited, whose advertisement runs in this paper, have just issued a comprehensive bulletin covering their Low Voltage Lighting Outfits. With such an outfit installed, the farmer may enjoy the same electric conveniences as have heretofore been confined to those living in cities or towns. Electric Irons, Toasters, Vacuum Cleaners and Fan Motors, are only some of the many conveniences that may now be used on the farm. Write the Northern Electric Company's nearest house, mentioning "The Farmer's Advocate," for a copy of this bulletin, which we understand will be sent free on request.

A strong case may be made out for the metal roof as compared with the ordinary wood shingle roof. The metallic-covered building has advantages over the other class. Good roofing means better preservation for farm products now so valuable. Look up the advertisement in this issue of the Metallic Roofing Co., Ltd., Toronto, and write them for particulars regarding their Eastlake Steel Shingles and their Metallic Corrugated Iron.



The House Beautiful.

[By R. L. Stevenson.]

A naked house, a naked moor,
A shivering pool before the door,
A garden bare of flowers and fruit,
And poplars at the garden foot:
Such is the place that I live in,
Bleak without and bare within.

Yet shall your ragged moor receive
The incomparable pomp of eve,
And the cold glories of the dawn
Behind your shivering trees be drawn;
And when the wind from place to place
Doth the unmoored cloud-galleons chase,
Your garden gloom and gleam again,
With leaping sun, with glancing rain,
Here shall the wizard moon ascend
The heavens, in the crimson end
Of day's declining splendor; here
The army of the stars appear.
The neighbor hollows, dry or wet,
Spring shall with tender flowers beset;
And oft the morning muscer see
Larks rising from the broomy lea,
And every fairy wheel and thread
Of cobweb dew-bediamented.
When daisies go, shall winter-time,
Silver the simple grass with rime;
Autumnal frosts enchant the pool
And make the cart-ruts beautiful;
And when snow-bright the moor expands,
How shall your children clap their
hands!

To make this earth, our hermitage,
A cheerful and a changeful page,
God's bright and intricate device
Of days and seasons doth suffice.

Browsings Among the Books.

THE SOUL'S COLLOQUIES.

From "Studies of the Soul,"

By J. Brierley, B. A.

A man's chief occupation in this world might be said to be that of conversing with himself. During fifty or sixty years, if he has lived so long, he has been carrying on this interminable colloquy, to which he returns immediately after every interruption from outside. His talk with himself is entirely different in character from any he has with his most intimate friend. If it could be given to the world it would reveal him in some new and unexpected phases. Those who know him most would probably be startled to find how much better and how much worse he is than they thought him.

The talk, be it remembered, is not a mere soliloquy, but a veritable conversation, in which quite a number of different voices take part. For the speakers under a man's waistcoat are more numerous even than appear in that notable description in the "Autocrat" of the multiple individuals that make up a man. By turns we have, in this interior conclave, the upper man haranguing the lower, the animal man coaxing the spiritual, the calculating faculty throwing cold water on the sensibilities. At another time the talk is reminiscent; we hear fifty chattering pleasantly with its former self of twenty, comparing notes on the experiences of thirty years ago. Even in sleep the circle is not broken. In our dreams the "Subjective soul," if we may accept Mr. Hudson's ingenious theory, has its innings, and gives to us its own peculiar version of the universe. Deepest element of all in this marvellous converse is the ground tone, speaking through the conscience and through the reason, at times compelling with its sweetness, at times startling with its thunders, of that "Over-soul" in which all individual souls abide, and to which, as Fichte says, "Every separate mind is related as are the branches to the vine."

As a man has no chance throughout his life of quitting his own society, it seems reasonable that he should endeavor, as one of his chief concerns, to make it agreeable. This single consideration should be sufficient, one would think, to create in everybody a thirst for culture. The truly educated mind lives in a different world from that of the vulgar. When a man has made acquaintance with the best thinking of ancient and modern times, of his own and other literatures, he has something to talk about with himself. Moltke was said to be "silent in seven languages." He probably found such excellent fellowship in his own brain as to indispose him to seek an inferior article outside. To the intellectually well-furnished man there is, indeed, no such thing as solitude. His inner world is thronged with life. He gets away from the crowd that he may understand it. This explains partly the love of solitude of the great saints. A Cuthbert, scholar and apostle, spends months at a time shut up on his lonely Farne Island, and is happy there. One wonders what some modern men would do alone on an island. People rush to what they call society because they have nothing and nobody in themselves worth speaking to.

But to find oneself good society requires something more than parts and culture. A man cannot, for instance, be entirely at ease if some authority within has unmistakably written him down a rogue. That does happen sometimes, and a not inconsiderable part of some men's speech with themselves consists of appeals against this verdict, and endeavors to get the case retried at a more lenient court. It would be a mistake, however, to imagine that wrongdoers are always on bad terms with their moral sense. As a matter of fact, that faculty is often the least developed in them, and so the easiest to be hoodwinked. It is curious to see how clever men will address arguments to their conscience which would be rejected in a moment if addressed to their intellect. Rousseau, one of the acutest thinkers in Europe, its censor morum, the creator, in "Emile" of its ideal of education, could content himself, as his personal contribution to morals, with having children by a woman to whom he was not married, with throwing them naked upon the world, to be brought up by public charity, and then calmly avowing the fact in the language of a man on the best of terms with himself, in his published confessions. From Ireland, to cite an instance nearer home, it is just over three centuries ago that Lord Essex, a well-disposed and religiously-minded English nobleman, sent an account to his Sovereign, Elizabeth, of a bit of work done by his troops. At his orders they went to Rathlin Island, off Giant's Causeway, where six hundred Irish women and children had been sent for refuge, and there slaughtered every one of them, unarmed and defenceless as they were, in cold blood. He did the deed, this good Protestant Englishman, and then wrote about it in a quite calm and equable frame of mind. All the atrocities, be it remembered, have not been done by the Turks. Truly the records of the forum conscientiae contain some queer verdicts.

There are, however, other than strictly ethical questions involved in a man's talks with himself. Some of the most interesting of these conversations, if they could be reported, would be those carried on by a creative mind while in the process of creation. We know very little of what really goes on here, and the man himself could not help us much. Genius is at an entire loss to explain its own products. A whole philosophy of the unconscious is needed to under-

stand what really happens. The painter, the poet, the inventor, is haunted awhile by a vague idea, and calls on his mind to elucidate it. His mind, so far as it is conscious, makes no response. But all the time the unconscious part of it is, in some mysterious manner, at work, until at last, and suddenly, there emerges from the brain's unknown depths an idea, a creation, as new and surprising to the thinker himself as it will be by-and-by to the outside world. The work which makes a man famous is not the work he sets out to do. He stumbles on that in a way he cannot explain. When Gibbon took to history he had no idea of writing the "Decline and Fall." It was the history of Switzerland, then of Charles V., then of Florence, that successively filled his mind. Through what a debris of unfulfilled projects did he finally argue his way to the Roman Empire and so to immortality. And that is the story of all great creations.

It is curious to note the difference between a man's talk with himself when young and that of his riper years. The youth is as yet nothing to the world, but he is everything to himself. He has not yet tried a fall with circumstance, and so puts no limit to his possibilities. One should look kindly on this self-conceit, for is it not, after all, Nature's effort to get the best out of her children? If a man has not some belief in himself to begin with, he is indeed badly off. The lesson of his limitations will be rubbed into him soon enough, with relentless thoroughness. Meanwhile the rush of youth, in its eager self-confidence to conquer the world, is a goodly thing. It is like the initial velocity of a cannon-ball, the force of which determines its range. When Disraeli, failing in his first speech in the house says, "A day will come when you will hear me;" when Cobden, early in his career, on being told that a given project was impossible, replied, "Then, if that is all, we had better set about it at once," we recognize in this glorious optimism of the young one of Nature's great conquering forces. The talks of old age with itself have another significance. They deal not so much with the future as with the past. The possibility of their being enjoyable and satisfying is one of the high rewards of a true life. It argues a certain sort of career behind it when one can say, with Fontenelle, that "Old age is the most agreeable period of life, in which our passions are calmed, our duties fulfilled, our ambitions satisfied." On the other hand, we cannot imagine a worse fate than to be shut up in the later years with the voices from a vicious and futile past. The ghosts of a man's evil deeds make sorry table companions. Their talk is horrible, and he cannot get away from it.

[From "Studies of the Soul," by J. Brierley, B. A., Published by James Clarke & Co., 13 and 14 Fleet Street, London, Eng., Clarke's Sixpenny Series.]

Little Trips Among the Eminent.

Canadian History Series.

FRONTENAC.—(Concluded.)

Winter beat upon the stern rock at Quebec, but through it all the people remembered with a glow the repulse of Phipps which, they hoped, had brought them some degree of security. Yet in Canada was no security, and, in the picturesque words of Parkman, "Spring came at length and brought with it the swallows, the bluebirds, and the Iroquois."

At the mouth of the Ottawa about eight hundred of the latter encamped, and parties from thence raided Point

Aux Trembles and other points. One of these parties was almost exterminated near Repentigny by a force sent out from Montreal under De Vaudreuil.

The English, too, were active, and early in the summer a second force, but under Peter Schuyler, descended upon La Prairie, but was driven back by the Callieres with soldiers from Montreal.

In the meantime the defensive works at Quebec were being greatly strengthened, the habitants being drafted to work thereon, it is to be confessed with but little pay, and Frontenac was writing again to France for help,—help sadly enough needed, since the continuous harassing war had prevented agriculture and trade, and depleted the colony of many of its men. "What with fighting and hardships," he wrote, "our troops and militia are wasting away. . . . The enemy is upon us by sea and land. . . . We are perishing by inches. . . . Many families are without bread. The inhabitants desert the country and crowd into the towns."

During the summer of 1691, too, a fresh menace appeared in the form of an army of caterpillars that devastated much of the growing crops, but, fortunately enough, at the same time appeared an unusual multitude of squirrels, which were shot and used for meat.

The King, however, with his hands full at home, could send very little aid, and began to complain about the sums of money sent to the colony—only a drop in the bucket to the needs of New France, but formidable enough to those who had to supply them.

Still the "petite guerre" of the Iroquois went on. It was necessary for the settlers to work in the fields guarded by soldiers, and many were the incidents in which valor of the noblest quality was shown, most notable of these, perhaps, the holding of the fort of Vercheres by the young daughter of the seignior, a story which everyone in Canada knows. Less renowned is the story of a brave defence that took place also in the vicinity of Montreal. A bachelor went one evening to see a widow, whose husband had been slain the year before by the Iroquois. There were rumors of fresh Indian raids in the air, and when the bachelor arose to go the widow, professing fear, asked him to stay a little longer. Her presentiment seemed in truth a warning. Before long the war whoops of the Iroquois were heard, and the red light of burning houses began to shoot above the forest. Barricading the house as well as they could, the two awaited the onslaught, with two guns. The bachelor did the firing, the widow the re-loading. Now from one point, now from another the shots hurtled out upon the air, and when morning came the Indians, evidently believing the place filled with men, withdrew.

ANOTHER EXPEDITION.

Early in 1693 Frontenac determined to strike another blow at the Iroquois in their houses, and so planned an expedition against the Mohawk towns. As quietly as possible he collected 100 soldiers, 400 picked men who were experienced in the woods, and 200 Indians, and on the 25th of January the army under Courtemanche, Mantel, and La Noue, left La Prairie (opposite Montreal) on snow-shoes, dragging their provisions on sleighs.

The old Champlain route was followed, and the surprise was more complete than might have been hoped for. Village after village was taken, with comparatively little resistance on the part of the Mohawks, and although only about twenty Iroquois braves were killed, nearly three hundred, including women and children, were taken prisoners to be adopted among the villages of the Christian Indians.

As the force withdrew towards Montreal, a Dutchman named Van Epps, a prisoner of the Sault Indians brought by them to do the work of a slave, escaped and carried the news to Albany. A party at once set out, under Schuyler, to follow the French, but sent scouts ahead to negotiate on the ground that peace had been declared in Europe. The French wanted to go on, but the Indians, anxious to re-establish friendly relations with the Mohawks, refused to move. As a consequence when the pursuing force arrived, instead of a parley there was a fierce battle, and in a heavy snow-storm the French retreated, being saved only by an ice-jam on the Hudson river over which they managed to pass in safety before the perilous mass drifted on. On the way to Montreal they boiled moccasins for soup, and scraped away the snow to find beech-nuts. Several died of starvation, and many of the rest only escaped the same fate because a few of the strongest were able to reach Montreal and have food sent back. The last of the party did not arrive until the 16th of March.

HOW THE FURS CAME DOWN THE OTTAWA.

In the meantime, because the Ottawa was blocked by enemies, a great accumulation of furs had been piling up at Michillimackinac, and Frontenac now conceived the idea of having them brought down by a strong escort. Accordingly two contingents, chiefly made up of daring coureurs de bois, under D'Argenteuil and De la Valterie were sent to escort the canoes past the danger zone. The ascent was made in safety, but although on the return De la Valterie and three of his men were killed, the furs were brought to Montreal in safety. Again the impoverished town was raised to its feet, and Frontenac was hailed as the "Father of the People," and "Preserver of the country."

"Nothing succeeds like success."—At last the light of appreciation was beginning to shine upon Frontenac, for the King wrote him in praise of his repulse of Phipps, and sent him 2,000 crowns—sorely enough needed—as a gift.

But age and a strenuous life were beginning to tell upon the venerable Governor. "I have consumed all my property," he wrote to the King, asking that a post in France, "more secure and tranquil," be given him if possible. The post, however, was not forthcoming—possibly the King feared to send anyone else to replace the iron-handed Governor—and so Frontenac was compelled to stay on at Quebec, master of the situation to a great extent, yet still at odds with his old-time opponents, the Jesuits, and with the intendant Champigny, who kept writing against him to the French ministers. Nor was Frontenac unaware of the influences used against him. In 1693 he wrote to his wife in no uncertain terms, of "the cabal which is again forming against me."

At the next turn of the wheel we find Frontenac involved in an absurd social scandal, which after the lapse of so many years seems ridiculous enough.

In Quebec the winter of 1694, was unwontedly gay. With the increase of wealth in the city, and the presence of a circle of brilliant officers about the Governor, the desire for pleasure increased, and there were parties and entertainments a-plenty. At the time of the carnival plays were introduced, with the Governor's patronage, and a report was circulated that he was about to have a representative of Moliere's "Tartuffe," (a play levelled against the clergy), staged, with one Sieur de Mareuil, whose record was not approved, as chief actor.

Immediately the Jesuit clergy preached against plays in general, Mareuil was forbidden the use of the sacraments, and, finally placed in custody by the Attorney-General.

On this he wrote a petition to the Council. Frontenac upheld him and had him released, and finally the whole matter was referred to the King, who returned reprimands to all concerned, including Frontenac and Champigny.

Old as he was Frontenac still meditated a grand descent upon the Iroquois, and was making plans thereto when a chief,

Tareha, came to Quebec, with offers of peace. The Iroquois, too, had been drained by the long warfare and were sadly in need of peace and prosperity, nevertheless Frontenac recognized the necessity of preserving his independence of bearing. "My Iroquois children have been drunk," he said, with great condescension, "but I will give them an opportunity to repent. Let each of your five nations send me two deputies and I will listen to what they have to say."

Upon this the chief proposed that the French meet them and the English at Albany; but Frontenac would not listen to the suggestion. . . . A second deputation came, asking him to come and treat with them at Onondaga. Frontenac kicked away their wampum belts and replied that the council must be held at Quebec or nowhere, and that if they came back with any more such proposals they should be roasted alive.

In reply a chief Decanisora with seven deputies soon arrived. Decanisora, a fine-looking Indian, with features said to have resembled those of Cicero, spoke first with all the oratory for which he was famed, offering peace but on condition that it should include the English—a proposal to which Frontenac would not listen. Decanisora also asked for an exchange of prisoners.

Frontenac in his turn declared that he wished peace, but that it must include the western tribes about Michillimackinac. No immediate decision was reached and after much feasting the deputies were sent off gay in "embroidered coats, laced shirts and plumed hats." Frontenac kept two of the number as hostages, and the chiefs promised to return with their French prisoners. He was satisfied to know that the Iroquois had sued for peace as they had to no other governor.

The English in New York naturally were not anxious to see a separate peace between the Iroquois and Canada; hence on the return of Decanisora, Fletcher, Governor of New York, summoned a council at Albany. The Iroquois were on no account to permit the re-construction of Fort Frontenac, he said, and if they were drawn into war through this refusal he would help them. But the Indians were skeptical. The English had done nothing to help them, they declared. "We cannot fight the French alone," cried Decanisora, "because they are always receiving soldiers from beyond the Great Lake."

Governor Fletcher, however, could not give them help, nor was Frontenac slow to see what all the overtures of peace had meant—merely the securing of a breathing-space in which the Iroquois might recover for future operations. He would not accept it at such a price and the war began anew, with the Iroquois trying harder than ever to induce the western tribes to ally with them and the English and send their furs to New York instead of to Montreal.

To this end they sent secret envoys to Michillimackinac, and the French determined to make an example of one of them, who was, accordingly, tortured and killed. At Montreal a similar atrocity took place.

Frontenac now determined to re-establish Fort Frontenac, and sent 700 men to Lake Ontario to do the work. The intendant and others, fearing that it would strengthen his hold on the fur-trade, managed to draw from France an order that the work should not be done; but the command arrived too late. When it reached Fort Frontenac the walls were already repaired, the garrison in place and victualled for a year.

A LAST STROKE.

This accomplished, Frontenac resolved on a last blow at the Iroquois, and on the 4th of July, 1696, left Montreal with 2,200 men, including 500 Indians.

De Callieres was in command of the advance guard; the main body consisted of Frontenac and his staff, and four battalions of militia under De Ramezay; at the rear were more regulars under Vaudreuil.

Past the "Cedars" rapids, past the Long Sault the force made way, making a halt at La Galette (Prescott). On the 18th of July Fort Frontenac was reached, and on the 26th the flotilla reached, and on the blue water on the sped out over the blue water on the way to the country of the Onondagas. Reaching the Oswego river the soldiers

marched along the bank as far as the falls, where the portaging was continued by torchlight. Frontenac, although seventy-six years of age, had insisted on taking all the hardships of the way, but here he was carried over the portage in a canoe by fifty Indians, "singing and yelling, through the forest and along the margin of the rapids, the blaze of the torches lighting the strange procession, where plumes of officers and uniforms of the governor's guard mingled with the feathers and scalplocks of naked savages."

At Lake Onondaga a fort was built to protect the advance, and on the 4th of August the dangers began again, Frontenac, carried on an armchair, preceding the guns.

Presently in the midst of "miles of maize fields," the Iroquois capital was seen, but charred and smoking. Again the Indians had taken refuge by flight, and the troops were forced to content themselves with cutting down the maize and destroying the caches of food. A few straggling Indians were seized, and then, as before, the return march began. On the 15th the force was again at Cataragui, and the end was that the Iroquois made independent peace with the French.

In February the news came that peace had been signed in Europe, and John Schuyler arrived in Montreal with a copy of the treaty of Ryswick and all the French prisoners in the hands of the English. In return the French readily consented to free all the English and Dutch prisoners, but they would only give up the Iroquois to the Iroquois themselves, and Frontenac's last public act was to write a letter to that effect to Lord Bellomont, the new Governor of New York.

In November 1698 he fell very ill and on the 28th died in the chateau St. Louis, in his 78th year. He was buried, as he had requested, by the Recollets, to whom he left 1,500 livres for masses. The rest of his slender fortune went to his wife, to whom, also, he wished his heart to be sent in a silver case, that she might deposit it in the family vault in the old land.

"He was greatly beloved," says Parkman, "by the humbler class, who, days before his death, beset the chateau, praising and lamenting him. . . . Of the immensity of his services to the colony there can be no doubt. He found it under Denonville, in humiliation and terror, and he left it in honor and almost in triumph. . . . Greatness must be denied him, but a more remarkable figure, in its bold and salient individuality and sharply marked light and shadow, is nowhere seen in American history."

His chief work was, perhaps, that he had broken the power of the Iroquois so that they were never again very formidable, and so the French were permitted to keep their forts until their power was finally broken by the spectacular battle of the Plains of Abraham.

A School-Garden Colloquy

By A. L.

Mr. Don'tknowitall took his daily saunter past the old red school-house, and it reminded him of the grudge he held against education in all or any of its forms. Naturally this would take in the over-paid educationist who resided within. He was hereby reminded of the rumor that the children were to be taught "school gardening" or some such rot. Surely the subject needed "sitting on" by the ratepayers, for anyone with common sense could see it was only an excuse to squander time. He decided to consult with farmer Chewtherag and neighbor Faultfinder and nip the highfalutin' fad in the bud. He sought out these congenial cronies, whom he knew to be habitual kickers from principle.

He opens the subject with—"Say, what do you think of this school-garden wrinkle, or hain't you heard nothin' about it? It's time somebody put a stop to sich goin' on or she'll have them trustees hypnotized into gettin' a garden with a Page wire fence, same as she got that big salary." . . . Mr. Chewtherag says, "Jist as if we don't know enough to teach our young'uns to farm! It's an insult for any teachers to set theireselves up as an example to us farmers. Such cheek! I guess we could show them how to farm instead of us payin' them to play outdoors with

the childun' instid of stayin' in the house teachin' spellin' and figgers. What did they build the school-house for? If it weren't for them to stay in it, say? Why, it's nuthin' more than I expected after the way they gaddered round last year. Lots of noons they were ten minutes late, and they were actually an hour late three times last year, for I had Marlar time 'em 'cause I couldn't watch 'em from the back foller. Why I don't know what the world's comin' to. When I was a kid we had to mind our lessons instid of galivantin' round the country for specimens and bugs and flowers and trash. We'd git licked for makin' pictures and when we didn't know our spellins'. They never bossed me out though. I went to school winters till I was seventeen. I hated school and I wouldn't learn to spell. We didn't learn no grammar either. I don't see any sense in it yet. It only makes folks sot up agin their betters. I tell you, my Annie's a crackerjack at it. She often corrects me. She's smarter than lightning, but then she likes to go to school. It's a wonder she had time to hear 'ell of grammar runnin' round outdoors so much. I'm again this gaddin' for one."

"So am I." "Me, too," says Fault-fault. Here's Mr. Listen T. Reason, let's ask him what he's goin' to do about it. He's got a purty level head, even if he has got learnin', and I'll bet he's mad at the doin's at the school-house when his boy's goin' to try the entrance."

"They say, Mr. Reason," says Mr. Chewtherag, "that you've likely heard about this school garden. I 'spose you have, for the school ma'am says there's lots of discussion in the papers about it, and we all know you are well read."

Mr. Reason replied, "It's a good idea, I think. A well-kept garden would be a credit to the section, and the government bears nearly all the expense. You know our gardens are not all 'bowers of beauty.'"

"Are you sure, Mr. Reason, about that grant? I thought it was all bluff."

"Oh, yes, it's true enough, and the teacher gets a personal grant, too."

Mr. Chewtherag says, "That's just where the stick is. She gets too big pay already; I'm again the notion for one. The children can do their hoeing to home, and save the government the price of the grants."

Mr. Reason says, "It was necessary to recompense the teacher for the extra money and time lost in training to teach agriculture. Besides many teachers object to training the children to stay on the farm, because they do not understand the enjoyments derived from engaging in farm life. One of the fruits of their efforts in gardening is to mend this wrong impression of farm work. I've a suspicion that it is because many teachers express a disgust for cows, stables, barnyards, etc., that the children grow to look upon farm life with distaste, especially when they are surrounded by untidy, cheerless homes. I may be wrong, of course, but I'm under the impression that it was necessary for the government to induce the teachers in some material way to change the current opinion of many who undervalue the calling of the farmer."

Faultfinder says, "Teachers get enough without any special grants, but I'd rather see our section have a garden kept up by the government than see a nice one in the next section. I, for one, say—if the government wants to hand out money let's get all we can, but I'd send my daughter on to fit for a teacher if it didn't cost so much."

Says Farmer Don'tknowitall, "Here's what I don't like—for any of them women teachers to insinuate that they know how to make better gardens than we do when we've farmed all our lives." Mr. Reason says, "I know they assume a superior air sometimes, but that's the fault of the individual not of the profession, besides I'm willing to learn from anyone who can teach me, even if it happens to be a woman. I learned many things from my mother, and if some other woman may have imbibed scientific ideas that I have not I shall be glad if my boy can acquire them. You know farmers can get into a rut the same as lawyers or hotel keepers, I think anyone should be amenable to reason."

Brother Chewtherag says, "If I

thought John Wanttall: in the next section would allow a school garden on his land, just to give a city air to his premises, by powders, I'd give 'em the land myself before I'd let Wanttall get ahead of me, but I think the teacher might give back her grant to us when we pay her well, now don't you?"

Mr. Reason says, "Now, boys, when there's anything coming to us, do we give it away? Perhaps that teacher may devote that grant to a better purpose than we should; and to what extent would her grant distribute among us, decrease our taxes? A mere bagatelle! 'Live and let live,' gentlemen is a sensible maxim. They say that school gardening tends to aid in physical development, and I would rather have my boy gain a strong physique than pass the entrance and Junior Leaving, too. I'm worried about his health. He's too closely confined in pursuing most of his studies. I have noticed so many children whose health was undermined by constant application to study. Fresh air is the best medicine for them. Do you not think the eyesight of many scholars is unnecessarily injured at school and by homework when outdoor lessons and gardening would counteract the effects of hard study? Besides I understand the children take measurements, keep accounts, figure on yields, and compose essays on this line of work which makes them more methodical and practical. The children of the old style of learning did not leave school fitted to cope with the actual details of business in real life.

"Well, I'll see you again, boys, when we've more time to think the matter over, and look up results in other countries."

Hope's Quiet Hour.

The King's Work

They dwell with the King for his work.
—1 Chr. iv: 23.

"Children of yesterday,
Heirs of to-morrow,
What are you weaving,
Labor and sorrow?
Look to your loom again,
Faster and faster
Fly the great shuttles
Prepared by the Master.
Life's in the loom
Room for it—Room!
"Children of yesterday,
Heirs of tomorrow,
Look at your fabric
Of labor and sorrow;
Seamy and dark with
Despair and disaster;
Turn it, and lo,
The design of the Master!
The Lord's in the loom!
Room for Him—Room."

Yesterday I had the pleasure of attending a missionary meeting, and, of course, I want you to share my pleasure.

One of the speakers had worked for years among the Indians near Hudson's Bay, and he described scenes he had witnessed as a proof that the power of God was working through Christian missions. Here is one picture:

An old man with snowy hair—a mark of great age in an Indian—brings his Bible into camp. It looks as if it might be centuries old, yet he got it new a year before. He has read it constantly in the smoky atmosphere of the wigwam, until it is nearly worn out. The people of the Bible are his familiar friends.

Another picture.—It is Christmas morning. The missionary is preparing for the festival service when he sees a procession coming. An Indian dragging a toboggan, his wife and children tramping behind on snowshoes. They have come two hundred miles or more, from their winter hunting-ground, on purpose to attend this Christmas service.

Another picture.—The bell rings at six o'clock on Sunday morning—just an ordinary Sunday—and the whole population of the district flocks into church. The men sit on one side, the women on the other, and the church is packed. No one asks: "Why don't people go to church?" for everybody is there. The sermon is never too long for those eager

listeners. The missionary preaches until he is tired, and yet the people often refuse to go away. They are hungry for more.

Another picture.—A hunter is going away with his family for the winter hunting-season. He comes to the missionary to ask for the church calendar on which all the days are marked, with a Scripture portion to be read at family prayer each day. A safety-pin is fastened to mark the day of departure, and is moved each day. Sundays are carefully observed, and a cross marks Christmas Day, so that the Indian may know when to start on his long journey back to the mission-church for the Christmas service.

In 1851, the call of God came to a man in England to carry the Gospel to the Hudson Bay Indians. He was told that he must start in a week—for there was only one ship a year, and its departure was near—and he must get married before he started, as he would never have another chance. He fulfilled both the conditions, and had the joy of baptizing many Indians, who received the message of God's love with eager joy. The work spread in all directions—each Indian is determined to tell all he has learned—and now practically all the Indians around Hudson's Bay are Christians.

Another speaker, at the missionary meeting last night, told us something of the wonderful opportunity now inviting us in India, China and Japan. Education is becoming almost universal, and educated men and women naturally turn from the follies of paganism in contempt. It is "Christianity or nothing" for them. Either they will drift through this life, without any religion to satisfy the hunger of their souls, or they will accept Christ as their King. The young students are eager to find out the truth, and crowd in thousands to the meetings held to discuss Christianity.

We hear a great deal about world-missions in these days. The people of the Orient are no longer far away from us. Many of them are right here in our midst, and they are all our near neighbors—we read in the morning papers about things that happened yesterday in China and Japan.



Spring.

It is the King's work. The Church He planted long ago in the little country of Palestine has gone steadily forward, conquering and to conquer. It must go on until the earth shall be filled with the knowledge of the Lord, until those in darkness have seen the Light of the world.

It is the King's work—are we working with Him and for Him, or are we too interested in our own private business to care about the welfare of others?

"What can I do?" you may be saying. "I can't go out as a missionary, but must do the commonplace work God Himself has put in my hands."

If you care, you will find a way to do something. Our Lord has told us to pray that laborers may be sent out to gather in the great harvest. It is a plain command, and one we cannot say is beyond our reach. Are we doing it? Prayer is a mysterious power, and more things are accomplished through prayer than this world has any idea of. Preaching may fail to help people, but prayer—humble, faithful prayer for others—is always mighty. Your life may seem to be commonplace on the surface, and yet you may be dwelling with the King and helping His cause mightily. One day you will see what you have done—or left

undone. Opportunities of prayer come to us all—how often we waste them! Instead of getting restless when forced to wait for an appointment, and chafing at the "wasted time," we might put out the time to greatest advantage.

If a man cares about the spiritual uplift of his neighbors—cares about it enough to pray earnestly about it—he will find other ways of helping the work. Instead of feeling gloomy when he hears an appeal for funds, he will be delighted to know that in that way he may have the chance to help in working out the design of the Master.

Did you ever try the plan of taking the money you are laying aside for God, kneeling down with it in your hand, and really placing it in the hand of God to be used as He may choose? A good deal of money is poured into the treasury in these generous days, and many who are rich cast in much. But the Master's hearing is keen, and He never fails to notice when a coin of pure gold is dropped in amongst those which do not ring true. In outward appearance it may be only copper—like the widow's two mites—but real love is always purest gold. The coins are only the outward visible sign of the love which the King is always seeking, and is so glad to find.

We cannot hug our religion to ourselves without terrible consequences. The Dead Sea is rightly named, for it is a scene of desolation. What is the matter with it? Nothing but the want of an outlet. It receives, but does not give. The blood in our bodies brings life to every part; but, if the circulation be stopped, decay and death are the consequences.

A modern writer has suggested that we are often distressed if our income does not cover our expenditure, and yet it is a serious matter in religion if our spiritual income greatly exceeds our spiritual expenditure. He says: "May it not be that the Church is infirm and ineffectual to-day because its machinery is clogged by a glut of unutilized grace?"

We come to church for spiritual food—has the food our souls received last Sunday been digested and used?

We are powerless if we try to work

alone—to give out when we have not received anything from the King. Let us remember also that He uses us as He did the apostles, putting bread into our hands to carry to hungry men, women and children.

There are many noble souls here and there among the heathens, but the experience of two thousand years has proved that Christianity alone can lift national life to its highest level. Are we doing our share of the King's work?

"Let the song go round the earth—
JESUS CHRIST is King!
With the story of His worth,
Let the whole world ring!"
DORA FARNCOMB.

It is nothing to a man to be greater or less than another, to be esteemed, or otherwise, by the public or private world in which he moves. Does he, or does he not, behold and love and live the unchangeable, the essential, the divine?—George MacDonald.

The immortal soul must give itself to something that is immortal. And the only immortal things are these: "Now abideth faith, hope, love, but the greatest of these is love."—Henry Drummond.

The Beaver Circle

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

Our Junior Beavers.

Dear Little Beavers,—As the Seniors have been getting almost more than their share of space for some time, you are to have the whole Circle to yourselves to-day. I am sorry so many of you had to wait so long before seeing your letters in print, but it could not be avoided, you know. So very many little Beavers write, and each has to take his or her turn. Now, I must not take up any more space, but leave room for you.
PUCK.

Which Was Kept?

There were two little kittens, a black and a gray,

And grandmamma said with a frown,
"It will never do to keep them both,
The black one we'd better drown."

"Don't cry, my dear," to tiny Bess,
"One kitten's enough to keep,
Now, run to nurse, for it's growing late,
And time you were fast asleep."

The morning dawned, and, rosy and sweet,
Came little Bess from her nap.
The nurse said: "Go into mamma's room
And look in grandma's lap."

"Come here," said grandma, with a smile,
From the rocking chair where she sat.
"God has sent you two little sisters,
Now, what do you think of that?"

Bess looked at the babies a moment
With their wee heads yellow and brown,
And then to grandma soberly said:
"Which one are you going to drown?"
—Selected.

Junior Beavers' Letter Box.

Dear Beavers,—Here comes a little girl from the Far West who wishes to join your charming Circle. I live in the beautiful green and fertile valley of Chilliwack, sometimes called the "Garden of British Columbia."

I have lived on a farm for three years, and like it very much. I have a few pets, three cats and one dog. We have a large flock of chickens.

There are many wild flowers in Chilliwack, such as trilliums or wake robins, dog-tooth violets or adder's tongue, blue, yellow, white and purple violets, tiger lilies, and lily of the valley.

I will end with a puzzle:
Upon a hill there is a mill; around this mill there is a walk, and on this walk there is a key. Ans.—Milwaukee.
Wishing the Beavers every success.

ALICE M. SPICER (age 9 years).
Westwood Farm, Chilliwack, B. C.

Dear Puck and Beavers,—My father has taken "The Farmer's Advocate" for a long time, but this is my first letter. I am ten years old, and go to school every day. We have had lots of fun skating this winter. I should like to tell Beaver readers about a queer freak that happened one of our hens. We have been keeping White Leghorns, forty in number, but a year ago last spring we raised fourteen Black Minorcas. They all ran together, and when they shed their feathers last fall, one of the black hens turned almost white, just a few black feathers about the wings, and all the rest of her feathers are pure white. I should like to know if any of the Beaver readers ever saw anything like that.
FRANK ANDERSON.
Nabash, Ont. (Sr. II Class.)

Dear Puck and Beavers,—This is my fourth letter to your charming Circle. I milked a cow nearly all summer last year, and I was glad when she was dry. For pets, I have five guineapigs and a dog. The dog pulls me around on a hand-sleigh. How many of the Beavers like sleigh-riding? I like it fine. I also like reading. I have read "Black Beauty," "The Gorilla Hunters," "Rob-

inson Crusoe," "The Story of Undine," and "Little Men." I have started "Chatterbox." I go to school nearly every day, and am in the Third Book. I should like some of the Beavers to write to me. Well, I guess I will close, wishing the Beavers success. Your little friend,
GREGORY BROHMAN.
 (Age 9, Jr. III.)
 Ariss, Ont., R. R. No. 2.

Dear Puck and Beavers,—This is my first letter to your Circle. I live on a farm of one hundred acres. We used to live in Dover, but now we live in Chatham Township, about four miles from the city of Chatham. I go to school every day, and my teacher's name is Miss Baker. I have one mile and a half to go to school. In the winter, my brother and I go out skating with our neighbor's boys. The creek that we skate on goes by the school, so sometimes we skate to school. When we get "The Farmer's Advocate," I always turn to the Beaver Circle page and read the letters. We have taken the paper for three years, and we like it fine. Well, as this is my first letter I will close, hoping to see my letter in print.
WESLEY MCGREGOR (Sr. III.)
 Box 515, Chatham, Ont.

Dear Puck and Beavers,—This is my first letter to your Circle. My father has just started to take "The Farmer's Advocate," and we like it fine. For pets, I have a cat; her name is Tabby. I have a calf; I call it Jerry. How many of the Beavers can skate? I can a little. I like to read books. My favorite author is Alger. I will close now with a riddle.
 Who was the first whistler? Ans.—The wind.
JOHN BROWN.
 (Age 10, Class Sr. II.)
 Simcoe, Ont., R. R. No. 5.

Dear Puck and Beavers,—My father has taken "The Farmer's Advocate" for eight years, and he likes it fine. I have three sisters and one brother. My sisters' names are Hazel, Blanche and Grace; my brother's name is Floyd. He has written to the Beavers before. My letter is getting long.
FLOSSY JOHNSON (age 9, Sr. II.)

Dear Puck and Beavers,—Will you please make room for one more little Beaver. I have four sisters and one brother. My oldest sister and brother, and I, go to school. I will not make my letter too long, or into the w-p. b. it will go, so good-bye.
MADLENE BROHMAN.
 (Age 7, Primer Class.)
 Ariss, Ont.

Dear Puck and Beavers,—This is my first letter to your Circle. I am six years old and go to school. I have about a mile and three-quarters to walk. My daddy has taken "The Farmer's Advocate" for a long while, and I like to read the letters in the Circle. We live on a farm of 100 acres. We have four horses and one colt. I have one little sister. She is four years old, and we call her Irene.
JEAN MILLAR (age 6).
 R. R. No. 1, Freeman, Ont.

Dear Puck and Beavers,—This is the first time I have written to the Beavers. My father is a reader of "The Farmer's Advocate." We live on a farm half a mile from Drumbo. My father owns Gallant Roy. I go to school every day, and I am in the Second Book.
STANLEY GIBSON (age 9).
 Drumbo, Ont.

Dear Puck and Beavers,—This is the first time I have ever written to your Circle. I enjoy reading the Beavers' letters very much. My teacher's name is Helen McGregor. I like her well. I guess my letter is getting rather long, so I will close with a few riddles.
 What goes up and down and never touches the ground? Ans.—A pump-handle.
 What goes up when the rain comes down? Ans.—An umbrella.
NANCY ERB.
 Wellesley, Ont.

Fashion Dept.

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Order by number, giving age or measurement as required, and allowing at least ten days to receive pattern. Also state in which issue pattern appeared. Price ten cents PER PATTERN. If two numbers appear for the one suit, one for coat, the other for skirt, twenty cents must be sent. Address Fashion Department, "The Farmer's Advocate and Home Magazine," London, Ont. Be sure to sign your name when ordering patterns. Many forget to do this.

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7963 Draped Semi-Princesse Gown, 34 to 44 bust.



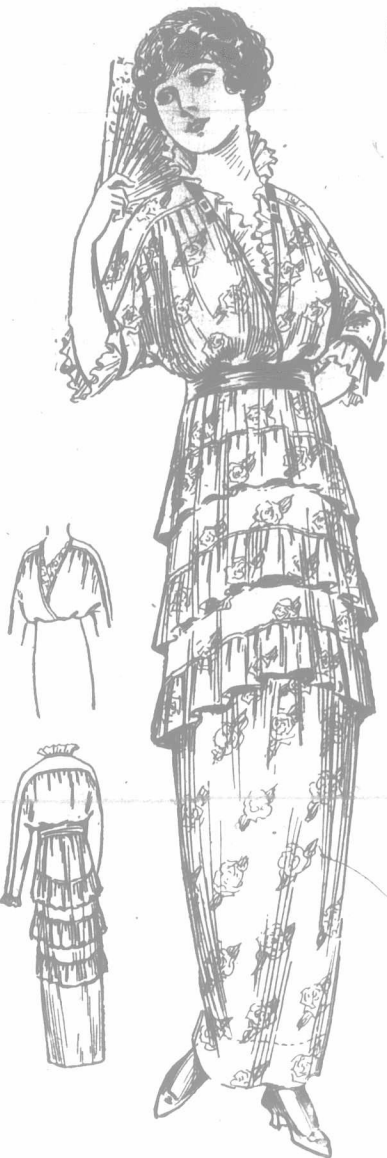
8255 Semi-Princesse Dress for Misses and Small Women, 16 and 18 years.



8258 Semi-Princesse Dress for Misses and Small Women, 16 and 18 years.



DESIGN BY MAY MANTON.
 7985 Semi-Princesse Dress for Misses and Small Women, 16 and 18 years.



DESIGN BY MAY MANTON.
 8200 Semi-Princesse Gown, 34 to 40 bust.



DESIGN BY MAY MANTON.
 8132 Fancy Blouse, 34 to 44 bust.
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DESIGN BY MAY MANTON.
8128 Corset Cover for Misses and Small Women, 14, 16 and 18 years.
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7738 Girl's Dress, 10 to 14 years.



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8244 Blouse for Misses and Small Women, 16 and 18 years.



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The New Public Health.

"The Farmer's Advocate" Bureau of Public Health Information.
QUESTIONS, ANSWERS, AND COMMENTS.

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[Questions should be addressed: "New Public Health, care of 'The Farmer's Advocate,' London, Ont." Private questions, accompanied by a stamped, self-addressed envelope, will receive private answers. Medical treatment or diagnosis for individual cases cannot be prescribed.]

The Farmer and the Fly.

THE FARM DOCTOR.

Farming has become a scientific battle against insects and weeds on the farm, as surgery and medicine have become scientific battles against other, but much smaller, animals and plants in the body. As most of the disinfectant and other methods which the surgeon uses to get rid of or kill the microscopic parasites he deals with are for the benefit of the patient, not for his own protection, so most of the farmer's efforts, applied against the larger insects and weeds, are not for his own safety, but for the safety of his "patients," the crops; whether these be crops of potatoes or crops of calves

DIFFERENCES.

But the surgeon and his patient are of the same breed, both humans; and the microscopic parasites which affect the patient may affect the surgeon also. Therefore the surgeon must constantly guard himself against the parasites that make mischief with his patients; and in all that he does for them, he must remember not to infect himself. The farmer, however, has the advantage of being of a different breed from the "patients," and, as a rule, does not fear damage to himself from the parasites he tries to destroy. In treating a field of potatoes for potato-bugs, he need not fear that the potato-bug will hurt him.

EXCEPTIONS.

There are some exceptions, of course. For instance, glanders in horses, tuberculosis in cows, rabies in any animal, are a menace to the farmer as well as to the stock. A few parasites of plants, like the brown-tail moth on trees, and ergot, of rye, are poisonous to man also. Fortunately, however, the long list of farmers' foes are not so much foes to the farmer himself as to his belongings; the housefly, which is practically harmless to his belongings, in this part of the world, being the chief insect-danger to himself, and so the chief exception among the insects.

THE HOUSEFLY HARMLESS IN ITSELF.

He is a nuisance when he walks on your face or bald head too early in the morning, or specks the walls, or flies into your mouth with a bite of food, or, as I have seen him sometimes, dims by sheer force of numbers, the light of day; but otherwise the housefly is not a bad fellow in himself. At least, he does not bite like the stablefly (many people believed, when I was a boy, that houseflies bite in the fall, although admittedly biteless the rest of the year). Nor does he sting like the mosquito; he does not cling like the tick, nor run like the roach; he is not as noisy as the cricket, or as "squashy" as the caterpillar. He does not spoil clothes like the moth, nor flour like the weevil, nor furniture like some ants; he does not sneak and hide and smell like the bed-bug. He is rather a cheerful, open, genial sort of hanger-on; the highest developed and most intelligent of all the insects, always investigating everything that comes in his way.

HIS ONE BAD FAULT.

But the housefly is like some other inquisitive and energetic, pervasive sort of folk, a great carrier of mischief, although not an originator of very much himself. "I am a part of all that I have met," the poet sings, and the fly might well respond, "Me too!" The fly is not a bad chap at heart, but "evil communi-



cations corrupt good manners." It is the associates of the fly, not the fly himself, who does harm. "A man is judged by the company he keeps," and the fly associating with disease germs is justly condemned; notwithstanding his personal good qualities (only comparatively good, of course!). Like the chronic booze-fighter who "would be such a fine man if he would only leave liquor alone," the fly who will leave disease germs alone is not so bad—but, alas, like the chronic booze-fighter, he won't "leave it alone" so long as it can be had.

THE RURAL FLY FAR WORSE THAN THE CITY FLY.

The city "soak" may become quite a decent citizen if he lives in the country, far away from a bar. The housefly's chances for mischief differ also in city and country, but differ the other way about. His special evil resorts are closed to him in town; it is chiefly in the country that he finds the poison that pulls him down from a fairly decent little citizen to a murderous bandit.

THE FLY'S RUINATION.

What the bar-room is to the toper, the outdoor non-flyproof toilet is to the housefly; a place of temporary delight, which, nevertheless, makes him quite unfit to associate afterwards with anyone.

Not every outdoor non-flyproof toilet harms him, however. The human toper cannot become dangerous by drinking in a bar which does not supply alcohol to him; and the fly cannot carry typhoid infection from an outdoor non-flyproof toilet, if there be no typhoid germs there to carry. Somebody must give the toper alcohol before he can become drunk; and someone must give the fly typhoid (or dysentery) germs before he becomes dangerous.

THE NO-LICENSE CLOSET.

The toilet which is not used by someone with typhoid or dysentery is as harmless as the bar in which no alcohol is sold.

THE FLY AS AN "INDIAN LISTER."

But since it is hard to ensure that typhoid or dysentery will not enter the closet sometimes (as hard as it is to ensure that alcohol is excluded always from a soft-drink bar) it is best to Indian-list the fly; to keep him outside the outdoor toilet entirely at all times.

Flyproofing outdoor toilets makes the country as safe as the city, in so far as fly-typhoid is concerned. The city, by its sewers, removes the dangerous discharges from the fly. The country cannot do this; but, by screens, must keep the fly from the dangerous discharges.

This is a good time to begin the anti-fly-typhoid-and-dysentery struggle which every rural district must continue, all through the summer, if it would be safe.

The really crucial measure, the very first to take of all the measures, the most essential and the most efficient, is this one:

"FLYPROOF ALL OUTDOOR TOILETS"

There are some other measures which are beneficial and helpful, and tend to keep down the NUISANCE which flies are; but this is the great way to prevent the DANGERS that may threaten. These other measures are worth knowing, however, and will be discussed in the next article.

H. W. HILL.

(To be continued.)

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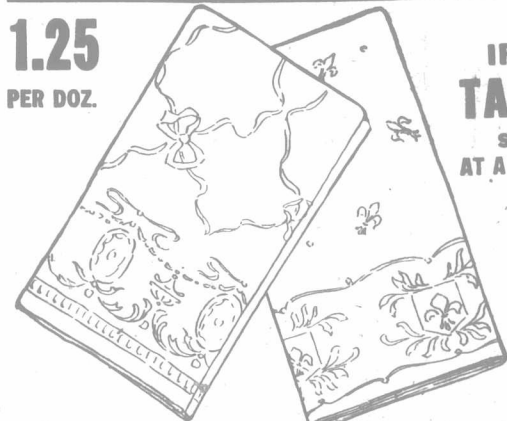


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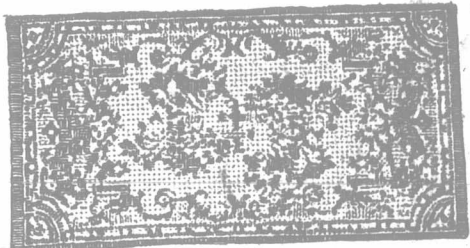
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The Roundabout Club

The Short Story Competition.

STUDY IV.

Once more it is time to close the Literary Society for the season, and once more it is a privilege to thank the members for their faithfulness and to compliment them on the excellence of their work. In doing that work they have been truly gainers, ever though not

a word of it may have been published; indeed, not among the least valued of our circle are a few who, while never gaining a single prize, have written regularly on every subject given during two or three years. Prizes truly count for little, endeavor for much, and this, we think, the students of our club have realized. One can't do the mental work required in writing an essay on a comprehensive subject without gaining some breadth of thought, some facility in expression, and so we congratulate the members of the Literary Society most of all for being true to themselves. Until the opening of the session for 1914-15, then, may our wish for all be a happy summer, a growth of all high

ideals, and best success in all wholesome emprise.

In marking the papers submitted for Study IV—the short-story competition—it was noted that several of our students failed to distinguish between a "story" and an "essay." A "story" was required.

Those who obtained highest marks are: "M. S. C.," Elgin Co., Ont., for a clever little sketch based on some real happenings in the city of Toronto; "The Mistress of Rose Terrace," Lincoln, Ont., whose contribution was a charming little love story; "Taps," Wentworth Co., Ont., who submitted a tale of the lumber

woods; and Mrs. J. H. T., Victoria Co., Ont., who sent a breezy account of a huckleberrying trip in Central Ontario. These stories will appear as space permits.

Not without considerable merit, too, were several of those that fell into second place. Particularly may be mentioned an allegory on the Seasons, by "Grit," Grey Co., Ont.; a "train" story of the West, by "Honor Bright," Halton Co., Ont.; "A Summer Outing," by Bernice, Bruce Co., Ont.; a love story by "T. R.," Nova Scotia; another by "M. E. C.," Carleton Co., Ont.; "A Great Experiment," by Mrs. W. E. Hopkins, Carleton Co., Ont.; and a humorous contribution by "Mrs. Newlywed," Lambton



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Co., Ont. Very good essays were submitted by Non. Worthy, Lincoln Co., Ont.; Annie Boyes, Simcoe Co., Ont.; and "Dufferinite," Dufferin Co., Ont.

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.]

The Return of the Birds.

Speaking of birds,—we were out a little way in the country the other day, and for the first time this year heard the meadow-larks. What a sweet, silvery piping it is, a bit plaintive, too, so that one almost feels like calling back, "Oh, dear, what do you want? What DO you want?" To which Mr. Meadow-lark might perhaps reply, like some other idle folk, "only a nestful of nestlings, and plenty of work to keep me busy."

Not so appealing is Master Robin, gay vulgarian that he is, rollicking his heart out from a fence-post, or strutting about with his breast puffed out like a pouter pigeon's, eye alert to drag out a big earthworm for his very vulgar supper, or, rather, endless series of suppers, for he rarely stops eating.

And yet who in all the year is more welcome than the first robin? I don't know when you in the country first heard him this year, but here in the city his earliest warble came to me on the 18th of March; the singer had arrived just a little too late to make his bow to St. Patrick with us. And the same morning I heard the dear little song-sparrow, whose notes John Burroughs (do you know his books?) compares to a song of faith. It was a cold, miserable enough morning, too, with plenty of snow about, and little enough promise of bird-breakfasts. I fancy the two of them had been taking shelter in a clump of evergreens, resting after their night's flight, and so ready to pipe a lusty song at nine o'clock of the day.

The song-sparrow is one of my favorites—modest little brown Quaker that he is, with a song that seems indeed filled with all innocence and trust. . . . Another is the veery, one of the thrushes, whose very name calls up the vision of a beloved, dark, old swamp, from whose fastnesses one of these very elusive songsters used to call nightly of damp June evenings, when the winds blew softly and the shadows beneath cedar and willow bush were all redolent with sweet hay and aglow with fireflies. Just at dusk he seemed to sing his best, a wild, weird jangle, as of feverish, hidden bells rung by dryads. "Taweel-ah, taweel-ah, twil-ah, twil-ah!" Professor Ridgeway has paraphrased the wild ravings, and perhaps those who best know the veery can read into the words the trill and thrill and clamor of it.

The bobolink, too, comes well up in the list of my beloved ones, undulating like a flash of ebon and silver over the timothy-heads, singing as he flies—not "twice over," but ten times over—"the first fine, careless rapture" of his overflowing heart. How he gurgles—gurgles—gurgles—faster and faster, as though piling note upon note to express his joy in "things as they are." I hope he is teaching a good lesson to the complaining meadow-lark beyond there, who is not so good a philosopher.

Then there is the little yellow warbler,—do you know his faint, liquid trilling, over and over, "I am so tiny, but oh, so sweet, so sweet"? . . . And there is the catbird, sometimes a vulgarian, too, but always a bluffer of bluffers. Disturb him and he shrieks at you until you are reminded of the Demon's Chorus; leave him alone long enough, and he will forget himself and warble a song fit for the ears of the gods. . . . He is a domestic bird, is the catbird. He loves to build within reach of the house, your house, where he can oversee operations in general, and shriek at you if you are not doing things to suit him. If you want to see him at closer range, just keep very quiet some day when he seems interested in you, and he will come very near indeed. By refusing to move a muscle, I have had him come lower and lower on

the branches of a tree until within a yard or so of my face. But numbers of birds will do this.

Very deep in my affections, too, is the pee-wee. "Pee-wee! Pee-wee!" he calls from the heart of the orchard or woods all through June, July and August, ending his song often with a broken little "peer!" He is very sweet and confident.

All these little feathered friends are very dear, yet first of all I must surely place the whitethroat. Every spring during the migrating season I listen for him, for he seems to follow the river right through the heart of the city, and I am seldom disappointed. He does not linger long here in Southern Ontario—he is very anxious to get along to his northern nesting-place,—but some fine morning at daybreak I am sure to hear his clear, musical whistle, wild, as of the very heart of the woods where it belongs. It sounds strange here among the roofs, and I strain my ears to catch every vibration of it, and think of the hundreds of songs which we heard among the endless forests of the Montreal River, the forests which are his Northern home. . . . What does he say? Why, "I—love—dear—Canada, Canada, Canada!" say some, and perhaps that is it.

It is a great treat to hear him, for as a rule we do not have an opportunity to catch the songs of the more elusive birds, even here in the Forest City. Once, however, a great surprise came to us. A whippoorwill, in the depths of the night, settled within a few feet of our open windows. I had never dreamed that his song could be so loud. It awoke everyone in the house, and some of the poor benighted folk did not even know what it was. A clangorous, metallic sort of clamor it was ("confounded racket," the man of the house dubbed it) at close range, far different from the weird, quavering complaint that comes across the fields from a distant thicket at twilight.

By the way, I have heard that this bird is called in some parts of French Canada, the "bois pourri," which means "rotten wood," "bois pourri" being the sound carried to French ears as "whippoorwill" is to ours.

Just to close, have you made friends with the birds yet? Can you call them by name? Do you recognize any of their songs? If not, try to learn a little of them this year. You will wonder at the pleasure that even a slight acquaintance will bring you, and, you know, we cannot cultivate too many interests. Life should be just brimming over with them, shouldn't it? JUNIA.

Housecleaning.

So many queries in regard to housecleaning have been pouring into the editorial-rooms of late, that it seems almost imperative to bring the question up,—and yet, surely you who are doing housework every day of your lives, have the best possible opportunity to think out methods for yourselves. Of course, that you will do so, does not always follow. We are very much slaves of habit; very prone to keep on doing things as we were taught to do them long ago when the world was younger and people not so advanced as to-day. Even five or ten years make a difference. Perhaps if we deliberately set our wits to work more than we do, we might be surprised at results.

Can housecleaning be made easy? That is the question, and to it an answer may be given which seems on the surface paradoxical—It may best be made easy by, to some extent at least, abolishing it. . . . Now that isn't much comfort to those who pin their faith to a vast, biennial domestic upheaval, is it?—a time when everything in the house goes out of it, and nobody can find anything anywhere, and "the men" are compelled to eat grouchy on a corner of the kitchen table.

Of course, a certain upset must come twice in the year, in spring, and again in fall, when cellars and attics at least have to be attended to, and a little extra polishing up follows, as a matter of course, all over the house. Painting and papering, too, at times, swamp all other considerations; nevertheless, it may be repeated that the best way to simplify housecleaning, in the vast cata-



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And when you turn it out on the damp
napkin hot and savory, and you spread the
under side with "jell"—
It doesn't get soggy or crumbly.
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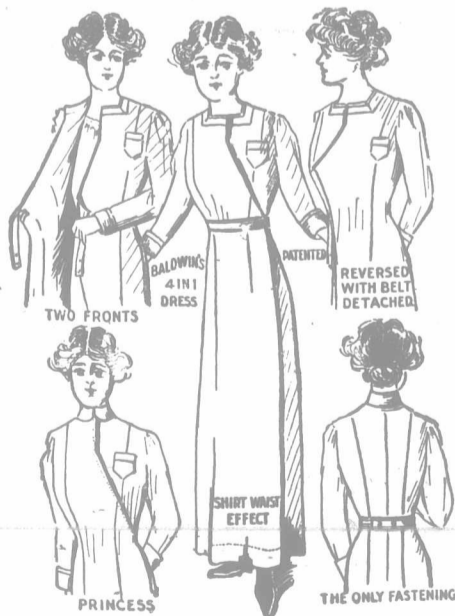
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clysmic sense of it, is by doing away
with it almost altogether.

This is easier than it seems, and the
formula may be boiled down into two
short sentences: (1) Avoid everything
that means clutter. (2) Keep things
always so clean that very little especial
"housecleaning" is necessary.

To paraphrase: Don't have a tacked-
down carpet anywhere; have stained
floors, with rugs that can be taken up
at will. Avoid long-curtains in rooms
that are in constant use—the sash-length
ones are prettier, anyway. Do away with
all "junk" that is neither useful nor
positively ornamental. Have plenty of
closed cupboards—"built-in" if possible—
to keep things away from dust; and,
lastly, provide yourself with a dustless
mop and a vacuum-cleaner. If you can-
not afford these, you can at least man-
age frilly broom-bags, made of ahaker-
flannel, which, with the application of a
little kerosene, may be transformed into
fairly satisfactory dustless mop. Of
course, doing without a vacuum-cleaner
means extra shaking and beating of rugs.
For the latter operation, a very handy
contrivance is a frame covered with poul-
try-netting. Lay the rug on top, and
beat with one of the rattan beaters sold
for the purpose.

Now, with these precautions, is it not
easy to see how little dust will accumulate
during a season? The vacuum-cleaner,
too, as has been before pointed out, is
an excellent preventive of moths.

But housecleaning of the old-fashioned
type is "on." Then don't make the mis-
take of beginning on the lower floor first
(the cellar, of course, should be done as
soon as possible). Start, rather, with
the attic, putting away in moth-proof
boxes and bags, all winter garments that
will not again be needed, and all blan-

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Address P-5

kets, heavy quilts, etc., previously washed and sunned; then work downwards through the house. Do but a room at a time, and so avoid getting everything into confusion at once. . . . And another thing—don't try to do too much "all of a heap"; strength and good temper count for more than a day or two late with the housecleaning.

If papering has to be done, do not yield to the temptation to leave any of the old covering on; two or three layers of paper and paste are quite sufficient, in damp, summer weather, to set up a fine culture of moulds and smells, insanitary as disagreeable. The old paper, too, may be removed quite easily by soaking the wall repeatedly with hot water, using a long-handled mop for the purpose. If a new wall has to be papered, it should be well coated with a size of glue water, let dry before the paper is put on; otherwise, cracking and peeling may result.

A toss-up between paint and paper for the kitchen or bath-room should come every time in favor of the paint. It is quite obvious that these rooms should permit of washing in every part as often as necessary. The floors, too, unless covered with linoleum, should be covered with a durable paint, which will only require a washing off instead of laborious scrubbing to keep it clean. Pantry shelves should be either covered with oil-cloth or painted with enamel. If not provided with doors, spring blinds may be impressed into service to keep out the dust.

When it is necessary to set stoves aside for the summer, rub them well with kerosene from time to time to prevent rusting.

Gilt frames may be cleaned by washing them with a small sponge slightly moistened with oil of turpentine. Do not rub too strongly, and leave the frames to dry of themselves. Upholstered furniture should be cleaned with the vacuum-cleaner, or beaten well out of doors, while the wooden parts may be improved as follows: "Take a soft sponge wet with clean, cold water, and wash over the surface, then take a soft chamois-skin and wipe it clean. Dry the skin as well as you can by wringing, and wipe the water off the furniture, being careful to rub only one way. Never use a dry chamois-skin on varnished work. If the varnish (if any) is defaced, and shows white marks, take linseed oil and turpentine in equal parts, shake them well in a bottle, and apply a very small quantity on a soft rag until the color is restored; then, with a clean, soft rag, wipe the mixture entirely off. To clean the windows, use any of the mixtures sold for the purpose, or use a chamois-skin and wash with warm water mixed with a little kerosene. Remove paint or putty from them by applying a strong solution of saleratus in hot water; let remain until nearly dry, then rub off with a woollen cloth.

So much for the cleaning. Now, perhaps, we may conclude by a few words in regard to "color-schemes," a question which usually comes very much to the fore at housecleaning-time. Years ago, when furnishing people bought whatever happened to strike their fancy, regardless of anything else which was to be in juxtaposition. As a consequence, a room with a blue paper, red carpet, and brown furniture, was not utterly without the realms of possibility. To-day, however, such screaming mistakes are not nearly so likely to be perpetrated. Almost every woman knows something of "color-schemes." The same tone must run through walls, rugs and hangings, or, if there is a variation, it must be a harmonious one. Colors must be soft and pleasing, not harsh and crude. Startling patterns are taboo. If the rugs show much design the walls are preferred plain, and if the wall-covering is figured the rugs are preferred plain; so balance is preserved and restful effects secured.

In a small house it is sometimes wise to paper all the rooms the same, especially those that open into one another. An effect of space is also secured by having the tones gradually lighter, producing a sort of illusion of perspective.

When purchasing paper, it should always be remembered that: (1) Dark rooms require light paper; (2) rooms where the light is cold, e. g., with a northern exposure, need the warm tones, warm browns, tans, buffs, deep creams, etc.; while those with a hot light, south or west, are better suited with cool greens, grays, and tobacco browns. Old blue is sometimes used for dining-rooms, but is not much in favor for other apartments.

(To be continued.)

TO FILL CRACKS—RECIPES.

Dear Junia,—I have never written to your Ingle Nook before, but I enjoy reading it very much, and get many helpful hints, and thought I would ask a little information too, like many others. I have a floor I want to paint, and would like to know if you could tell me what to fill the cracks with, as I think it would look much better after it is painted. Thanking you in advance, I will close with a few recipes.

Orange Cake.—Four eggs, 6 ounces sugar, 2 cups flour, 1 orange, 1 teaspoon baking powder, ¼ cup milk, ¼ cup butter. Put eggs and sugar in basin and beat 10 minutes. Add grated rind of orange, and then add flour and baking powder. Pour in milk and mix well. Bake 30 minutes. Use juice of orange for icing.

Cheese Fingers.—Cut puff paste into strips length and size of forefinger, sprinkle with a layer of cheese (grated), press upon this another strip of paste, sprinkle again with cheese, and bake in a quick oven. MRS. F. W. Wellington Co., Ont.

I have heard that fillers for cracks may be bought all ready for use. A cheap filler is made as follows: Soak shredded newspapers in a thick paste made by boiling a pound of flour in three quarts of water and adding a teaspoonful of alum. The mixture, when rubbed together, should be of about the same consistency as putty. Force it into the cracks with a case knife. It will harden, and when dry may be painted to match its surroundings.

REMOVING PAINT.

Please publish in your valuable paper the best method for removing old paint from an old, pine cupboard.

SUBSCRIBER'S DAUGHTER.

Scientific American gives the following method of removing paint: Mix 1 part by weight of American pearlash with 3 parts quick-stone lime by slaking the lime in water and then adding the pearlash, making the mixture about the consistency of paint. Lay the above over the whole of the work required to be cleaned with an old brush; let it remain 14 to 16 hours, when the paint can be easily scraped off. Wash thoroughly.

SWEET PEAS—APPLE DRESSING.

Dear Junia,—I have often thought of writing to your dear little circle. Will you allow another young stranger in? I enjoy so much Junia's letters, and the other little letters, and Peter McArthur's. Are they not splendid? I wonder how Lancashire Lass is; surely she is getting better. Hope the lovely spring weather will cheer her up. I think her letters are wonderfully sweet.

I suppose housecleaning is all the rage now. I was cleaning up the yard this afternoon, and I believe it was that got me in the notion to write to the Nook. I was thinking about my flower beds and the sweet peas. I never had any luck with them. How soon should they be planted? What kind of soil, and how deep? I will send a recipe.

Apple Dressing.—One large, tart apple (grated), white of 1 egg, 1 small teaspoonful granulated sugar, and a little vanilla. It is splendid on a jelly cake. Beat egg and apple till stiff. I have just thought perhaps there are not many people who have apples now. If they are like us, they haven't.

A friend told me the other day to peel apples and core, and boil same as for apple sauce and sweeten while hot and put in jars, and they will keep for a long while. This time of year they seem to spoil so fast in barrels. I thought it was a good idea. It was too late for my apples, but will pass it on to you. Good luck to all readers of "The Farmer's Advocate."

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Plant the sweet peas as early as possible in a trench at the bottom of which is a rich, well-prepared seed-bed. Firm the soil down very solidly both below and above the peas. As they grow, draw the earth in about the stems, and when they begin to show tendrils, provide brush or poultry-netting for the vines to climb on. Is the soil in your garden sandy? If so, that may account for your failure. Sweet peas do best on a rich, damp, yet well-drained clay loam.

In Church.

Behind the other worshippers I sat, A stranger to them all, I marked the lovely arches at the roof, The carvings on the wall, The softened lights through many a costly pane Like blessings seemed to fall.

Arrayed in rich and beautiful attire, Came many a woman fair, Who sought her quiet place among the rest, Then bowed her head in prayer. The organ's tender prelude floated forth Upon the sacred air.

Anon the chanting choir with voices sweet Broke forth in moving strain; 'Twas "Blessed are the merciful" they sang, "They mercy shall obtain." Then all the people, reverent and still, Bowed down their heads again.

But when the preacher, eloquent and wise, Chained every ear and eye, I suddenly descried him, hovering shapes That fluttered up on high, And heard, or thought I heard, a wail Or echo of a cry.

Forms perched in spectral rows on polished beams, Or flitted to and fro; No joyous twitter gushing from their throats—

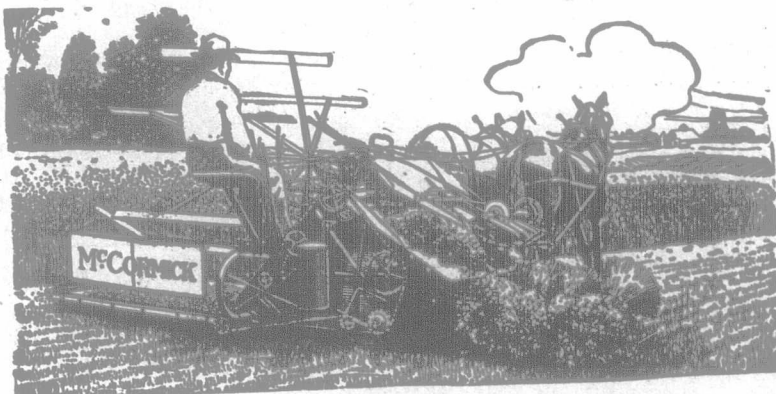
Only a note of woe. I saw they were the wraiths of martyred birds With counterparts below.

One dipping low, poised once, and then, Above a fair girl's head, I saw among the ribbons of her hat A warbler stark and dead. And she who sat beside her raised aloft A pair of wings, outspread.

Algette upon aigrette from bonnets rare Stood up in white array— The stately herons' lovely, fatal gift, With, oh, what price to pay— To leave their nestlings crying for their food, And dying day by day!

Full oft the phantom humming birds above Would fondly hover o'er

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The poor distorted remnants of themselves These gentle women bore; These women with adornments loaded down, Yet ever wanting more!

O slaughtered innocents, I heard your cry; My heart with pity stirred. 'Twas not a minister who preached that day, Oh, no! it was a bird. The sermon had no hint of earthly speech, And yet I plainly heard.

The tiny spectres folded up their wings And faded through the wall, Just as the first soprano raised her voice

Like some sweet angel's call— To sing the closing anthem; something old— About the sparrow's fall.—By Mrs. Zella Cronyn, in "Our Dumb Animals."

A BLUE RIBBONER.

A minister, walking along the street one day, saw a crowd of boys sitting in a ring, with a small dog in the center. When he came up to them he asked: "What are you doing to the pup?" One little boy said, "Whoever tells the biggest lie wins it." "I am surprised at you little boys, for when I was like you I never told a lie." There was a silence for a while, until one of the boys shouted, "Hand him up the pup!"

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The Heart of a Friend.

A heart that is glad when your heart is gay, And true in the time of cares; That halves the trials of a fretful day And doubles the joys that it shares. A heart that can cheer your heart with its song, And comfort your hour of need; A heart that is brave and faithful and strong, Wherever misfortune may lead. A heart that is yours when the way seems dark, And yours in sunshine, too; A heart that cares not for rank or mark, But only the heart of you. A heart that will shield when others abuse The name that it knows is fair, That would rather miss fortune and fame than lose The love of a friend that is dear. A heart that will hear no ill of you, But is ever quick to defend; A heart that is always true, steel true— Such is the heart of a friend. —Cornelia Seyle, in Exchange.

The Rain Tree.

One of the botanical curiosities of Peru is the rain-tree, which affords protection against drought. This tree is supplied with large leaves which have the property of condensing the moisture of the atmosphere and precipitating it in the form of rain. When the rivers are at their lowest during the dry season, and the heat is intense, the condensing capacity of the tree appears to attain its maximum, and the water falling from the leaves and oozing from the trunk in a steady, continuous stream, flowing over the surrounding soil and nourishing the parched ground. It is stated that a single tree will yield an average of nine gallons of water per day, and it has been estimated that if a plot of ground a kilometre square be planted with ten thousand trees, a daily yield of about thirty thousand gallons would be available for irrigation after making all allowances for evaporation, etc. The rain-tree appears to be indifferent as to the soil in which it grows, can stand extreme fluctuations of climate, needs but little care in its cultivation, and grows rapidly. Under these circumstances, one is inclined to agree with the writer in "Chambers' Journal," who suggests that it would provide a simple and effective method of reclaiming the desert, and that the cost of widespread cultivation of the rain-tree would be amply repaid, inasmuch as there are vast tracts of country in all the five continents which at present have no economic value, owing to absence of water supplies for nourishing the soil, which might easily be secured by the systematic culture of this tree, coupled with careful irrigation by means of ditches.

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The Killooleet.

There's a wonderful woodland singer
In the North, called Killooleet,—
That is to say Little Sweetvoice
In the tongue of the Micicete,

The tribe of the upper Wolaastook,
Who range the waterway
From the blue fir hills of its sources
To the fogs and tides of the bay.

All day long in the sunshine,
All night long through the rains,
On the gray wet cedar barrens
And the lonely blueberry plains,

You may hear Killooleet singing,
Hear his O sweet
(Then a grace-note, then the full ca-
dence),
Killooleet, Killooleet, Killooleet!

Whenever you dip a paddle
Or set a pole in the stream,
Killooleet marks the ripple
Killooleet knows the gleam;

Killooleet gives you welcome,
Killooleet makes you free
With the great sweet wilderness freedom
That holds over land and sea.

You may slide your birch through the
alders,
Or camp where the rapids brawl,
The first glad forest greeting
Will still be Killooleet's call.

Wherever you drive a tent-pin,
Or kindle a fire at night,
Killooleet comes to the ridge-pole,
Killooleet answers the light.

The dark may silence the warblers;
The heavy and thunderous hush
That comes before storm may stifle
The pure, cool notes of the thrush.

The waning season may sober
Bobolink, bluebird and quail;
But Killooleet's stainless transport
Will not diminish nor fail.
—Youth's Companion.

News of the Week

The first successful trial of wireless telegraphy between a moving train and a fixed station, was carried out on May 1st, between a train on the Delaware, Lackawanna and Western Railway Company's line, between Scranton and Stroudsburg and the railway station at Scranton.

During the week the strike disorders in Colorado developed to the proportions of an actual rebellion, so that it was necessary to have Federal troops sent to the scene of riot. On May 1st, orders to quadruple the force of Federal cavalrymen already despatched were issued from the War Department at Washington.

At time of going to press, affairs in Mexico are somewhat at a standstill. General Carranza has accepted the principle of mediation in the proposed settlement, and has announced his willingness to confer with the parties concerned. On April 29th, the mediators asked the Governments of France, Germany and Great Britain, to request President Wilson to withdraw his insistence that Huerta be eliminated from the Provisional Presidency of Mexico as a condition of peace. This the three powers have refused to do.

A change has come over the complexion of the Irish problem during the past week, owing to the admission of the principal of home rule by the London Times and by ex-Premier Balfour, who is still regarded as the leader of the Unionists. Sir Edward Carson, also, has expressed approval of a Parliament for the south, so that, as matters now stand, the question is whether there are to be two Irelands. In the meantime, as a result of the recent gun-running exploits in Ulster, military government has been established in Down and Antrim, including Belfast, with Major-General Sir Nevil Macready as resident magistrate, and it has become apparent that in the face of all opposition the Government will push the home rule bill through.

At Liberty.

Little Everett was a member of the Band of Mercy Society, and was proud of the membership. He wore his badge, a small star, as if it were a policeman's insignia, and was often heard reproving other boys and girls for cruel treatment of dogs and cats.

One morning a woman of the neighborhood heard a commotion outside Everett's home, and, going to the window, was surprised to find Everett in the act of tormenting the cat.

"Why, Everett," she called, "what are you doing to that poor cat? I thought you belonged to the Band of Mercy Society."

"I did," replied the little boy, "but I lost my star."

The Ivory Snuff Box.

By Arnold Fredericks.
(Copyrighted.)
Chapter XIV.
PRISONER.

When Grace arrived at Dr. Hartmann's that night she was so utterly astonished by the course which events had taken that she was scarcely able to think. What to do she could not even guess.

Here was her husband, the man she loved, in the power of Dr. Hartmann, and there seemed nothing whatever she could do to help him. Yet how could she go quietly to her room, when Richard might be in the gravest danger?

On the other hand, to attempt any resistance, to let the doctor know, by any action on her part, that she and Duvall were working in conjunction, would result in nothing but further disaster.

The thought flashed through her mind that by preserving her character of a patient, she might, in the morning, communicate with Mr. Phelps, and secure his assistance in obtaining Richard's freedom.

These considerations came and went in the few seconds required for the little party to enter the hall. Her husband went first.

Dr. Hartmann stood aside to permit her to follow him. Duvall turned as she passed through the door, and she heard him whisper, in a voice scarcely audible, "Say nothing."

It was the cue she desired. She extended her hand as the doctor came in. "Good night, Mr. Brooks," she said, quite calmly. "Thank you for bringing me home. I hope we shall meet again some time."

"I hope so," Duvall remarked indifferently, then turned to the doctor.

"Now, monsieur, let us have done with this farce as quickly as possible. I have no time to waste."

"Nor have I. Good night, Miss Elliott."

He nodded pleasantly to Grace as she ascended the stairs, then addressed one of the two attendants.

"Where is Herr Mayer?" he asked.

"He is waiting for you in the laboratory, Herr Doctor," the man replied.

"Good! This way, if you please."

He motioned down the hall.

"Be so good, Mr. Brooks, as to precede at once."

Duvall started off down the hall in no pleasant frame of mind. The whole affair had been bungled by his stupidity.

He passed through the door which Hartmann presently opened at the end of the hall, and found himself in a long, narrow passage, lit by a single electric lamp.

Hartmann closed the door carefully behind him, and came on down the corridor, his footsteps echoing loudly on the concrete floor.

At the end of the corridor a second door confronted them. It was opened by a tall blond man, with a reddish mustache and brilliant blue eyes.

"I heard you coming," he said, nodding to Hartmann, then looked keenly at Duvall. "So this is the fellow, eh? Where shall we take him?"

The doctor pointed to an iron door which faced that by which they had entered. Between the two doors ran a narrow corridor with an iron staircase to the left, leading upward.

"In here," he said shortly, and going to the door he opened it with a key which he drew from his pocket.

Again Duvall cursed his stupidity.

For a moment thoughts of resistance crossed his mind. Then he at once realized the hopelessness of it, and followed the doctor into the room. The tall man brought up the rear, closing the door silently after him.

The room was pitch dark when the trio entered. In a moment, however, Hartmann had pressed an electric button, and flooded the place with a brilliant light.

Duvall looked about him curiously. In that fleeting glance he noted that the room was without windows of any kind, and the smooth and white walls contained no openings whatever except the door by which they had entered. The floor, as he could tell by the feel under his feet, was of cement. The room was bare of furniture, but he perceived a number of boxes and packing-cases standing about the walls.

The instant the door was closed Hartmann sprang at the detective and grasped his two wrists. The latter had always been considered a powerful man, but the arms and shoulders of the doctor were those of a Hercules.

"Search him, Mayer," he said quickly, as he pinned Duvall's wrists together in his iron grip.

The man addressed as Mayer at once began a systematic search of Duvall's person. With deft fingers he explored his pockets, felt the linings of his clothing, tore through the contents of his pocketbook.

The opera-hat had fallen to the floor in the short struggle which ensued when the detective found himself in Hartmann's grasp. Mayer picked it up, glanced at it carelessly, then threw it angrily into a corner, where it rolled unobserved, into the shadow of a large box.

"There is nothing here," he said in a voice of keen disappointment. "He must have hidden it elsewhere."

"In his room at the hotel, perhaps. His portmanteau," the doctor said eagerly, releasing Duvall's hands and throwing him to one side.

Mayer looked grave. "I have searched everything thoroughly. It is not there."

The doctor muttered an oath. "The other—the old Frenchman?"

"He was arrested to-night on a charge of irregularity in his passport. Nothing discovered. He will be released in the morning."

"Teufel!" The doctor swore excitedly in German.

"Then the other one—the one who was in charge of Seltz. He must have it."

"No. He also has been searched, with the same results."

"May I ask what you are looking for?" asked Duvall calmly.

"You know, well enough, Duvall," exclaimed Mayer, turning on him. "Oh, yes, I know your name. The examination of your baggage showed that. As soon as I wired to London and discovered that the man Seltz had left there last night, I knew how we had been fooled. One of our men saw the snuff-box in your possession just before you left the hotel to go to the house of Mr. Phelps. What have you done with it?"

Duvall regarded his questioner calmly. "I do not know what you are talking about, gentlemen. I have no snuff-box, nor do I use tobacco in that form. And now, if you have concluded this outrage upon an American citizen, perhaps you will let me return quietly to my hotel. If you do not, I promise that you shall pay heavily for it."

For the moment his words seemed to disconcert the two men. Then Mayer laughed.

"Nothing but bluff, young man; American bluff. I know who you are. You followed Seltz here from London, and got the snuff-box from him by a trick. Now tell us where it is."

The detective smiled. "I do not know what you are talking about," he said quietly.

Dr. Hartmann growled out an oath. "Take off his things, Mayer. He may have the box in his clothing somewhere; the heel of his boot perhaps. I'll get a dressing-gown from above."

He left the room, and Duvall heard him clanking up the iron staircase.

"If you insist on removing my clothes," he said to Mayer, "I prefer to do so myself."

He rapidly stripped off his evening suit and shoes and threw them upon the floor.

The man gathered them up, feeling each article carefully, and testing the heels of the boots with a knife which he drew from his pocket. He appeared greatly disappointed at not finding the object of his search.

Then he again examined Duvall, feeling his person from head to toe with great care. He had just finished when the doctor returned with a long gray woollen dressing-gown, which he tossed to the detective.

"He's hidden it somewhere. He hasn't got it with him," Mayer exclaimed angrily.

"Take him to the small bed-room in the west wing," said the doctor. "We'll get it out of him before we're through. You can leave the clothes in the laboratory."

He cast his eye about the room to see that nothing had been forgotten. Duvall trembled, thinking of the hat lying unseen behind the packing-case in the corner. Hartmann, however, did not observe it.

Without saying anything further, he threw open the door, and they all passed into the little hall.

Duvall was led up the iron staircase to the floor above, and found himself in a large room which he took to be the doctor's laboratory.

It was dimly lit by means of a reading-lamp. He had a confused vision of a number of scientific appliances, bulking huge and forbidding in the shadows, and then was conducted through a glass door and along a corridor similar to the one through which he and the doctor had, so recently passed on the floor below. He judged from the direction they were taking that it was directly above the lower passageway, and led back to the main part of the house.

In this he soon found that he was correct. A door at the end of the corridor gave entrance to the upper central hall of the main building. He was led off to the right, catching a momentary glimpse of a woman attendant sitting in a chair near the head of the stairs as he passed.

In a few moments Hartmann paused before a door, threw it open, and turned on the lights. The detective saw before him a well-furnished bed-room, with two large windows, and another door, which he later found gave entrance to a bath-room. The dark shadows against the night light without showed him at once that the windows were barred.

He turned to the two men. "You do not intend to release me, then?" he asked angrily.

Hartmann laughed.

"You will be quite comfortable here, my friend. I am sure that a few days of complete rest will benefit your condition greatly. I imagine your trouble is merely a temporary affliction—a loss of memory, let us say, an inability to recall your name. We'll soon have you all right again. You have only to inform me where you have placed the snuff-box which you stole from my messenger this morning, and I shall know that a complete cure has been effected."

"If your friends are alarmed about you it will be quite sufficient to tell them that you are in my care. Mr. Phelps, for instance, has complete confidence in my ability. I will make it a point to explain matters to him at once. Just a trifling ailment, a disordered condition of the braincells. A week should set you right again. If there is anything you wish, the attendants will get it for you. Your clothes will be sent up from the hotel in the morning. Make yourself quite at home. I beg of you."

He turned away with a sardonic smile, and Duvall heard the key turn in the door as it closed. He glanced at the barred windows, the half-open door leading to the bath-room, and realized that there was not the slightest hope of escape.

Dr. Hartmann evidently intended to keep his prisoner until he disclosed his secret.

He smiled grimly as he threw himself upon the bed. It seemed likely that his stay would be a long one.

After a time he began to think of Grace. How cleverly she had carried out her part! It was clear that the

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doctor did not suspect her, or if he did, was unable to see where his suspicions led.

How strange it seemed to realize that she, his wife, lay somewhere under the same roof with him—possibly even in the next room! But thirty-six hours had passed since their wedding and their sudden and unexpected parting. During that time he had seen Grace but twice—once at Hartmann's office, in the morning, and the second time at the minister's, at night.

How he had longed to touch her hand, to put his arms about her, to feel his lips on hers!

Yet as matters stood, the chances of their seeing each other in the near future seemed particularly remote. He wondered if Hartmann would keep him a prisoner in his room. The morning, of course, would tell.

He switched off the lights, got into bed, and after a long time fell into a broken sleep.

Chapter XV.
FREE, YET HELPLESS.

It was late in the afternoon when Dr. Hartmann, through his man Mayer, discovered that Seltz had left London and should have appeared at his office with the snuff-box during the afternoon.

A description of Seltz, together with a curious feeling of uneasiness which he felt after the departure of the man who had introduced himself as Mr. Brooks, caused him to conclude that he had been made the victim of a clever trick, and one which only his professional enthusiasm had made possible.

He at once, set to work to locate Brooks, with the help of Mayer and his men. This was done without difficulty at the Hotel Metropole.

While the doctor followed the latter to the minister's firm in his belief that he carried the snuff-box with him, Mayer had arranged through certain connections with the Belgian police, to have Dufrenne arrested and placed in confinement over night on a trumped-up charge, Seltz liberated, and Lablanche held on a pretence of being concerned in the theft from the latter of a valuable package.

A thorough search of Duvall's baggage—Dufrenne, it seemed, had none—disclosed nothing, except certain documents setting forth that the latter was Richard Duvall, an American citizen. It was these papers, in fact, which Duvall had shown to Mr. Phelps earlier in the day.

There was nothing to indicate to Hartmann that Duvall was acting in the interests of the French secret police, but the doctor suspected it, knowing as he did that the recovery of M. de Grissac's snuff-box would become at once a matter of the utmost moment to Lefevre and his men.

Curiously enough, his momentary suspicions of Grace had largely disappeared. There was nothing to connect her with Duvall. He did not know it was she who had opened the door and admitted Seltz to his house earlier in the day—he thought that Duvall had done this himself.

Grace's manner, her conduct during the ride in the cab from the minister's house, had shown him nothing. Still he felt that she would bear watching, and made his plans accordingly.

The sun was shining through the windows of Duvall's room when he awoke the next morning. For a brief space he was unable to recognize his surroundings. Then the sequence of events came to him with a rush.

He was conscious of a knocking at the door. He sprang up and opened it. Outside stood one of the male attendants whom he had seen the night before, holding the portmanteau containing his clothes. The man placed the bag upon a chair, opened it, and withdrew.

Duvall at once proceeded to dress. He had just finished when the attendant returned with an elaborate breakfast on a tray.

He ate heartily. Evidently the doctor had no intention of starving him. Upon the table he observed his watch and seals, which he had worn with his evening clothes the night before. He looked at the watch and saw, to his astonishment, that it was after nine o'clock.

Now that he was dressed, he wondered what he should do with himself. It did not occur to him that the doctor would

do other than keep him confined to his room, yet the man who had brought the breakfast things apparently had not locked the door when he went out.

Without any clear idea of what he intended to do Duvall went to the door and tried it. To his surprise he found it unlocked, and in a moment had passed out into the hall.

The house seemed deserted. Even the attendant who had sat at the head of the stairs the night before was no longer in evidence. He went down to the lower floor without seeing any one. As he passed the door of the doctor's office on his way to the entrance he heard it open, and Dr. Hartmann looked out at him with a grim smile.

"Ah! Going for a stroll, I see, Mr. Duvall," he said, pleasantly enough. "It's a fine morning. I hope you enjoy it."

Duvall made no reply. He appreciated fully that Hartmann was only making fun of him, and realized his helplessness.

Once outside the door he paused for a moment to drink in the beauty of the morning. Straight ahead of him stretched the driveway which led to the main road.

The ornamental iron gate stood invitingly open. He went toward it, unconsciously pondering upon his situation and what he could do, if anything, to escape from it.

At the gate he paused, looking about carefully to see whether his movements were observed. There appeared to be no one near him, although along one of the paths, to the right of the house, he saw several persons walking, whom he judged to be inmates of the place.

One or two others sat on benches among the shrubbery, reading. None of them seemed to take the least interest in his movements. An empty cab passed slowly, the driver on the lookout for a fare.

For a moment the detective thought of escape; his hand came up with a jerk to signal the cabman, then suddenly he let it fall with an exclamation of dismay. He could not escape—he did not dare attempt it knowing that the snuff-box, which had already caused him so much anxiety and trouble, lay in a corner of the room beneath the doctor's laboratory.

First he must get that, before he could attempt to escape. He turned slowly back toward the house.

Then suddenly another doubt assailed him. Had not Dr. Hartmann allowed him this liberty merely to see whether or not he would take advantage of it? Would the latter conclude, now that he had failed to do so, that the snuff-box was hidden somewhere on the premises? The thought disturbed him greatly.

Still another consideration occurred to him. If he made any attempt to recover the box, would his doing so not show his captors at once that they had overlooked the hat? a chance, indeed, in a thousand. The first move he might make toward the room under the laboratory would arouse Hartmann's suspicions. A search would be made and the hat and its precious contents discovered.

Certainly he was tied hand and foot. He dared not leave the place without taking the snuff-box with him. He dared not attempt to recover it, for fear its hiding-place would thereby be discovered. He suddenly realized that he was as much a prisoner as though he were locked in a cell.

And Grace?

The thought of her caused him to glance about nervously, and in a moment he saw her coming toward him from the direction of the house. She appeared to be looking for him, yet when she saw him she seemed in doubt as to what to do. Duvall went up to her.

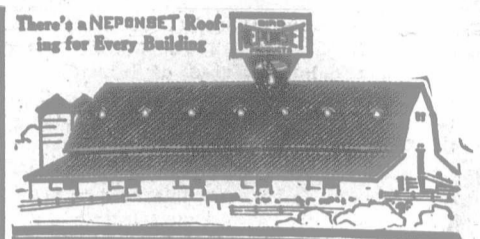
"Good morning, Miss Ellicott," he said, in a voice clearly audible within the house, were any of the windows open. He fancied he detected Hartmann's dark face peering at him from the waiting-room.

"Good morning, Mr. Brooks," she said, affecting great surprise at seeing him. "You are here still?"

"Oh, yes."

His tone was careless, but as he spoke he moved in a direction away from the house, and toward a small bench that stood beside the driveway.

"Dr. Hartmann concluded that I need-



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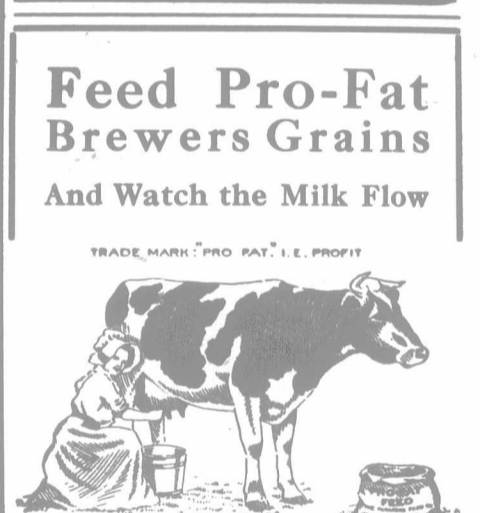
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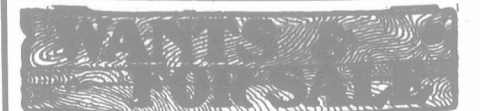
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ed treatment. I'm afflicted with loss of memory, it seems. Beautiful day, isn't it?"

She murmured some response, waiting for him to speak again.

Presently he judged the distance from the house sufficiently great. No one was near enough to possibly overhear them.

"The box is hidden in the false crown of my opera-hat," he said in a low voice. "It is in the room under the doctor's laboratory. He does not know it is there, and I don't dare try to get it for fear he will find out. If you have a chance—" he paused.

"I understand."
 "But be careful—very careful."
 "I will."

They sat down upon the bench toward which they had been headed.

"I had thought of seeing Mr. Phelps to-day and asking him to have you released," she said after a pause.

"It would be useless," he said. "I cannot go without the snuff-box."

"Shall I send word to our friends in Brussels?"

"How can you do that?"

She explained the method by means of the boy who drove the delivery wagon. He considered the matter carefully.

"Let them know that I am here, and why I cannot escape. Tell them that the snuff-box is safe—so far. Do not let them know where it is; I trust no one with that except you, dear."

The tenderness of his voice thrilled her. She longed to grasp his hand; to tell him of the love which filled her heart. Suddenly he spoke quickly in a warning tone.

"Be careful," he said. "We are being watched. That man Mayer is observing us with an opera-glass from a window of the house. Don't look at me that way. I shall leave you now. Let us meet during the afternoon."

He rose, bowed to her carelessly, and strolled back toward the house, leaving her sitting upon the bench disconsolately.

He entered the hall aimlessly, not knowing what to do next. The situation was one which taxed his resources to the utmost. No case that he had ever encountered in his whole experience offered the slightest suggestion whereby he might hope to effect a solution of his present difficulties. Courage, resource, ingenuity seemed alike useless. He was helpless.

Dr. Hartmann appeared in the hall as he entered it.

"Come in Mr. Duvall," he said, holding open the door of the office. "Suppose we have a little chat."

For a moment the detective hesitated, then decided to meet the doctor's good nature in kind.

"By all means," he replied. "You owe me some explanation of your conduct in keeping me here."

"Keeping you here, Mr. Duvall? Surely you are mistaken. The gate is open."

He waved his hand toward the lawn. "I have no desire to run away like a criminal, Dr. Hartmann. When I go I shall go in a dignified way, and take my belongings with me."

"Your belongings!" The doctor seemed impressed with the remark. "So you have the snuff-box hidden somewhere among them, have you?"

Duvall began a hasty denial, but the doctor cut him short.

"Absurd, Mr. Duvall," he exclaimed. "You would leave here quickly enough if you could take the box with you. But where you have concealed it I confess I cannot imagine. I have examined your things with the utmost care. It is not among them, of that I am certain. I gave you your liberty this morning to see whether or not you would attempt to escape. Had you done so I should have known that the box was concealed somewhere in the city, or else in the hands of your confederates."

"Now I am convinced that it is here. I thought at one time that you might have given it to Miss Ellicott. I have an idea that there is something between you, although of that I am by no means certain. But I know that she hasn't it, for last night, while she slept, her belongings were searched with equal care. The thing is a mystery to me, Mr. Duvall, and I compliment you upon your ingenuity. Had you been as wise, yesterday, as you were clever, you would have left Brussels before I discovered the trick you had played on me."

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Why you did not do so—why you foolishly remained to dine at the house of Mr. Phelps I confess I cannot see. It is beyond me.

"But all that is beside the case. You have the snuff-box—at least you know where it is. Are you going to turn it over to me or must I force you to do so?"

Duvall listened to the doctor with an impassive face.

"I know nothing about any snuff-box," he returned with a show of anger. "You are wasting your time, Dr. Hartmann. I have nothing more to say on the subject."

He turned his back and gazed moodily out across the lawn.

Hartmann regarded him with a scowl of anger.

"I give you until to-night, Mr. Duvall, to do as I ask. After that I shall be compelled to force you to do so."

The detective shrugged his shoulders and turned to the door.

"You use strong words, my friend. If any harm comes to me my government will know how to deal with you."

This threat did not seem to alarm the doctor particularly.

"Do not forget, Mr. Duvall," he said with an evil smile. "that while I know how to cure mental disorders, I also know how to create them. Good morning."

The grave threat in his words filled Duvall with uneasiness. What did Hartmann mean? Did he propose to feed him with drugs, cunningly concealed in his food, to steal away his senses, and leave him a babbling child? The thought was terrifying. Yet he had until to-night.

He decided to return to his room and think, hoping thus to evolve some plan which might prove a solution of his difficulties. In the afternoon he would communicate it to Grace, and she, in return, could send word to Dufrenne, so that the latter might co-operate with him.

He found everything in his room as he had left it, and seating himself by the window was soon plunged in deep thought.

The arrival of one of the attendants with his luncheon some two hours later woke him from a maze of profitless scheming. The problem was as yet still unsolved.

After lunch he decided to go down and have a talk with Grace. By keeping away from the house, and walking through the shrubbery he hoped to be able to talk with her more freely.

Much to his surprise he found the door of his room once more locked. He sat down with a feeling of utter helplessness. The net was beginning to close about him.

Dinner was brought in at seven, and with it a small bottle of claret. He made an excellent meal in spite of his unhappy reflections. The claret proved a welcome addition to it. On the tray was also a cigar. Decidedly the doctor was thoughtful, he reflected grimly.

Shortly after dinner he began to feel strangely drowsy. For a time he resisted the feeling and fought against it, but his eyelids seemed weighted with lead. Try as he would he could not keep his eyes open. He threw up the window, gasping at the fresh air, but it had little effect. He rushed to the door, tried it, found it locked as he had expected, then groped toward the bed and fell heavily upon it, drunk with sleep.

"It must have been the wine," he muttered to himself, and in another moment his muscles relaxed and he lay unconscious.

It was hours later when he woke and gazed feebly about him. Something hurt his eyes; annoyed him frightfully. It was some time before he realized what it was. Then he started with a cry of surprise.

He lay flat upon his back, on a hard floor, gazing upward, and in the center of the ceiling above him was an opening, like an eye, of the size of a dollar through which poured upon his upturned face a beam of light of such blinding brilliancy that its touch seemed almost to strike him like a blow.

He closed his eyes instantly and attempted to place his hand over them, only to realize with a feeling of alarm that both his arms and legs were tightly bound.

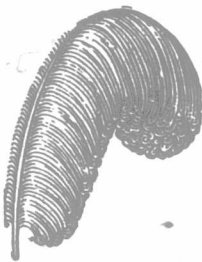
(To be continued.)

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144 Yonge St.
TORONTO, ONT.

Send me your latest Plume and Hat Catalogues. I am thinking of buying a hat or some new plumes, or of getting my old plumes dyed and made over.

NAME.....
ADDRESS.....
London Farmer's Advocate.



Get Two Millinery Catalogues Free

One is a catalogue of newest styles in hats, illustrating 20 up-to-date models; the other is a catalogue of plumes, the like of which, for style and value, you never saw before.

This handsome plume, fully 18 in. long, French curled and fast dyed, one your local milliner would charge \$6.50 for, in either Black or White, postpaid from us, \$3.95

Both are full of typical London Feather-millinery bargains. For remember, when you buy from us you save all middlemen's profits. Our prices are 50% to 75% less than local dealers.

Send Old Ostrich Plumes To Us To Be Made Over

We make them into fashionable novelties, from 75c. up. You take no risk, because if our price is not satisfactory we return your feathers at our expense.

You had better sign and return the above coupon at once.

London Feather Co., Limited
Dept. 1
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TRY STEELS TEN DAYS FREE **SAVE \$20 ON SHOE BILLS**



"The World's Greatest Workshoe"

Lighter than Leather Stronger than Leather Cost Less than Leather More Comfortable More Economical Best Health Protection Best Foot Protection

For Men and Boys Best for Farmers Stockmen Chicken Raisers Dairymen Creamery Workers Truck Farmers, Etc.

Free Ten-Day Try-on Offer

No man or boy should think of buying ANY workshoes until he SEES and TRIES my "steels" at home. My "steels" are better in every way than any all-leather workshoe or rubber boot you ever wore. I will send a pair of "steels" your size, for your Free Ten-day Try-on, without cost, risk or obligation on your part, to prove them an ABSOLUTE NECESSITY in your work.

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Over a Million men and boys wear "steels" because they are "The World's Greatest Workshoe" for field, furrow, stubble, roads, forest, stable, barnyard or cement floors; rain, mud, slush, sand, gravel, rocks, snow or ice. "Steels" are the only Light, Comfortable, Economical, WATERPROOF, Cool in summer and Warm in winter workshoes ever made. They cost less and outwear 3 to 6 pairs of best all-leather shoes. Get full particulars and Free Ten-day Try-on Offer—today, Sure.

Sizes for Men, 5 to 12

Steels 6 in. high.....	\$3.50
Steels 9 in. high, extra grade of leather, black or tan.....	5.00
Steels 12 in. high, extra grade of leather, black or tan.....	6.00
Steels 16 in. high, extra grade of leather, black or tan.....	7.00

Sizes for Boys, 1 to 4

Steels 6 in. high.....	\$2.50
Steels 9 in. high, extra grade of leather, black or tan.....	3.50

Each style of "Steels" is worth at least twice as much as the best all leather workshoe of the same height.

My "Steels" run in the same sizes as ordinary, all leather workshoes. In case of error in ordering, exchange will be made to larger or smaller size, without extra cost to you.

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It tells How to Keep Your Feet in Good Condition; Tireless, Powder-dry and Comfortable; How "steels" save your feet, your health, your money. Read my free book, "The Sole of Steel"—SEE and TRY my "steels" before buying workshoes.

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Questions and Answers

1st.—Questions asked by bona-fide subscribers to "The Farmer's Advocate" are answered in this department free.
 2nd.—Questions should be clearly stated and plainly written, on one side of the paper only, and must be accompanied by the full name and address of the writer.
 3rd.—In veterinary questions; the symptoms especially must be fully and clearly stated, otherwise satisfactory replies cannot be given.
 4th.—When a reply by mail is required to urgent veterinary or legal enquiries, \$1.00 must be enclosed.

Miscellaneous.

Summer Pasture.

Would you kindly publish, through the columns of your paper, what would be suitable to sow for a summer pasture, and how much of each? I also wish to seed the field down.

A SUBSCRIBER.

Ans.—We can advise nothing better than Prof. Zavitz's annual pasture mixture of 51 lbs. of oats, 17 lbs. of Early Amber sugar-cane, and 7 lbs. of red clover. If properly cared for, the clover will come on next year for a crop, and if it is desired to sow timothy, this could be added next fall.

Railway Crossings.

I am having some difficulty with the railway in regard to two railway crossings. About ten years ago we purchased a farm with a farm crossing, also a lane about four rods wide on the opposite side of the railway, which runs to the public highway. Subsequently we purchased the adjoining farm, which also has a farm crossing, but we did not buy the lane on the opposite side, but the party from whom we bought the place, deeded us the right to cross through the lane to the public highway. He still owns the land on the opposite side of the railway to us. In regard to the first crossing, the railway authorities have closed it up. Now, I would like to know if we owned enough land on the opposite side to hold the crossing, and if we did, I would like to know what steps I should take to make them open it up again? In regard to the second crossing, they have intimated to me that they intend to close that one also. I would like to know if they can do that. We do not own the lane, but we have been deeded the right to cross. I would like to know if a farmer can have more than one farm crossing.

W. G.

Ans.—We refer you to the Dominion Railway Commission. Write the Chairman or Secretary of the Commission, Parliament Buildings, Ottawa.

Pumping Water—Corn Smut.

1. I have a large, tile drain, which empties about 15 rods from barn, and runs nearly all the year round. Where it empties, it is about four feet deep, and there is a fall of about three feet from the barn, which would make it seven feet lower than the stable floor. If I dug a cistern near the drain, and tapped drain into it, would I be able to draw the water with a pump that far, or would it be likely to give trouble? I would be sure of a constant supply of water if it would work.

2. I purchased some seed corn last year, a new variety, and there was a great deal of smut on it. Will the seed I saved from that corn be affected, or could it be treated to prevent smut this year? If so, kindly give directions.

3. Would there be any use sowing orchard grass on old pasture knolls that have got mossy?

SUBSCRIBER.

Ans.—1. A pump would draw the water, but it might work rather hard, and would not deliver the water very fast. Is there water enough to make a hydraulic ram practicable? If so, this would give you an automatic pump and a continuous supply. Of course, it could be forced up by engine or windmill. The hand-pump would work, but would require some energy in pumping.

2. It has been conclusively demonstrated that the fungous is not conveyed to the new crop in the seed, nor on the seed.

3. It might do a little good, but it would be better to work up the knolls and get rid of the moss first.

Was Abe Martin getting a sly drive at us or the hired man when he observed that after some fellers get up in the morning the heaviest part of their day's work is done.

The Best Grocers Everywhere Recommend PURITY FLOUR

Because PURITY holds the confidence of hundreds of thousands of home-cooks throughout the Dominion—housewives who have proven by actual baking that it is the best all-round, every-purpose flour they can buy.

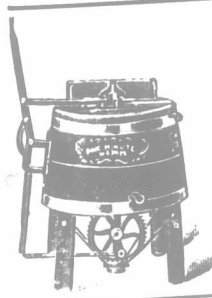
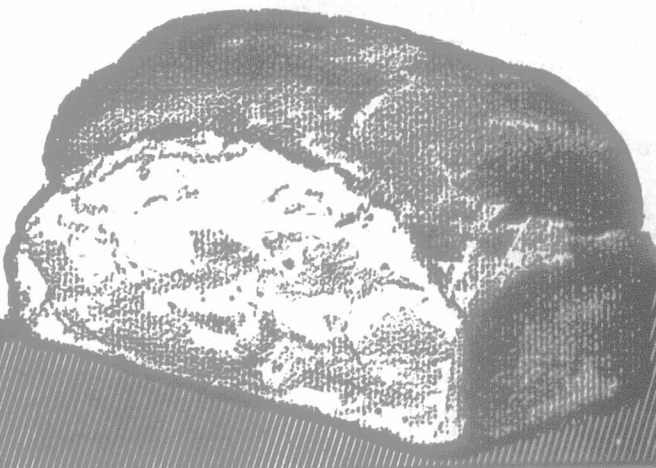
Now, we want women everywhere to give PURITY FLOUR an honest trial—to test it thoroughly and to do so at our risk. We have authorized the Grocers of Canada to sell PURITY FLOUR on a straight money-back guarantee.

We believe that PURITY FLOUR makes more nutritious Bread and more of it than you can make with any other flour—that PURITY will make better buns, pies and cakes than you can make with the same amount of any other flour, and—you are to be the sole judge of these claims.

Order a sack of PURITY from your Grocer to-day. You will get your money back if it does not give absolute satisfaction.

PURITY FLOUR

"MORE BREAD and BETTER BREAD" and—
BETTER PASTRY
 too.



One Minute Washer

Best Machine Made—Easy to Operate
 Washes Clean—Moderate in Price

Write to-day for Catalogue

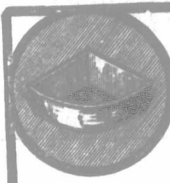
ONE MINUTE WASHER COMPANY, Toronto

Cream Wanted

We pay express charges on cream from any express office within 200 miles from Ottawa. We also supply cans. Sweet or sour cream accepted. Write for particulars to
Valley Creamery of Ottawa, Limited
 Ottawa, Ontario

CREAM


Toronto consumes the milk and cream from over 14,000 cows, and the butter production of over 70,000 cows. We need your cream, and expect to pay well for it. Drop a card.
The Toronto Creamery Co., Limited
 Toronto, Ontario



STEEL CORNER GRAIN FEED BOX
 of heavy steel, well-riveted and braced. Clean, sanitary and very durable. Well finished. Price \$1.25 each F.O.B. Tweed. Write for catalog.
The Steel Trough and Machine Co., Ltd.
 Tweed, Ont.



Please mention "The Farmer's Advocate."



"My kingdom for a horse," proffered a defeated monarch. But the modern man gets an infinitely better means of transportation--at lowest cost--when he buys a sturdy Ford. The economical Ford has made the horse an extravagance at any price.

Six hundred dollars is the price of a Ford runabout; the touring car is six fifty; the town car nine hundred--f.o.b. Ford, Ont., complete with equipment. Get catalogue and particulars from any branch, or from Ford Motor Co., Limited, Ford, Ont., Canada.



"LIGHT RUNNING"

That, together with close skimming, which is guaranteed in the *Empire*, is the point to look for in a separator, because light running means more than simply ease of turning the crank. The enemy of the separator is friction and light-running means absence of friction--and that means long life for the machine.

Among the reasons for the light-running of the

EMPIRE DISC SEPARATOR

It has fewer moving parts and fewer bearings, its bowl is 20% lighter than others, it has a unique, exclusive, three-ball bearing supporting the bowl spindle. This three-ball bearing is found only on the *Empire*--it supports the bowl on a bearing that is practically frictionless and yet keeps it perfectly centered--something that is impossible with any other bearing in use.

Mail the coupon attached for our booklet on separators and learn more of these exclusive *Empire* features. A liberal allowance will be made for your old machine on the price of an *Empire*.

The *Baltic* separator, the smallest of which sells at \$15, fills the needs of very small dairy herds.

Would you like information about the famous "Sta-Rite Gasoline Engine?"--"They start right and Sta-Rite."

There is still some unoccupied territory in which we would like to secure agents--write us.

The Empire Cream Separator Company of Canada
Limited
TORONTO CANADA

Name _____ Address _____
Send Book on
Empire Separators
Baltic Separators
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WATER! WATER!

Portable Well-Drilling Machinery and Well-Drilling Tools

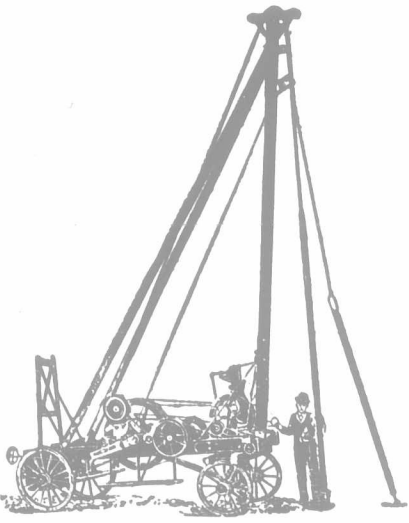
The Most Successful Drilling Machine Ever Operated in Canada

Perfect pipe driving and pipe pulling attachments.

Catalogue and full particulars on application. Local agents wanted.

\$6,700 in six months earned with one of our machines.

Well casing carried in stock.



Listowel Drilling Machine Co.
LISTOWEL, ONTARIO

When writing advertisers please mention this paper.

Questions and Answers.
Miscellaneous.

Cement for Wall.

Will you please give me, through your columns, how much sand and cement I will require to build a cellar 12 x 24 feet, eight-inch wall and seven feet high, and required amount of cement to mix?

D. P.

Ans.—Mixing one to eight, it will require nearly three cords of sand and gravel, and about eleven barrels of cement.

Double-inch Silo Queries.

I read W. J. Galbraith's article, "How Silos are Built in Simcoe County."

1. I would like to know how wide they cut the lumber for sheeting?
2. Must the lumber be real dry?
3. Do they tar paper or paint? Will it be air-tight without it?
4. How are the doors put in; how far apart, and are they cut out after silo is built?
5. How far apart are hoops?
6. Would lighter material do when silo is built in barn?
7. Where the earth is hard and dry, will it do for floor in pit?
8. Will a stone foundation do as well as concrete? I intend to sink it in ground four feet.

R. J. M.

Ans.—1. Lumber is cut no particular width. Have seen all widths used, including quite wide stuff. It can be more conveniently put on, however, if of medium width, say fifteen inches at the most.

2. The lumber should be as dry as possible.

3. No tar paper or paint is used for the purpose of making silo air-tight. Paint may be applied to outside of silo, and to hoops, if desired, to improve its appearance and protect it from the weather. Some recommend making the hoops some time beforehand and painting them thoroughly inside and out with coal-tar.

4. The doors are continuous from bottom to top, the outer sheeting being left out the desired width, and the inner or second course so applied as to be not flush with the outer course at the two edges of the opening, but left back about one inch at each side to receive the doors. The doors are made of double-inch, extending from the center of one hoop to that of the next, excepting at the bottom, where hoops are closer.

5. Hoops are spaced between center about two feet apart at the very bottom, spaces being gradually increased until the hoops are about four feet apart at the top, taking care to have a hoop exactly over every end joint in the sheathing, whether in the outer or inner courses.

6. Would not advise lighter material even if built in barn.

7. Hard, well-drained earth, or stone foundation, would answer very well for a floor.

8. The underground portion should be of stone or concrete, as lumber would very soon decay.

W. J. G.

Remarkable Challenge.

ENGLISH CLOTHING FIRM OFFERS MAN'S SUIT FOR \$4.50.

A well-known English Clothing company, H. Thomas & Co., 142 Grays Inn Road, London, W. C., Eng., seems bound to become as highly popular in the Dominion as they are in Great Britain. Everybody knows H. Thomas & Co. in England for the remarkable prices they quote in Gents' wear. On page 923 readers should note the firm's advertisement, "Gents' Suit (Jacket, Vest and Trousers), \$1.50 delivered free to you; no more to pay." Look up the advertisement on page 923, and write for free patterns and fashions to their Toronto branch.

THIS WASHER MUST PAY FOR ITSELF

A MAN tried to sell me a horse once. He said it was a fine horse and had nothing the matter with it. I wanted a fine horse, but, I didn't know anything about horses much.

And I didn't know the man very well either. So I told him I wanted to try the horse for a month. He said "All right, but pay me first, and I'll give you back your money if the horse isn't alright."



Well, I didn't like that. I was afraid the horse wasn't "alright" and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse, although I wanted it badly. Now this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about the horse, and about the man who owned it.

But I'd never know, because they wouldn't write and tell me. You see, I sell my Washing Machines by mail. I have sold over half a million that way. So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them, just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tub full of very dirty clothes in six minutes. I know no other machine ever invented can do that without wearing the clothes. Our "1900 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it don't wear the clothes, fray the edges nor break buttons, the way all other machines do.

It just drives soapy water clear through the fibres of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back and pay the freight, too. Surely that is fair enough, isn't it?

Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months in wear and tear on the clothes alone. And then it will save 50 to 75 cents a week over that on washwoman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 50c a week till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line to-day, and let me send you a book about the "1900 Gravity" Washer that washes clothes in six minutes.

J. C. MORRIS, Manager 1900 Washer Co.,
357 Yonge St., Toronto, Ont.

PEERLESS INCUBATORS AND BROODERS

Canadian made hot water machine; self-regulating; copper tanks; strong double walls; ten year guarantee.

PEERLESS BONE CUTTERS

Automatic positive feed; — practical in design — strongly built; — best on the market.

PY-CO POULTRY SUPPLIES

Poultry food; roup cure; lice powder; diarrhoea remedy; tonic tablets; disinfectant; sulphur candle, etc.

LEE MANUFACTURING CO. LIMITED
PEMBROKE ONT. LIMITED

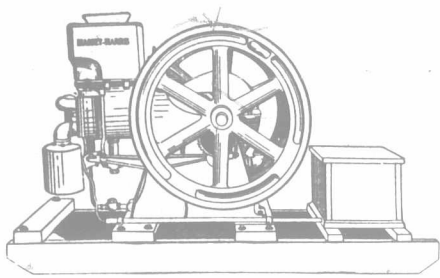
STAMMERERS

can be cured, not merely of the habit, but of its cause. The Arnott Institute has permanently restored natural speech to thousands—is doing it to-day. Write for full information and references to:

THE ARNOTT INSTITUTE
Berlin Ontario, Canada

FOR SALE

Power Spramotor (London make), slightly used.
T. S. SHANTZ, - - - - - Baden, P. I.



A Reliable and Economical Source of Power

A MASSEY-HARRIS ENGINE mounted on Skids can be moved around to any place where you need help in the way of power.

You will be surprised to find the many uses to which it can be put and the small cost as compared with manual labor, not only around the farm but in the dairy and kitchen, where it does so much to lighten the work of the women on the farm.

And perhaps the most interesting part of it is that an Engine costs nothing in "salary" or "keep" when not running.

Our Catalogue "Farm Power" gives many suggestions for Saving Labor.



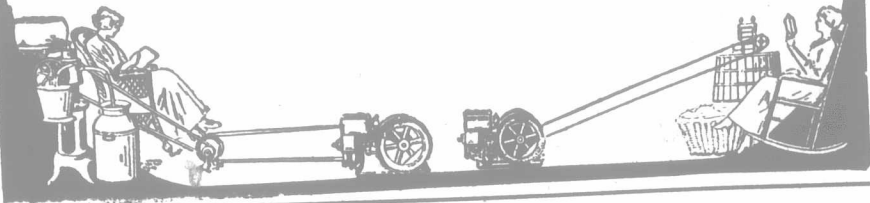
MASSEY-HARRIS CO., Limited.

Head Offices—Toronto, Canada.

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Special Low Prices on

STANDARD FENCE

This year you can buy high-grade Standard Fence at lower prices than ever before—prices no higher than you have been accustomed to pay for lower grade, lighter guage fence.

In order to take full advantage of this opportunity, write us at once, telling us how much fence you need, and what you need it for. We will send you a special quotation by return mail, together with our very useful fence catalogue.

Don't delay, because we are making better terms on Standard Fence than ever before. Address:

Standard Tube & Fence Co., Limited
Dept. A. Woodstock, Ont.



STANDARD FENCE

"ROSS"
CADET
RIFLE



THE NEW ROSS SELLS AT \$12.00

The ROSS CADET RIFLE is a new .22 calibre rifle, made specially strong, and accurate, and absolutely safe, to meet the Government's requirements. It fills with delight the heart of every youth who owns one, and is quite good enough for any man to take with him on camp or trail, unless he is after big game—for which, of course, the other models of "ROSS" Rifles should be secured. The ROSS CADET RIFLE shoots .22 shorts or longs, or 22 long-rifle cartridge, and with its novel adjustable peep and globe sights, for which no extra charge is made, secures an accuracy quite beyond that of other 22 calibre rifles. The price is only \$12. If your dealer cannot show one, write for illustrated catalogue. We send it free.

THE ROSS RIFLE COMPANY, Quebec

Corn Planter Cannot Count.

Though almost human in the way it does its work, the corn planter cannot count the kernels of corn that go into each hill. This the corn grower must do in the adjustment of his planter plates before it is taken to the field. After the seed corn is germinated to test its vitality, it should be shelled by hand, butt and tip grains discarded and graded for size of kernels. The grading for size of kernels can be done by means of sieves, into large, medium, and small sizes, and then a suitable planter plate used for each size kernel. To make sure that the corn planter will drop the desired number of kernels to the hill at least 90 times out of 100, it should be blocked up on a clean floor and operated by hand. Plates with different-sized openings should be tried out until a pair is found that will drop the desired number of kernels every time. If the plates do not work properly, they must be filed or drilled until they will. As a rule, a little adjusting is all that is necessary to give the desired number of plants to the hill. On the other hand, a poorly-adjusted planter may easily offset the advantages to be derived from well-selected and tested seed.

When to Apply Lime.

"The best time to apply lime," says M. A. Bachtell, of the College of Agriculture, Ohio State University, "is during the preparation of the seedbed for corn. The thorough cultivation of this crop mixes the lime with the upper soil. By the time clover is sown on that soil, the lime has changed it from a sour to a sweet condition. The time for applying lime, however, admits of wide variation. Usually a busy spring compels the farmer to spend his time in getting ready for the season's planting. If liming is neglected, it can be done at the time of the preparation of the seedbed for wheat. Lime should not be applied to the surface and immediately plowed under, as this tends to place it too far from the surface, where it is needed. Neither should the caustic forms (hydrated lime and quicklime) be applied in connection with manure and fertilizers. It is better to plow the manure under, and put the lime on top of the soil. In case the manure is desired for top-dressing, the lime should be worked into the soil at least two weeks prior to application of manure. Likewise, it is well to apply the lime some time previous to commercial fertilizers."

Trade Topics.

We direct attention to the advertisement of the W. A. Jenkins Manufacturing Co. in this issue. This firm manufactures the stock and poultry specifics known to the trade as "Royal Purple." They have recently commenced the manufacture and sale of Royal Purple calf meal for calves, fed without the use of whole milk, and to give a demonstration of the value of the meal, are offering a cash prize of \$50 to the owner of the best Ontario-raised calf, fed on this meal, and shipped to them for the Toronto Exhibition. Readers wishing further information about the contest may write the company direct.

The eleventh annual auction of Shorthorns from the herd of Bellows Bros., Maryville, Missouri, was a success. The top price for a bull was \$805, for Silver Goods, a roan two-year-old son of Superb Goods. The seven-months-old bull calf, Butterfly's Best, sold for \$605. The highest price for a female was \$610, for the six-year-old, Grace Germanica. The 44 head sold averaged \$314.

Attention is directed to the advertisement in this issue, as in last, of the auction sale, on May 14th, of 50 head of choicely-bred Shorthorn cattle, property of E. V. Norton, Coaticook, Quebec, on the main line of the G. T. R., between Montreal and Portland, twenty miles south of Sherbrooke. The offering consists of cows with calves at foot and due to calve, heifers, and young bulls suitable for service this spring. The terms are easy and liberal. See the advertisement on page 934, and write for catalogue, mentioning "The Farmer's Advocate."

The New Flavour H.P. Sauce from England

H.P. is used on the dining tables of the British and Canadian Houses of Parliament.

You can easily tell H.P. — there's a view of the Houses of Parliament on every bottle of the One and Only H.P. Sauce.

You can get H.P. at the local stores.

Don't Take Chances on a Poor Grindstone

Don't spoil your knives, axes, hoes or cutter-bar blades on some soft-spotted, lopsided, cheap stone. That's not economy!

Here's a good stone—the CLEVELAND "STERLING." Guaranteed to wear evenly, grind quickly and put a keen edge on. Made of the only Berea rock, exactly the right grit for farm use. Durable, well-made steel frame. Works like a bicycle—and just as easy. Every stone personally selected by our expert judges.

CLEVELAND Grindstones

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INTERNATIONAL AGRICULTURAL CORPORATION
Caledonia Marl Branch 827 Marine Bank Building, Buffalo, N.Y.

The 1913 Crop of High Quality.

A bulletin issued April 20 by the Census and Statistics Office, reports on the proportion of grain of last year's harvest that proved of merchantable quality, and upon quantities in farmers' hands at the end of March, 1914, the report being based upon returns by crop-reporting correspondents on March 31. Of the total estimated production of wheat in Canada in 1913, amounting to 231,717,000 bushels, 224,810,000 bushels, or 97 per cent., proved to be of merchantable quality. This is a larger proportion than in any previous year since estimates were first obtained in 1910, and bears out the known results of last year's excellent ripening and harvesting season in the Northwest Provinces. The corresponding percentages in previous years were 92.87 and 94. By Provinces, the proportions are lower throughout Eastern Canada, being about 87 per cent. for Prince Edward Island and Nova Scotia; 90.5 per cent. in New Brunswick; 90 per cent. in Quebec, and 91 per cent. in Ontario. In British Columbia the proportion was 85.6 per cent. About 16.5 per cent. of the total Canadian wheat crop in 1913, is reported as remaining in farmers' hands at March 31, 1914, this proportion representing 38,353,000 bushels. This, too, is a lower figure than in any previous year, and is consistent with the high records of inspection and shipment. Of the total oat crop of 1913, amounting to 404,669,000 bushels, 94.58 per cent. is estimated to have been of merchantable quality, representing 382,754,000 bushels. Only in Prince Edward Island (87.7 per cent.) and Nova Scotia (86.8 per cent.) did the proportion fall below 90 per cent. The figures for 1913 are the highest on record. The amount in farmers' hands at March 31 is placed at about 40 per cent., or 161,537,000 bushels, the proportion of the 1912 crop on hand in 1913 being 44.22 per cent., or 173,178,000 bushels. Barley, the total yield of which was 48,319,000 bushels, proved of merchantable quality to the extent of 46,185,000 bushels, or 95.58 per cent., the proportion in previous years being 87 per cent. (1912), 90 per cent. (1911), and 92 per cent. (1910). The quantity remaining in farmers' hands on March 31 was about 30 per cent., or 14,440,000 bushels, as compared with 17,289,000, or 35 per cent. of the 1912 crop on hand at March 31, 1913. Of other crops, corn for husking proved of merchantable quality to the extent of 78.8 per cent.; rye 90.9 per cent.; buckwheat 82 per cent.; flaxseed 94.8 per cent.; potatoes, 82 per cent.; turnips, etc., 81 per cent., and hay and clover 88 per cent. The quantities of these crops on hand at March 31 were estimated to be: Corn 4,308,500 bushels; flaxseed 2,295,000 bushels; potatoes 27,426,000 bushels; turnips, etc., 11,230,000 bushels, and hay and clover 2,675,000 tons.

Live stock have generally wintered well, and are reported as being, on the whole, in excellent condition. The spring appears likely to be rather late in the Eastern Provinces of Canada, but in the West the ground was reported as generally in good condition after a mild winter. It was anticipated that seeding would begin about the middle of April under favorable conditions as regards soil.

Gossip.

At the Aylesbury, England, Jersey cattle sale the first week in April, thirty head averaged \$140, the highest price for a cow being \$425. Conspicuous among Canadian visitors importing Jerseys was W. Ray, of Toronto, who sails soon with a personally-selected herd of some twenty-five head.

At an auction sale on April 16th and 17th, the entire Brookmont Farm herd of Hereford cattle, owned by A. E. Cook, Odebolt, Iowa, numbering 188 head, the 161 females averaged \$158 and the 24 bulls an average of \$287, the highest price for a bull being \$1,210, for the two-year-old, Howard Fairfax, and the next highest \$1,110, for Dale Fairfax, calved September, 1911. The highest for a female was \$400, for the twelve-year-old, Sylvia, and the 188 head offered, sold for \$32,620, an average of \$184.

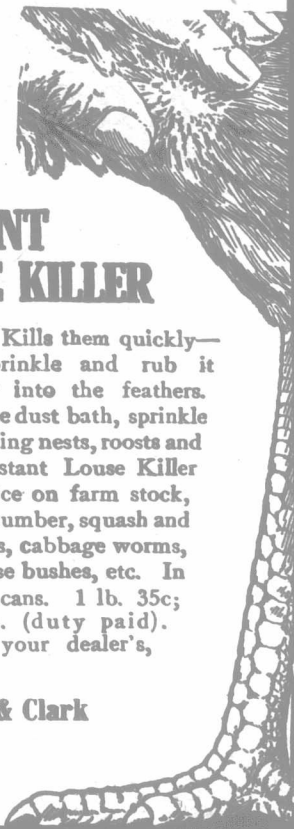
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Through Pullman Tourist Sleeping Cars to WINNIPEG on above dates, leaving Toronto 11 p.m. No change of cars.

RETURN LIMIT TWO MONTHS

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Immense yields were reported in nearly every instance where White Wave was sown last season.

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IMPERIAL OIL CO., Limited**

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Regina Vancouver Toronto Montreal

Gossip.

ONTARIO'S PREMIER HOLSTEIN HERD AT AUCTION.

What will be the crowning event of Holstein auction sales, where the highest-producing lot of cattle as a herd, to be sold to the highest bidder that has ever been held in Ontario, will be the complete dispersion of the noted Manor herd of Gordon S. Gooderham, at Manor Farm, Bedford Park, Ont., on Tuesday, May 26th. Mr. Gooderham has sold the farm, and the ambition and energy of his life to get together the best and most uniform lot of official-record Holsteins will certainly go under the auctioneer's hammer. All told, there are 60 head, 53 females and 7 young bulls from calves up to eight months of age, sons of Prince Hengerveld of the Pontiacs, a brother of the world's champion cow, K. P. Pontiac Lass, record 44.18 lbs., and 81 other A. R. O. sisters, 12 of them with records averaging 27.82 lbs., and 37 others from 20 to 25 lbs., sired by the great King of the Pontiacs, he by the greatest sire the breed has ever known, Pontiac Korndyke, with 79 A. R. O. daughters, 11 of them over 30 lbs. The dam of Prince Hengerveld of the Pontiacs was Pietertje Hengerveld's Fraulein, sired by Pietertje Hengerveld's Count De Kol, with 98 A. R. O. daughters, 10 of them averaging over 30 lbs., and 36 others over 20 lbs. He has also 44 A. R. O. sons. Young herd-headers from such a sire as this, and out of females to be sold, 16 of them with records from 20 to 29 lbs., 6 two-year-olds over 16 lbs. and up to 20 lbs., 5 three-year-olds from 20 to 26 lbs., make them particularly desirable. Look up next week's issue for fuller particulars, and write for catalogue.

HUME'S AYRSHIRES.

Numerically, the famous official R. O. P. and prize herd of Ayrshires owned by Alex. Hume & Co., of Menie, Ont., have been stronger in past years than now, due to the extensive demands made on the herd for breeding stock, extending from the Maritime to the Prairie Provinces, as well as to the country of the Stars and Stripes, but never before did the herd present so uniform an appearance. Practically every one in milk has qualified for the official records, and 7,000 lbs. for two-year-olds; 10,000 lbs. for three-year-olds, and 11,000 lbs. for mature cows, are the ruling averages of production. The remarkable levelness and universal excellence of type of the daughters of Imp. Hobsland Auchenbrain Hercules, as well as the splendid records being made by them, stamp him as one of the great sires of the breed, and more interesting to intending purchasers is the fact that one of his sisters now in the test in Scotland, is expected to make a new world's record as a three-year-old. All this, coupled with his great show-ring record, make his get particularly attractive. One of his sons, Humeshaugh King, was first at Toronto last fall, and his dam, one of the best producers in the herd, is also a Toronto first-prize winner. This young bull is for sale. Prominent among the many high-class cows in the herd is Imp. Bellsland Nan 4th. In 1912, she was second at Toronto, first and grand champion at London; last fall at Toronto she was again second, and at the Toronto November show she was champion in the dry class. She started in the test on the 5th of January, 1914, and up to the first of May has given 6,250 lbs., and is now giving 50 lbs. a day. Three of her daughters are now in the herd, and the two oldest look like more than equalling her great production. Another great cow is Imp. Clerkland Kate, winner of first and grand championship at the Toronto November show, a big, level cow, carrying a grand udder. Several bull calves got by the old bull, as well as a number of his daughters, all out of record dams, are for sale, as well as older ones of both sexes. In Yorkshires, Mr. Hume is offering one seven-months-old hear and a couple of choice young sows of the same age.

ONE SIGN.

"They tell me that woman is a gossip. Do you think she is reliable?"
"I know that whatever she says goes."

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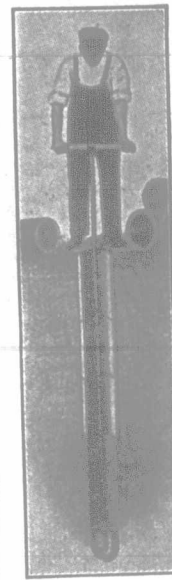
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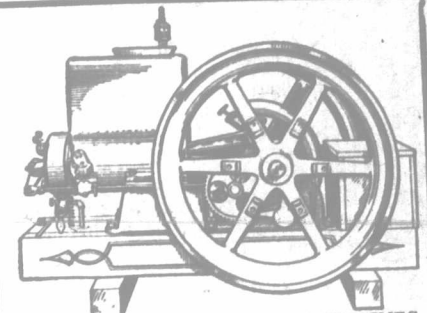
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The stockman, and more particularly the dairy farmer, has to keep a sharp lookout for caked udders, for he knows how seriously trouble of this kind is likely to affect the milk production of his herd.

Mr. W. Robinson, of Ituna, Sask., does not worry about it any more, however, for he has found a quick and certain cure.

He says: "I have used your Egyptian Liniment with splendid results. I have had cows calve at night with their udders so badly caked that it was impossible to milk them, but after one application of your Liniment they were all right the next morning."

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will prevent these troubles and when developed, with Fleming's Veterinary Healing Oil quickly cure them. Per. Box \$1.00

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Please mention "The Farmer's Advocate."

Questions and Answers. Miscellaneous.

Hens Refuse to Lay.

I have a flock of sixty hens, and get only a few eggs a day. They are not lousy, and seem perfectly healthy. I feed them wheat, oats, and scraps out of the house. Please answer through your columns as soon as possible.

MRS. H. B.

Ans.—Perhaps the hens are not of a laying strain, or maybe they are getting too old for active work. Let them have free range, and add some grit, mash, and meat food to their ration. If possible, give them skim milk to drink. If it is not practicable to give free range, at least provide out-door runs and feed plenty of green feed.

Cement Chimneys.

I am about to pull down the chimneys on our house. They are built of brick, and getting rather old. I intended building the new ones of cement, right from the basement up. Some say cement is not as good as brick. I would like to know why. Would a cement chimney, with a common tile in the center, be all right?

T. M.

Ans.—The cement chimney, if properly constructed, should give good results. It would not be necessary to tile the flue, but you could if you desired. It is not likely that you would want less than an eight-inch flue. It should give good satisfaction if simply plastered up on the inside with cement.

Wind Puffs—Growing Hair.

1. How can I cure a wind puff? Four-year-old mare has soft puff on hind ankle, and goes lame after a drive.

2. What will grow hair on a horse's leg where it has been cut?

3. What is the best feed to fatten horses in the least time?

H. H. C.

Ans.—1. Bathe the puffs with ice-cold water for half an hour every morning; rub dry after bathing, and apply an iodine liniment consisting of 1 dram of iodine crystals to 16 ounces of water. For horses not lame from the trouble, they are as well left alone.

2. To stimulate growth of hair, you might try an ointment made of 1 dram of powdered cantharides, mixed with 2 ounces vaseline, and rub a little well in once daily.

3. Plenty of good hay and oats, with a little flaxseed or oil-cake meal, and perhaps a little corn.

Paying for Chattels.

Kindly advise, through your columns, on the following: Last fall I bought a farm. It was rented, and the tenants offered me their stock of three horses, and implements, including some grain for feed. The price was agreed upon. I paid the bill, except \$100, for which I gave a note, payable next fall. When I took possession I found two of the horses almost worthless; in fact, I have practically given them away. I paid \$100 for two, and \$30 for the one. When I came to use the implements this spring I found pieces missing, and could not use them. It is my first experience at farming, and I took the man's word that everything was right, but since, I am told that all I had from him was not worth one-quarter of the money I paid in cash, and I am advised not to pay the \$100 I owe him. Do you think he could claim it, as he knew I did not know the worth of the things I bought from him?

A BEGINNER.

Ans.—If you could prove that the stock and implements were not as represented, you might be able to get some redress, but it might be difficult to do. It would have been advisable for you to have carefully gone over the stock and implements with an experienced man as valuator before purchasing. Too often this kind of work is done. It is more than likely, if he did not misrepresent things, that you will have to pay the other hundred. Before taking any action, we would advise that you lay the case before your local solicitor.

A Chicago poet printed some verses on Medicine Hat which so pleased the citizens of that place that they sent him a handsome headpiece. Now he's wondering if he can collect a suit by embalming in verse, Coatsville, Pa.; Vest, Ky.; and Knickerbocker, Okla.

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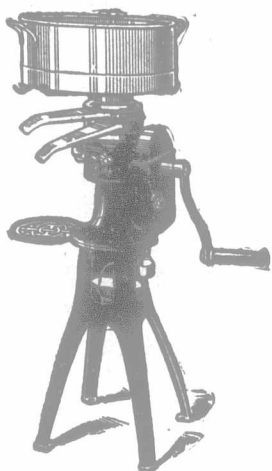
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These machines are furnished with pulleys for the use of power. Belted to a small I H C engine, you have the best outfit it is possible for you to buy. Note the low supply can on I H C separators, the height of the milk spout which allows a 10-gallon can to be used for the skim milk, the strong frame with open base which can be kept perfectly clean, and the dozen other features which make these I H C machines the best.

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If you want Stallions, Fillies or Foals of the above breeds, personally selected from A. and W. Montgomery's Clydesdale Stud and the Bramhope Shire Stud, Cheshire, Clydesdale Stud and select from the large stock now offered.

Prices and home-bred of the most fashionable strain, see and select from the large stock now offered.

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Questions and Answers. Veterinary.

Skin Trouble.

Horse's hair is very rough and dry, and he is very itchy, especially on shoulders and neck, and he rubs himself a great deal.

A. McP.

Ans.—He has either lice or eczema. Clip him and give him a thorough washing with warm water and soap. When dry, rub the itchy parts well with a warm five-per-cent. solution of Creolin, and repeat this once daily as long as necessary. Do not repeat the washing with soap and water.

V.

Abnormal Lactation.

Heifer that is not pregnant and never had a calf, is yielding milk.

C. V. N.

Ans.—This is abnormal, but sometimes occurs, and the cause is not well understood. It was reported recently that the mammae of a heifer calf became enlarged and yielded milk at three days old. When this condition occurs, if left alone, the secretion of milk soon ceases, but if the animal be milked, it is possible she might continue to yield milk.

V.

Treating for Worms.

I followed your advice in treating mare for worms and had excellent results, but I think the treatment has affected her kidneys. Sometimes her urine is quite milky, and she often wants to urinate when going up a grade. She has a good appetite, but is not putting on flesh.

C. M. W.

Ans.—The treatment advised for worms cannot have any injurious effect upon the kidneys. Her trouble is not from this cause. Give her a tablespoonful of nitrate of potassium in damp food every night for three doses. If this does not clear the urine, increase the dose, but do not continue giving the drug after the urine becomes normal. If the desire to urinate too frequently continues, give her two ounces tincture of hyoscyamus in a pint of cold water as a drench twice daily for three or four days.

V.

Miscellaneous.

Holidays.

What are the legal holidays for the hired man on a farm? Can the man, if he works on legal holidays, claim those days when his year is up if he is not paid for them?

R. M.

Ans.—This question was answered in our issue of April 23rd. We do not think that if the hired man works on the holidays that he can claim those days when his year is up, but he cannot be forced to work on these days.

Gossip.

SWINE, SHROPSHIRE AND POULTRY, AT GILEAD FARM.

Nine miles from Belleville, six miles from Corbyville Station, lies the well-arranged stock farm, Gilead, the property of W. A. Martin & Son, breeders of Shropshire sheep, Yorkshire, Berkshire and Tamworth swine, Rose and Single-comb Black Minorcas and pit game poultry. In these lines of pure-bred stock, Martin & Son are particularly strong. Last fall, at seven of the leading shows in Hastings and Northumberland Counties, their Berkshires won every first prize offered, making a total of thirty-four first-prize wins. Their Yorkshires and Tamworths did nearly as well, while their Shropshires were again at the top in practically every class. The Shropshires are imported and Canadian-bred, from imported sires and dams, large, robust sheep, particularly well covered, they present the ideal of the breed. This season's crop of lambs shows a choice uniformity, many of them from imported sire and dam, some of them imported in dam, others sired by Canadian-bred rams got from imported stock. Parties wanting flock headers should place their orders early to ensure a choice selection. In Yorkshires, Berkshires and Tamworths, there are a big selection of young things. This is particularly true of the Berkshires, of which some right nice young ones of both sexes about two months of age are on hand. Eggs for setting are also being shipped for both Rose- and Single-comb Black Minorcas and pit games, at \$1 per 15.

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AS A MATTER OF FACT, THE COST of a silo is really a secondary consideration, because if you are keeping dairy cows or raising stock for the market, there is no investment which you can make which will pay you better returns than an Ideal Green Feed Silo.

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IF YOU HAVE ABOUT MADE UP YOUR mind to put up a silo this year, be sure and get your order in early so that we can make delivery before the season is too far advanced.

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WINNIPEG VANCOUVER
LARGEST MANUFACTURERS OF DAIRY SUPPLIES IN CANADA

Be sure to get our Silo Book.

Questions and Answers. Miscellaneous.

Veranda Floor.

I built a veranda some time ago, using cement for flooring. It has cracked so badly that it must be taken up. I do not wish to use wood. Could you inform me about some durable flooring? Are tile used? If so, what kind, and how are they laid and sold?

M. J. G.

Ans.—If your cement floor was properly reinforced and mixed strong enough, it should not have cracked so seriously. We know of no suitable material for veranda floors outside of cement, and the various classes of lumber commonly used. We do not know of tile floors. If any of our readers have in use any other material giving satisfactory results, we should be glad to have them discuss the same through our columns. However, we have seen cement floors stand for years unharmed on verandas exposed to all kinds of weather. We would not be discouraged, but would try and properly reinforce and properly mix the material, and, by all means, keep it damp until thoroughly set, and do not allow to dry too rapidly.

Turkey Ailing.

About two-months ago turkey took a small swelling on each side of head. Have her away from rest of fowl. Does not appear to be getting any worse, and does not appear sick, eats well, and is quite fat. Is there anything that will cure her? Would the little turkeys have the disease if I set her eggs under hens?

A SUBSCRIBER.

Ans.—We would advise that you keep the sick turkey away from the other birds, and under no condition would we allow it out with the young turkeys. If this is blackhead, as we suspect, it is very contagious. It would be wise to keep the diseased bird confined until all trace of the ailment has vanished, or until it has reached a more serious stage. Treatment for blackhead is not very successful. You might try muriatic acid as so often advised in these columns. Eggs laid by the bird should be suitable for hatching, but even these might be injured if the disease developed so as to interfere seriously with the birds' strength. It is not generally advisable to set eggs from weakly or diseased birds of any kind.

Fertilizers on Corn—Pasture.

1. I wish to sow fertilizer on five acres of corn. I have six hundred pounds of potash and one hundred pounds of nitrate of soda. What else should I buy to home-mix this to use alone, or with a light dressing of manure? Should the potash and nitrate be mixed or sown separately, and how much per acre?

2. Could the permanent-pasture mixture recommended by Prof. Zavitz be pastured this summer if sown as soon as possible, or would the oats and sugarcane be best to start pasturing latter part of June?

Ans.—1. If no other manure is added, we would advise the use of 120 lbs. nitrate of soda, 340 lbs. of acid phosphate, and 140 lbs. of muriate of potash per acre. This would leave you to buy 500 lbs. nitrate of soda, 1,700 lbs. of acid phosphate, and 100 lbs. of muriate of potash. Or if you did not wish to put on so much, you might get along nicely with the potash you have, and add to it 1,485 lbs. of acid phosphate, and get 420 lbs. more nitrate of soda to add to the 100 lbs. you have already. Sow altogether, or divide the nitrate and put half of it on at time of sowing, and the other half just as the corn comes up. If manure is applied, the lighter dressing would be sufficient.

2. The permanent-pasture mixture recommended by Prof. Zavitz is not suitable for pasturing the same season as first sown, but the annual pasture mixture composed of 51 pounds oats, 17 pounds of Early Amber sugar-cane, and 7 pounds of red clover, is ready for pasture about six weeks after being sown.

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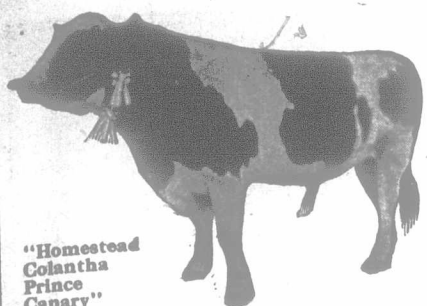
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Please mention "The Farmer's Advocate."

Questions and Answers. Miscellaneous.

A Stump Puller.

Will you please inform me, through the medium of your columns, what you know about the following stump-pulling invention. The passage quoted is culled from a newspaper: "The curved fulcrum which features a Missouri inventor's stump-puller, enables the removal by hand of all stumps not large enough to require blasting or burning."

A. E. H.

Ans.—We have never seen the machine.

An Apprentice.

I am apprenticed to a druggist here. No mention was made about serving ice cream. Can I not refuse to work on Sunday simply to serve ice cream? May I not refuse to serve ice cream at all, as there are two girls in the shop who are not apprenticed? I should not mind being asked occasionally, but I feel that it is not just that I should spend whole afternoons waiting on ice-cream customers.

G. M. G.

Ans.—This is a matter between yourself and your employer. Put the case before him in a fair manner, and he will likely do what is right.

Breeding Heifers.

Have some heifers which freshened last spring at two years old, and are farrow this year. Would it be a good plan to dry them off and turn them out for the summer, as they are coming in this fall, and not very large, or would it be better to milk them?

E. K.

Ans.—If the heifers are undersized, it might pay better in the end to give them a summer's rest on good pasture. After they freshen again, keep them milking well up to the beginning of future lactation periods. If they are fairly well grown, milk up to about two months before they freshen.

Sweet Corn.

I notice in the Christmas Number of 1912 that you advise growing sweet corn in place of onions as a money-making crop. Please tell me how it is grown, at what stage it is harvested, and how? What would be an average yield per acre, and the average price? Would new land, worked down this year and sown next year, be suitable? The land is not heavy, and of a chocolate color. Don't know just where to class it. Would it be suitable for corn or onions?

ENQUIRER.

Ans.—We have looked through our Christmas Number of 1912, and cannot see in any place where we have recommended growing sweet corn in place of onions. However, onions are a crop that, when gone into by everybody, the price is liable to be reduced to some extent. Much depends upon your local conditions, and your available markets, what would be the most profitable crop? Large revenues have been made from sweet corn, and if you have quite a large market at hand, you would, no doubt, be in a position to get good returns from an acre or two of sweet corn. Your soil should be quite suitable for the growth of sweet corn, provided it is fairly well drained. Some sow in hills and some in drills. Where it is sown in hills, they may be left thirty inches apart, with rows three feet apart. Prices vary from one cent per ear to fifteen cents per dozen in most districts, but much depends upon the market and amount of that commodity being grown. One cannot estimate that far ahead what the probable revenue would be. Many have been very successful, and it would be wise for you to study your market requirements, the scope of your market, and the prospects of the business before you dip into it too heavily. If you have a canning factory in your district, it will act as a second source of profit if the market be dull. In your location in North Bruce, we must advise you to go slowly at first, and make sure you have favorable conditions. In that way you will obtain information that no one can give you, at little expense to yourself.

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G. A. Pedlar

11B

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I have twenty good Imported Bulls on hand 11 and 12 months, will deliver any of them to any place in Ontario or Quebec for \$135.00; also have a few good heifers 11 and 12 months old, will sell for \$110.00 each. L. O. CLIFFORD, :: :: :: :: :: Oshawa, Ont.

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Our 1913 crop of 22 bulls are all sold, we have 20 extra bull calves coming on for the fall trade. For sale—25 heifers and young cows; those old enough are bred to Right Sort (imp.), or Raphael (imp.), both prize winners at Toronto last fall.

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5 bulls of serviceable age, choice quality, some of them herd headers, sired by His Grace (imp.)—69740—and a number of low, thick, mellow fellows of cows and heifers. One stallion rising 3-year-old. A big, good-quality horse; also four choice fillies. All from imported stock. A. B. & T. W. DOUGLAS, STRATHROY, ONT. L-D. 'phone.

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Glenallen Shorthorns

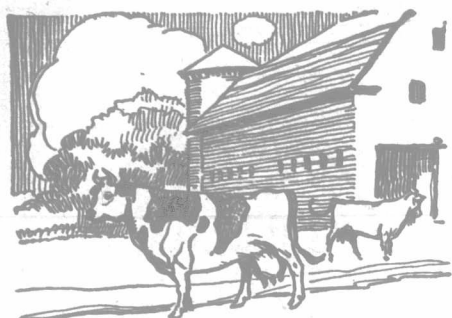
We have some of the best young bulls we ever bred, Scotch or Booth breeding, low, thick, mellow fellows of high quality; also some heifers. GLENALLEN FARM, ALLANDALE, ONTARIO. R. Moore, Manager.

SHORTHORNS

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 83 Bayswater Ave. Ottawa, Ontario

"OAKLAND" SHORTHORNS

50 head of good individuals to select from, 26 breeding females, headed by a fine roan 1st prize and sweepstakes bull. Just three bulls fit for service, all of high quality, and priced to sell. Dual-purpose a specialty.

John Elder & Sons - Henshall, Ontario

Good Shorthorn Bulls

not all sold. 1 have 2 roans. 17 and 12 months, respectively; a dark red, 12 months; a white, 11 months; a red roan, 10 months; all straight, smooth, wide, fleshy; strong-boned bulls, showing breed character; some from heavy-milking dams; also five yearling heifers. Priced on easy terms for quick sale.

STEWART M. GRAHAM, Lindsay, Ontario

FLETCHER'S SHORTHORNS. Present offering: Five choice bulls, suitable for high-class herd headers, 8 to 11 mos., and females all ages. Present stock bull, "Royal Bruce" (Imp.) = 55038 = George D. Fletcher, R. R. No. 2, Erin, Ont. Erin Station, C.P.R. Long-Distance Phone

1854 MAPLE LODGE STOCK FARM 1914

Estate of late A. W. SMITH

SHORTHORNS AND LEICESTERS

We still have an excellent lot of rams, mostly sired by Imp. Connaught Royal; also one extra choice young bull for sale.

Situated one mile from Lucan Crossing, P. O. Address, R. R. No. 1, Clandeboye, Ont.

Spruce Lodge Shorthorns & Leicesters

Present offering: A number of good heifers and young cows, with calf at foot, from good milking families. A few ram lambs and a choice lot of shearing ewes, now bred to Imp ram W. A. Douglas, R. R. No. 2, Caledonia, Ont.

Questions and Answers. Miscellaneous.

Silos and Silage.

1. Have a root-cellar built underground, 16 x 20 x 10 feet. It has a stone wall, all four sides 20 inches thick. Would it be advisable to grow corn and utilize it for a silo for the time being? If advisable, how many tons of silage would the cellar hold, size given? How many acres of corn of average crop would be required to fill the same?
2. How many yards of gravel would be required to build a silo 12 feet in circumference and 35 feet high?
3. How many tons would a silo this size hold?
4. How much cement would be required?
5. How many yards in a cord of gravel?

A FARMER.
 Ans.—1. We would not advise attempting to keep corn silage in a root-cellar.
 2. We think you mean 12 feet in diameter, as 12 feet in circumference would not be practicable. For a silo 12 feet in diameter and 35 feet high, it would require about 7 cords of gravel, or about 33 yards.
 3. About 80 tons.
 4. About 32 barrels.
 5. There are 128 cubic feet in a cord, and 27 cubic feet in a yard; therefore, a cord equals 4.73 yards, or approximately 4 3/4 yards.

Use of Ditch—Payment for Feed.

1. A, B, C and D own land on one side of the road, and enter into an agreement with the Township Council for a ditch alongside the road next to their land, they paying one half and the Township paying the other half for the benefit of the road. This is only an agreement drain, and not under the Ditches and Water-courses Act. Can parties living on opposite side of the road, put culverts across road and drain land into the said agreement drain without paying for the privilege?
2. A hires a man to begin April 1st at a stated salary per month till corn is husked. After a course of three months, the man buys a horse and brings it and feeds it on A's feed and cares for it on A's time. Can A collect pay for the horse's keep the rest of the time the man is working for A?

ONTARIO. A SUBSCRIBER.
 Ans.—1. Not without the consent of the Council, and of A, B, C and D.
 2. We think that A is entitled to payment for the feed, unless possibly, it ought to be inferred from the circumstances that it was not intended that he should charge for it. He would find it difficult, if not impossible, to collect if he has not informed the man that he would be so charged.

To Soften Water.

I take water in from the Detroit river to a well. It is hard. What is the reason, and how can it be made soft?
 W. H.

Ans.—The hardness of well-water is due to the presence of mineral salts in solution. The most common of these are the bicarbonates of calcium and magnesium. These are formed through the action of the carbon dioxide, which is dissolved in the water that percolates down through the soil, the carbon dioxide and water dissolving the calcium carbonate and leaving it in the form of the calcium bicarbonate. Wherever there is lime in the soil, the water that comes out of it will be hard, for the reasons given above. In good, cultivated land, this is a condition that always prevails. If, therefore, the water is not hard, we may consider the soil deficient in lime. If the hardness is due to the bicarbonate of lime and magnesia, then simply boiling the water will remove hardness. If it is due to other salts, like the calcium sulphate or calcium chloride, then the use of washing soda and boiling will remove both forms of hardness, or lime of a suitable strength may be added to change the bicarbonates to the carbonates of lime. I do not think there is any practical method by which you can treat the water in your well in order that you may get soft water from it.
 R. H.

There is Nothing Quite so Good as Bibby's Calf Meal

A pint will make sufficient rich nourishing gruel for one calf for a whole day.
 "MADE IN ENGLAND"



SOLD BY LEADING MERCHANTS, OR DIRECT BY
W^M RENNIE CO. Limited TORONTO
 Also at Montreal, Winnipeg and Vancouver

Raise Better Calves at Less Expense, with

Royal Purple CALF MEAL

It is no longer necessary or even advisable to give your whole milk to calves. Use ROYAL PURPLE Calf Meal and get the good price for your whole milk that it will bring. ROYAL PURPLE Calf Meal is entirely different from most others, because it is nearly pre-digested. The ingredients which are hard to digest are roasted to render them easy of assimilation by the calves. The roasting also causes the grains to shrink over one-third, so that in using ROYAL PURPLE Calf Meal you are using a concentrated meal, containing pound for pound, more value than others. Equal to new milk at 5 cents a gallon.

SPECIAL \$50 PRIZE OFFER.

We offer \$50 cash prize for the best calf raised in Ontario on our ROYAL PURPLE Meal, weight for age, shipped to us for the Toronto Exhibition. This calf will be shown in our exhibit, and after the exhibition is over will be returned to the successful contestant. Ask your dealer for full particulars.

We will send 100 lbs. Calf Meal Freight Paid for \$4.25
W. A. Jenkins Mfg. Co. London, Canada

Choicely-Bred Shorthorns at Auction Thursday, May 14, 1914

I will offer at Broad Lawn Stock Farm, one mile from Grand Trunk Station, Coaticook, Quebec

50 HEAD OF REGISTERED SHORTHORNS

Consisting of cows with calves at foot and due to calve, heifers and young bulls suitable for service this spring. Coaticook is on the Main Line of the Grand Trunk Railway between Montreal and Portland, twenty miles south of Sherbrooke. Sale begins at 2.30 sharp.

Terms: Six months' credit on approved joint notes, or 2 per cent. off for spot cash. Catalogue of pedigrees on application.

E. V. NORTON, Coaticook, Quebec

BELMONT FARM, SHORTHORNS

We are offering 20 heifers from 1 to 3 years, daughters of the 1913 Toronto Grand Champion, Missie Marquis 77713, Scotch and Scotch Topped, several of them show heifers
FRANK W. SMITH & SON, R.R. No. 2, Scotland, Ont.
 Scotland Sta., T.H. and B. L.D. Phone.

MEADOW LAWN SHORTHORNS OF RICHEST AND MOST FASHIONABLE SCOTCH BREEDING, and of high-class type and condition. I can supply young bull and heifers. Cherts, Roan Ladies, Millbreds, Stamfords, etc. L.-D. Phone

F. W. EWING, R. R. No. 1, ELORA, ONTARIO

SHORTHORNS

Scotch, Bates and Booth. Yes, we have them, pure Scotch, pure Booth and Scotch topped Bates, Young bulls of either strain. Heifers from calves up; one particularly good two-year-old Booth bull, ideal dairy type.
GEO. E. MORDEN & SON, Oskville, Ontario

Questions and Answers.
Miscellaneous.

To Repair Cement Trough.

One of your readers asks advice re repairing frost-cracked concrete trough. I beg to say that I have a tank (round) fourteen feet in diameter and five feet deep. Two years ago last winter (I had no top on it then) the frost put a crack up 'one side,' and I mixed up a little clear cement and pasted it in and over the crack on the inside, and it is O. K. yet.

E.McCREDIE.

Elgin Co., Ont.

Permanent Pasture.

A few weeks ago an enquiry was made regarding Prof. Zavitz's permanent pasture mixture. Your reply started a few thoughts and questions, and as a good motto is, "Turn on the light," perhaps you may be able to enlighten us further. On most of our farms, permanent pastures are to be discouraged. What is most needed is a short rotation, namely, grain seeded down to clover or other legume; hay one year; pasture, and then corn. With this practice, it is an easy matter to keep a farm clean, and in good condition to grow larger and better crops. However, there are exceptions to every rule. There are only two kinds of farmers who need a permanent pasture. The farmer who has accumulated a little pile of cash, and feels inclined to retire from the strenuous life of farming. How much better for a man in those circumstances to seed down his farm to a permanent pasture, and take in stock during the summer months, than to retire to town. The other farmer is one who has only a small bush on his place, and also a creek running angling across the farm. Shade and water are absolutely essential if dairy cows are to do their best as mortgage-lifters. So a man in those circumstances may use a permanent pasture. But for the ordinary farmer, a short rotation is the most profitable. Mr. Zavitz recommends a mixture of grasses and legumes, amongst which are alfalfa and red clover. Why these two in a permanent pasture? When criticizing this mixture, one is reminded of a young theological student who carefully prepared for his examinations. However, he was not prepared for one of the questions: "Criticize the acts of Moses," so he answered thus: "Forbid that I, a humble student, should criticize the greatest of men, Moses."

It is a well-known fact that alfalfa will not stand pasturing, especially when the land is wet. No one desires to keep stock off the pasture, unless it is perfectly dry. Alfalfa will not stand short cropping. During a dry time pastures will become short, so why put a plant in this mixture that is not adapted for pasturing?

While alfalfa is long-lived under certain circumstances, red clover is short-lived under any circumstances. It is only good for one or two years, and considering this fact, what good is it in a permanent pasture? Why not, instead of using alfalfa and red clover, use more of the other grasses that will stand the racket?

SUBURBANITE.

Ans.—Apart from discussing the place of permanent pastures on the farm, we may state the permanent-pasture mixture as advised in an answer to the question referred to has been successfully tried out on hundreds of farms. We all know that alfalfa does not do well on low, wet land, and such is stated in our answers to permanent-pasture queries, and where our correspondent states that his land is low and wet, we do not recommend sowing alfalfa, but increase such grasses as red top. Alfalfa is valuable in the drier pastures, as it comes on earlier than many of the grasses composing the mixture, and very often lasts in the pasture for many years. It also is valuable being a legume, to the soil. True, red clover is short-lived, but only small quantities of it are advised, and, like the alfalfa, it comes on more quickly than some grasses, and besides furnishes more than enough extra feed the next year after sowing to pay for the seed. Besides, if neither red clover nor alfalfa do well, there is in the mixture, if properly applied, enough other seed to ensure a catch. We would not do without the alfalfa and red clover on a high soil, and would put red clover in all mixtures.

ESTABLISHED 63 YEARS

Wilson's Gold Medal Scales

This is our No. 66 2,000-lb. scale with Drop Lever and Heavy Wheels, with Diamond Steel Bearings that are guaranteed for 20 years against wear and breakage. Let us send you one at our special price.

Wilson Pays the Freight

Easy terms to pay is the Wilson way, if you write to-day.

Get our book, FREE, "How to Stop the Leaks on the Farm."

C. Wilson & Son
39 Esplanade St. E.
TORONTO, ONTARIO



100
Styles
of
Scales
for
Every
Business

The Aylmer Bronze Sprayer

Won highest award at St. Petersburg, Russia, over all Canadian, French and German Pumps. Also secured first place at Manchester, (England), Toronto, Ottawa and Halifax.

SPRAYER NO. 2.—OUTFIT D

Being Outfit A, ten feet of hose, with couplings attached, two Bordeaux nozzles, one brass stopcock, one Y, one long iron extension rod, without barrel. Price.....\$15.25
Extra hose, per foot......12

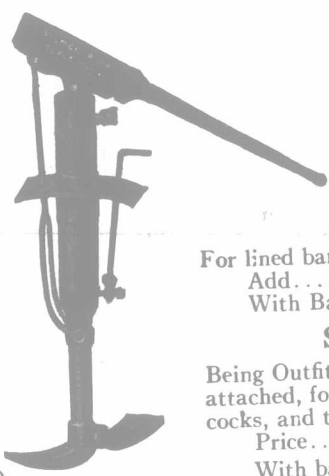
For lined bamboo extension rod, in place of iron extension rod:
Add.....\$1.50
With Barrel..... 3.00

SPRAYER NO. 3.—OUTFIT E

Being Outfit A, two lines of hose, ten feet each, with couplings attached, four Bordeaux nozzles, two brass Y's, two brass stopcocks, and two eight-foot iron extension rods, without barrel. Price.....\$22.50
With bamboo extension rods in place of eight-foot iron. Price.....\$25.50
With barrel..... 3.00

Our Catalogue gives full information as to sizes, capacity, equipment, etc. Write us for one. If your dealer cannot supply you, your mail orders will receive our prompt attention.

The Aylmer Pump & Scale Company, Limited
AYLMER, ONTARIO



No. 2—Outfit A



Sprayer No. 2—Outfit D

SHORTHORNS AND CLYDESDALES

We have seven yearling bulls and seven bull calves from 7 to 12 months. All reds and roans, and of choice breeding. We have some extra good imported mares for sale, also some foals. If interested, write for catalogue of their breeding.
W. G. PETTIT & SONS, Freeman, Ont.
Burlington Junction, G.T.R. Bell 'Phone

Poplar Shorthorns
We have the best lot of young bulls for sale this spring we have ever bred, reds and roans, 10 to 18 months of age, Butterflys, Roan Lady's, Lavenders and Lovelys, all sired by the great Uppermill Omega Imp. Strictly high-class herd headers
MILLER BROS. BROUGHAM, ONT.
Claremont Station, C.P.R.

Springhurst Shorthorns
Shorthorn cattle have come to their own; the demand and prices are rapidly increasing, now is the time to strengthen your herd. I have over a dozen heifers, from 10 months to two years of age, for sale; everyone one of them a show heifer, and some of them very choice. Bred in my great prize-winning strains. Only one bull left—a red, 18 months old.
HARRY SMITH EXETER STN. HAY P. O.

Salem Shorthorns
—Herd headed by Gainford Ideal and Gainford Perfection, sons of the great Gainford Marquis. We are generally in shape to supply your wants in either sex.
J. A. WATT, Elora G. T. R., C. P. R. Telephone and Telegraph

Brampton Jerseys
We are doing the largest business we ever did, chiefly with our old customers. Young bulls and heifers from sires with tested daughters.
Several imported cows and bulls for sale. Canada's Greatest Jersey Herd.
B. H. BULL & SON, Brampton, Ont.

Don Jerseys
Young bulls of breeding age, young cows and heifers, got by our richly bred stock bulls, Fontaines Boyle and Eminent Royal Fern, and out of prize-winning and officially record dams. **David Duncan & Son, R.R. No. 1., Todmorden, Ontario**

CHOICE BULLS

Have two excellent bull calves left, which are 9 and 10 months old. They are both deep, low set calves, besides being good handlers, and their breeding is gilt edge. Also a number of heifers, all ages.

WM. SMITH, Columbus, Ont.

SHORTHORNS

Bulls all sold; choice females for sale. One yearling Clyde stallion, one weanling Clyde stallion, big, best quality and breeding.
CARGILL LIMITED

JOHN CLANCY, Cargill, Ontario
Manager Proprietors

Spring Valley Shorthorns

Herd headed by the two great breeding bulls, New-on Ringleader (Imp.) 73783, and Nonpariel Ramslen 83422. Can supply a few of either sex.
KYLE BROS., Drumbo, Ontario
Phone and Telegraph via Ayr.

Shorthorns, Cotswolds, Berkshires

FOR SALE. A few Shorthorn females a limited number of young Cotswold ewes and a number of Berkshires about three months.

CHAS. E. BONNYCASTLE, P. O. and Station Campbelford, Ontario



Let's Buy
Amalite
ROOFING
It Needs No Painting

THE heavy winds and rains that tax ordinary ready roofing to capacity have no effect on Amalite. With its heavy pitch and felt body and mineral surface Amalite can weather the most violent storms.

It never needs painting. With its low first cost and saving in paint, it is the most economical ready roofing on the market.

Sample free on request
The Peterson Mfg. Co., Limited
Montreal Toronto Winnipeg
Vancouver St. John, N. B.
Halifax, N. S. Sydney, N. S.

Maple Grove Holsteins

There is still a bull fit for service left, of the Maple Grove quality and type, which will be sold below his value; he is from R.O.M. stock on both sides; also a couple of rattling good calves sired by the great King Lyons Hengerveld out of Tidy Abberkirk and Pontiac Korndyke cows, fellows that will make herd headers. If you want such at a reasonable price, write, H. BOLLERT, R.R. NO. 1, TAVISTOCK, ONTARIO

REGISTERED HOLSTEINS

Orders booked for bull calves from well bred dams with good A. R. O. backing. No females for sale at present.

WM. A. RIFE, HESPELER, ONT.

Lyndenwood Holsteins

Present offering includes a son of Netherland Faforit, who holds the (senior 2-year) 30 days' record; also bull calves from 2 to 5 months old from heifers that have made from 15 to 19 lbs. butter in 7 days (at junior 2-year) and up to nearly 20 lbs (at senior 2-year). All will be sold cheap for quick sale.

NOBER, ONT. W. J. BAILEY

Holstein-Friesian Association of Canada

*Applications for registry, transfer and membership as well as requests for blank forms and all information regarding the farmer's most profitable cow, should be sent to the Secretary of the Association W. A. CLEMONS, St. George, Ontario

Woodbine Holsteins

Young bulls and bull calves, sired by Duke Beauty Pieterje; sire's dam's record 32.52 lbs. butter, and his two grand-dams are each 30-lb. cows, with 30 lb. daughter, with 30-lb. granddaughter. Three generations of 30-lb. cows. If you want a bull that will prove his value as a sire, write

A. KENNEDY & SON, R.R. No. 2, Paris, Ont
Stations: Avt. C.P.R.; Paris, G.T.R.

The Maples Holstein Herd

Headed by Prince Aaggie Mechthilde. Present offering: Bull calves born after Sept. 1st, 1913. All sired by Prince Aaggie Mechthilde and from Record of Merit dams. Prices reasonable.

WALBURN RIVERS
R. R. No. 5 Ingersoll, Ontario

GLENWOOD STOCK FARM HOLSTEINS

3 yearling bulls for sale, out of big milking strains, at low figure for quick sale. Thos. B. Carlaw & Son, Warkworth, Ont., Campbellford Station.

High-class Ayrshires—If you are wanting a young bull out of a 50-lbs.-a-day and over cow, imported or Canadian-bred dam or sire, write me. Females all ages. Prices are easy.

D. A. MACFARLANE, Kelso, Quebec
DUNGANNON AYRSHIRES For high-class Ayrshires, write us or come and see them. We can sell cows, heifers, calves and 2 richly bred bull calves. Prices right. Long-distance 'Phone. W. H. Furber, Cobourg, Ont.

City View Herd of R. O. P. Ayrshires When you want a choicely bred bull calf, write us. Nothing serviceable on hand. Can spare a couple of young heifers. James Begg & Son, R.R. 1; St. Thomas, Ont.

Questions and Answers. Miscellaneous.

Cattle at Large.

1. I am living in an open district, and am bothered occasionally with bull and rams running at large. Is this lawful? If not, what would be a good way to go about to stop same?

2. Said district includes four school districts. The adjoining districts are pounds districts. The people living in same bring their cattle and sheep into our district. Is there any way in which this could be stopped?

N. B.

Ans.—1 and 2. These matters depend largely upon local municipal by-laws, and your questions, therefore, can only be satisfactorily dealt with by one having access to such by-laws. We would accordingly suggest your consulting a local lawyer.

Hens Stop Laying.

Could you tell what would cause a flock of hens that were laying well all through March, to stop off suddenly? They are fed principally on whole wheat and mash. They have plenty of shell material and grit. They are running out every day. A good many of them are losing their feathers around the neck. Would this have anything to do with them not laying? There are no lice on them, nor are they over-fat.

PERPLEXED.

Ans.—We cannot say positively what caused the hens to stop laying, or what has caused the falling-out of the feathers. Make sure that there are no iniquitous individuals in the flock which are acting as feather-pullers. This falling-out of the feathers may be due to a small parasite, lodged at the base of the feathers. Rub the affected and surrounding parts with carbolated vaseline, and feed the hens a small quantity of sulphur. Absence of meat foods may also cause a dearth of eggs, and falling of the feathers to a small extent. Probably before this they are laying, if they have been running out where they can get insect life and free access to out-door conditions.

Bumble Foot—Fistulous Withers.

1. Have about 90 chickens, 60 of them old hens and the rest last year's pullets. Several of them seem to have some affliction of the leg. The leg enlarges just above the foot, like a knarl on a tree, and the leg seems to get crooked, and they limp. Seems to be all right every other way. Please let me know what to do for them, and if it is contagious; also, if their eggs and flesh are good to eat.

2. Two of my Clyde mares had a swelling on the withers last winter that seemed to be very painful to touch, although it did not bother them working. I blistered them both, and the one is apparently all right, but the other seems as if it had matter in it, but it will not break. Should I get it lanced, or will it go away as the other did? S. H.

Ans.—1. This may be bumble foot, caused by the hens being obliged to jump down from the roosts on a hard surface. It generally appears on the bottom of the foot as a hard, calloused enlargement. It later extends up into the legs and affects the joints. Fowls thus affected are almost always permanently impaired as producers. This enlargement on the foot should be lanced, with an X-shaped cut and disinfected, following this with an application of carbolated vaseline, will hasten a cure. This treatment should be repeated daily. The affliction is not contagious, and can be prevented by lowering the perches to within a short distance of the floor. There will be no direct contamination of the flesh or eggs of the fowl, and if you knew nothing of their trouble the eggs and flesh would be fit for use.

2. This is fistulous withers, and evidently this irremediable case is more deep-seated than the other. If you have tried thoroughly to remove it by blister, you had better have it lanced at once by a veterinarian. Sometimes it affects the bone, in which case a more critical operation is necessary.

Individuality—Capacity—Quality

WILL BE OFFERED AT THE
MANOR FARM SALE
Tuesday, May 26th, 1914

50 REGISTERED HOLSTEINS 50

INDIVIDUALITY—Our winnings at the leading shows the last two years clearly demonstrated this fact.

Capacity—Sixteen cows with records about 20 lbs. and 7 two-year-old heifers with records from 16 to 20 lbs. proves this.

Quality—Daughters of such noted sires as Pontiac Korndyke, Paul De Kol Burke, Clothilde Friend Burke and King Lyons Spoffard, is proof positive.

And to further prove these facts in the progeny all are bred to King Segis Pontiac Posch, a son of the world famous, \$10,000.00 Bull, King Segis Pontiac Alcartra, and out of Fairmont Netherland Posch, record Butter 7 days at 4 years 32.34 lbs. recently sold by Auction for \$3,350.00.

10 Bulls of Merit, out of cows with records from 20 to 29.56 lbs. and by such great bulls as Sir Admiral Ormsby and Prince Hengerveld of the Pontiacs, a brother to the world's Champion, W. P. Pontiac Lass, record 44.18.

Write for Catalogue and learn more concerning Ontario's Greatest Herd.

GORDON S. GOODERHAM
Proprietor

Bedford Park, Ontario

JNO. J. RAE
Canadian Holstein Pedigree Co.

Bedford Park, Ontario

FAIRVIEW FARMS

can furnish you a splendid young bull ready for immediate service, and sired by such bulls as PONTIAC KORNDYKE, the greatest producing sire of the breed, and also the sire of the greatest producing young sires of the breed; one of his sons already has six daughters with records above 30 pounds, RAG APPLE KORNDYKE 8TH, now heading our herd, and a few by a good-son of PONTIAC KORNDYKE, and out of officially tested cows. Come and look at them, and the greatest herd of Holsteins you ever saw over, or write me just what you want.

E. H. DOLLAR, Heuvelton, New York. (Near Prescott, Ont.)

HOLSTEIN CATTLE

The only two world record Holsteins in Canada are owned by us. There are only three cows in the world that have made over thirty pounds butter, three years in succession; one of them is owned by us. The only bull in Ontario whose dam has given 116 lbs. milk a day and made 34.00 lbs. butter in seven days is owned by us. We have young bulls and females for sale bred on the same lines as our champions.

D. C. Flatt & Son Long-Distance 'Phone R.R. No. 2, Hamilton

LAKEVIEW HOLSTEINS

Senior herd bull—Count Hengerveld Fayne De Kol, a son of Pieterje Hengerveld's Count De Kol and Grace Fayne 2nd. Junior herd bull—Dutchland Colantha Sir Mona, a son of Colantha Johanna Lad and Mona Pauline De Kol. Third bull—King Canary Segis, whose sire is a son of King Segis Pontiac, and whose dam is 27-lb. three-year-old daughter of a 30-lb. cow. Write for further information to—

E. F. OSLER, BRONTE, ONT.

ELMDALE HOLSTEINS

Headed by Correct Change, by Changling Butter Boy, 50 A.R.O. daughters; he by Pontiac Butter Boy, 56 A.R.O. daughters. Dam's record, 30.13-lbs., a grand dam of Tidy Abberkirk, 27.29-lbs. His service for sale; a so young females in calf to him. R. LAWLESS - Thorold, Ontario

HOLSTEINS FOR SALE—Male or female. Herd sire, Prince Hengerveld of the Pontiacs, son of King of the Pontiacs. A few choice females bred to above sire.

F. HAMILTON :: "Hamilton Farms" :: St. Catharines, Ont.

HOLSTEINS We have a choice lot of bull calves with strong backing and from dams with records of 18 to 24 lbs. Just the kind you are looking for. Write for extended pedigree, or, still better, come to see us. Prices very reasonable. D. B. TRACY, Cobourg, Ont.

Willowbank Holsteins Herd headed by King Korndyke Inka De Kol, who has 12 sisters with records from 30 to 38 lbs. butter in seven days. Twenty-nine others with records from 20 to 29 lbs. Thirty to choose from, mostly bred to the above bull. Special offering: Two heifers, 2 and 3 years, sisters, one freshened in July, one just freshened, \$250 takes the pair. Bell 'Phone COLLIVER V. ROBBINS, Riverbend, Ontario

Ayrshires & Yorkshires—Bulls for service of different ages; females all ages. Calves of both sexes. All bred for production and type. A few pigs of both sexes ready to ship.

ALEX HUME & COMPANY, CAMPBELLFORD, R. R. No. 3

P. D. McARTHUR'S AYRSHIRES

In official record, high testing Ayrshires, that have won scores of prizes, I can surely supply your wants, over 50 to select from. Young bulls of superb breeding on record producing lines. Also the 3-year-old stock bull, Imp. Whitehall Freetrader, P. D. McARTHUR NORTH GEORGETOWN, QUEBEC

Ring-Bone

There is no case so old or bad that we will not guarantee Fleming's Spavin and Ringbone Paste to remove the lameness and make the horse go sound. Money refunded if it ever fails. Easy to use and one to three 45-minute applications cure. Works just as well on Sidebone and Bone Spavin. Before ordering or buying any kind of a remedy for any kind of a blemish, write for a free copy of Fleming's Vest-Pocket Veterinary Adviser. Fifty-six pages of veterinary information, with special attention to the treatment of blemishes. Durable bound, indexed and illustrated. Make a right beginning by sending for this book. FLEMING BROS., Chemists, 75 Church Street, Toronto, Ont.

GOOD LUCK CALF MEAL

A perfect milk substitute. Put up in 25 lb., 50 lb. and 100 lb. bags and sold at all dealers for \$3.60, \$1.90 and \$1.00 respectively. If your dealer's asleep; write us. CRAMPSEY & KELLY, Dovercourt Road - TORONTO

RICE'S PURE SALT

Best for table, dairy and general use. North American Chemical Co., Limited, Clinton, Ontario

Alloway Lodge Stock Farm

Aberdeen-Angus Cattle
Southdown Sheep
Collie Dogs
Four litters sired by Imp. Holyrood Marquis are expected shortly, three of them from imported bitches. Order now if you wish to secure a choice pup. ROBT. McEWEN, Byron, Ontario

Oxford Down Sheep Shorthorn Cattle, Yorkshire Hogs—Present offering: Lambs of either sex. For prices, etc., write to John Cousins & Sons, "Buono Vista Farm", Harriston, Ontario

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for sale at reasonable prices, sows bred to farrow in May and June, also young pigs ready to wean; boars 3 and 4 months old, bred from imported stock. Satisfaction guaranteed. J. Lawrence, Woodstock, Ontario, R. R. No. 8

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Questions and Answers. Miscellaneous.

Corn to the Acre.
How much corn is required to put in one acre, sowed in rows three feet apart one way, Stowell's Evergreen?

C. M. W.
Ans.—About one-half bushel or a little over of shelled corn.

Windmill—Forage and Soiling Crop.
We have been constant readers of your valuable paper for about fifteen years, and would not like to farm without it. It grows better every year.

1. A rented a farm to B, commencing March 1, 1912. When agreement was made, A explained that power windmill on barn was not in good order, and stipulated that B was to take all responsibility for keeping it in repair, and might only pump water and pulp turnips with it. The wording of the lease bearing on the point is:
The Lessee—To repair reasonable wear and tear, and damage by fire, lightning and tempest only, excepted.

And the Lessor agrees—To assume all expenditure exceeding \$15 in any one year, on repairs to the windmill.

In September last, A was shown where three of the four legs of windmill tower had caused the timbers to rot. That same day the large wheel came off, as a result of the key working out of the shaft. All the repairs needed was to cut a new seat for key in shaft, put in one roller-bearing which got lost, and put on wheel. A fixed two of the timbers that week, and braced the other temporarily, and authorized B to have a new beam (only ten feet long) put in by a carpenter at A's expense. A lives twenty miles away. After plow stopped, A put in the beam himself. B has not yet had the wheel put up, and demands \$15 to fix it, claiming that rotted timbers were cause of mishap. It was his first trouble with it. Who should bear expense of repairs?

2. I have six acres of mucky loam soil which I purpose using for hog pasture. It is all in timothy sod, drained last fall with tile twenty yards apart, and I thought of running it in three sections, two acres each of peas and oats, clover, and rape, each year. Would it be good practice to pasture peas and oats to July 15th, then disc well and seed to clover; no nurse crop? What would you advise to put in the two acres which should have been in clover this year? How long would it be wise to expect ear corn to carry hogs, and how many shoats farrowed in May should an acre carry?

3. In pasturing hogs, which would be better, to let three sows and their young, run together, on two acres, or part of it, free to come to barn for water and feed, or to use movable pens, one for each litter, with a shack in each, and carry water and feed to them?

4. In using the annual pasture mixture recommended by Prof. Zavitz, would there be serious danger of harm to stock from eating second-growth sugar-cane? Prof. Henry, in "Feeds and Feeding," suggests a danger.

Ans.—1. If B can prove that the damage was due to the negligence of A in not keeping the timbers in proper condition, it is likely that A would require to meet the expense of repairs.

2. Clover in a good season should give satisfactory results sown in this manner. You might try rape on this, using a different date of sowing to that on the regular rape plot, or it might be sown to peas and oats later than the seeding of the pea-and-oat crop. The length of time required to hog down an acre of ear corn depends wholly on the size and number of hogs turned on it. An acre of good corn should run a litter of eight to twelve shoats for two months.

3. All things considered, we would allow all the sows and their litters together.

4. We have heard of no serious danger from this mixture. The sugar-cane, mixed with other green feed, and not in large proportion, should not cause any harm, and we would not hesitate to sow it as advised in this mixture. "Henry" calls sorghum one of the most relished and nutritious of forage crops.

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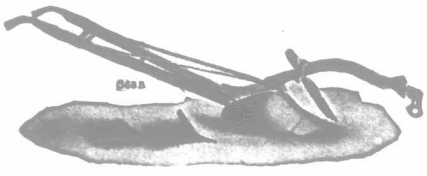
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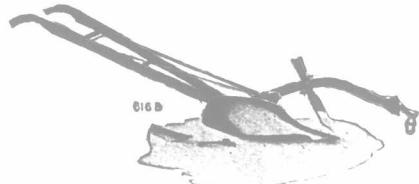
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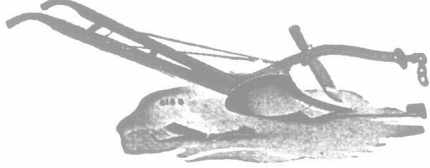
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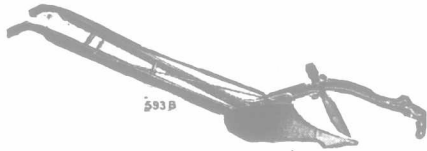
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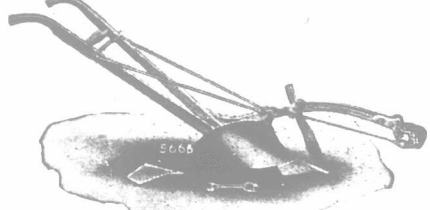
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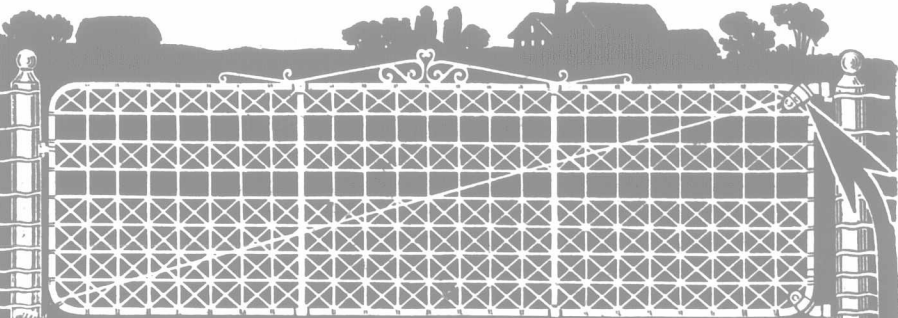
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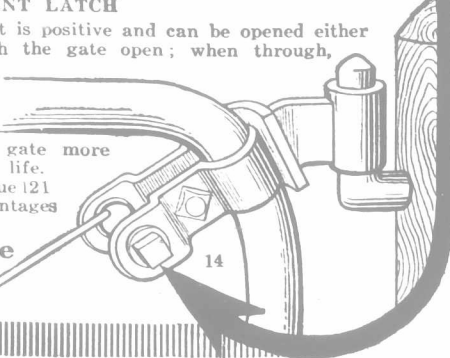
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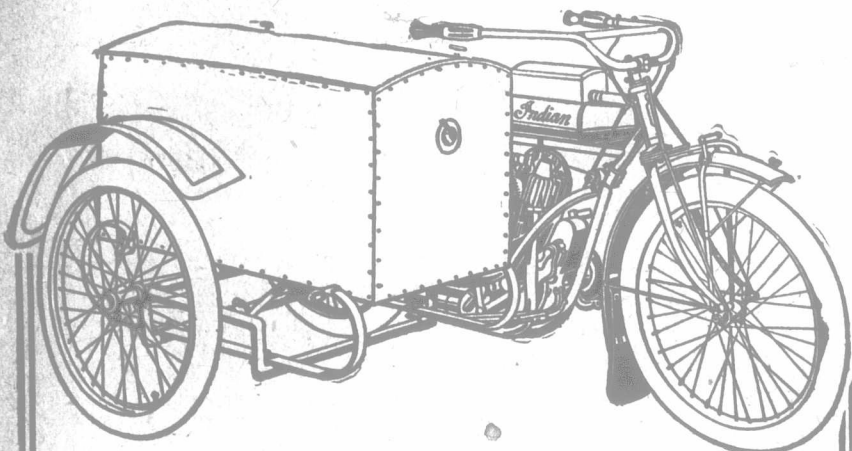
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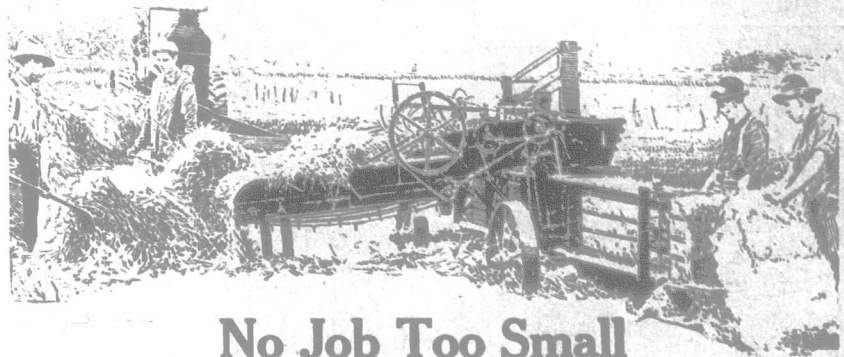
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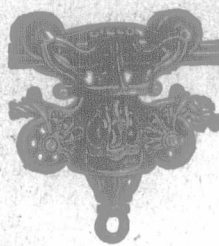
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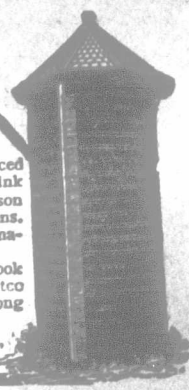
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