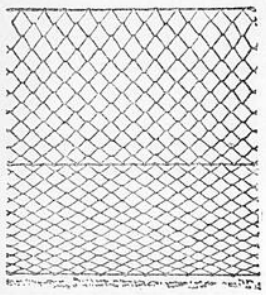
JOURNAL OF AGRICULTURE AND HORTICULTURE

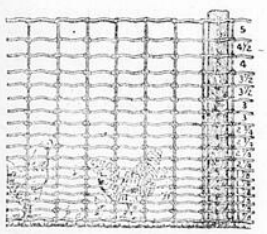
CIRCULATION, 78,075 — ENGLISH, 7,000 FRENCH, 71,075

VOL. 15 — NO 4. ✠ OCTOBER 1st., 1911



ACME CHICKEN FENCING

Note the 3 stretching wires and the graduated sizes of mesh. Non-sagging. Best ever.



PAGE "SPECIAL" POULTRY FENCE

A very light, strong fence for turning stock as well. Needs few posts.

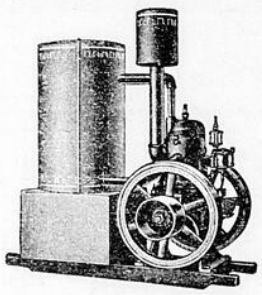
WIRE BASKETS for Roots, Silage, Potatoes. Easy to clean.

Other sizes to order.

PUT IT UP TO THE PAGE PEOPLE

THEY HAVE THE RIGHT GOODS

When You See a Fine Farm, It has Page Catalogues For Its Inspiration



Take The Page Gasoline Engine—for instance:

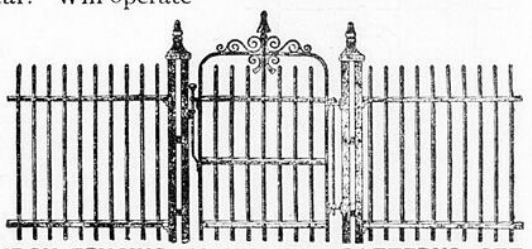
This 250-lb. engine will do your hard work. It will pump, saw, grind, chop silage and elevate it, run cream separators, fanning mills, etc. Uses coal oil, gasoline or alcohol—no parts to change with a change of fuel. Remember this engine will do your work all the year around. No fire danger. Has governor to keep speed even. It will earn its cost for you in saved wages in a single year. Will operate force pump in case of fire, protecting your house and barn. Every engine guaranteed and in perfect running order when you get it. We sell a truck to carry it from place to place, moving it from barn to house, etc., as needed in a few minutes by hand. Sizes 3½ and 6 h.p.

Write us for catalogue of engines, which gives every detail and prices. We also have a full line of marine engines. We shall be glad to hear from men who will act as dealers and push the sale of this engine in unoccupied territory.

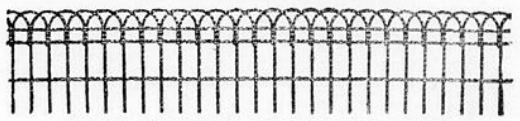
LEARN MORE FROM THE **PAGE CATALOGS**

(A)-FENCES

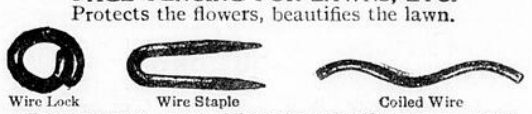
(B)-ENGINES



IRON FENCING—MANY FINE PATTERNS—SEE PAGE FENCE CATALOGUE



PAGE FENCING FOR LAWNS, ETC.
Protects the flowers, beautifies the lawn.



Wire Lock — Wire Staple — Coiled Wire

FENCE PARTS—FOR BUILDING ON THE FARM—FULL LINE OF SUPPLIES

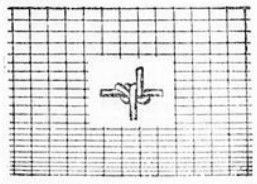
The Regina Vacuum Cleaner Will Do Your Wife's Work

Just move the upright handle back and forth on this Regina Cleaner, so easy to do, and it takes up all dirt through the nozzle attached to the long tube. It takes surface and ground in dirt from carpets and rugs, as well as from floors and walls, in a few moments. Sweeping no longer needed, and no dust raised. Write us for the Catalogue that shows Regina Cleaners and keep your house perfectly clean. We wish to get in touch with a few more live men to act as dealers in this Cleaner.

REMEMBER: Page Wire Fences are made from the best materials and give the largest selection, 37 kinds. If contemplating new fences you may buy either fences complete or wire and special fixtures, building the fence yourself. You get our famous lock, which keeps fence true. Write for our Fence Catalogue.

'VICTOR" POULTRY FENCE

Painted white—needs few posts. Note the perfect lock. Poultry and stock proof. Non-rusting protectin. See Page Fence Catalogue.



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The largest fence and gate manufacturers in Canada.

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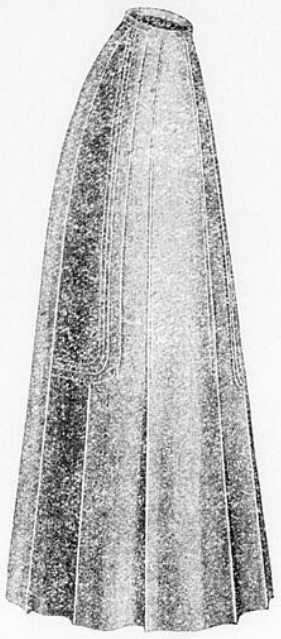

Z—378

SMART SKIRT, imported vicuna cloth. This model comes in misses' sizes only, 23 and 24 inch bands, 35 to 37 inch length, shades of navy or black. Front cleverly trimmed with rows of soutache braid over pleats. This smart misses' skirt is excellent value.
PRICE $1.98

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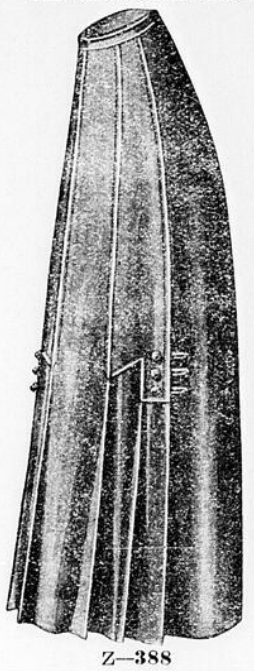

Z—388

PURE WOOL FRENCH SERGE SKIRT, in sizes to fit misses and women. This splendid 7 gored model will be found eminently satisfactory for all round wear. It is designed with side pleats braid and button trimmed. Can be had with inverted pleat or habit back. Colors, navy or black. This fine skirt is unequalled value at
OUR SPECIAL PRICE ... $3.75

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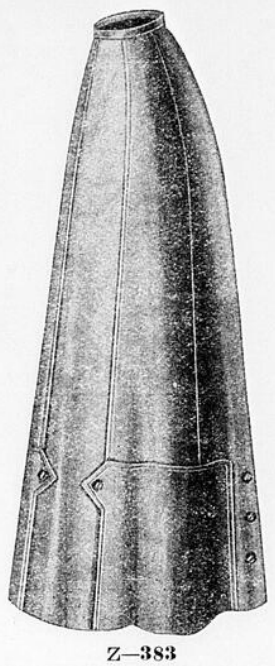
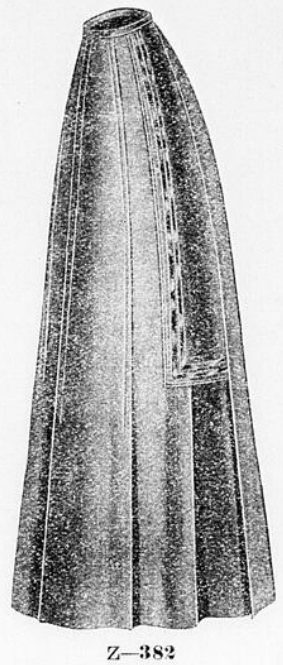


Z—383

MISSES' SKIRT OF PURE WOOL SERGE. This fine 7 gored model is designed in the latest style with bias fold around the bottom. Buttons are used for trimming. Comes in navy or black. When ordering state whether inverted pleat or habit back is preferred. Misses' sizes only. Band 23 and 24 inches, lengths 35 to 37.
PRICE $4.25

WE DELIVER FREE



Z—382

PLEATED AND SATIN TRIMMED SKIRT, of imported vicuna cloth. This serviceable model comes in shades of navy and black. It is a perfect fitting 9 gored garment. Our price is really low.
PRICE. $2.50

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W. H. Scroggie Limited

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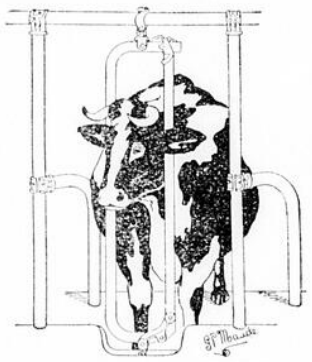
THE BT LITTER CARRIER.

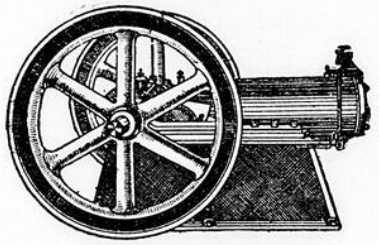


has splendid features not found on other makes, that are well worth nothing. Its construction is simpler than any other. Its parts are stronger and more heavily built. Only the best of materials are allowed to enter into the construction of the BT Carrier. In lifting we use double purchase. The bucket can be tipped either way to discharge and can be wound up three inches closer to the track than any other carrier. The windlass shaft is made of coiled rolled steel, no gas pipe being used in the construction of the BT. The above are only a few of the points that have made the BT Litter Carrier so popular and if you will let us send you a copy of our new catalogue you will learn a great many more. It is free and will interest you. Write to-day to,

BEATTY BROS., - - Fergus, Canada.

We also manufacture Steel Stalls, Stanchions and Hay Tools.

'Lair' Gasoline and Petroleum Motors



The simplest, safest and the most useful for the farmer, for threshing grain, cutting wood, separating cream, etc. Our engine is the only one running with common petroleum which you can secure everywhere, it is cheaper than gasoline. Always ready to run, and no danger of fire or explosion.

We give every desirable guarantee. Write at once for circular and prices.

Good agents wanted.

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The RAZOR STEEL SECRET TEMPER CROSS-CUT SAW

We take pleasure in offering to the public a Saw manufactured of the finest quality of steel and a temper which toughens and refines the steel, gives a keener cutting edge and holds it longer than by any process known. A saw to cut fast " must hold a keen cutting edge."

This secret process of temper is known and used only by ourselves.

These saws are elliptic ground thin back, requiring less set than any saws now made, perfect taper from tooth to back.

Now, we ask you when you go to buy a saw, to ask for the Maple Leaf Razor Steel Secret Temper Saw, and if you are told that some other saw is just as good, ask your merchant to let you take them both home, and try them and keep the one you like best.

Silver steel is no longer a guarantee of quality as some of the poorest steel made is now branded silver steel. We have the sole right for the " Razor Steel " brand.

It does not pay to buy a saw for one dollar less and lose 25 cents per day in labor. Your saw must hold a keen edge to do a large day's work.

Thousands of these saws are shipped to the United States and sold at a higher price than the best American saws. Manufactured only by

SHURLY-DIETRICH CO. Limited.
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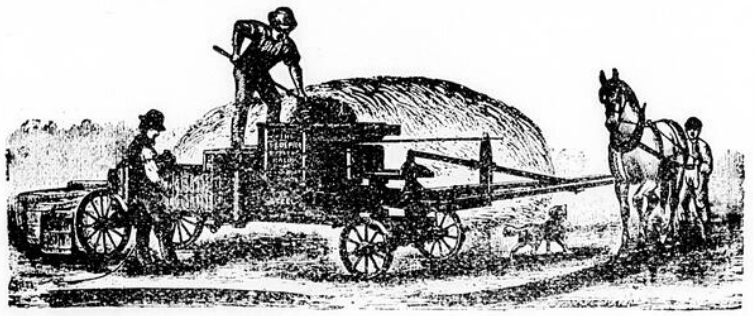
DEDERICK'S LATEST IMPROVED STEEL CASE HAY PRESS

Works whole four wheels in barn. Is not a horse killer. Patent Retainers, Patent Folding Roller, Patent Tension Blocks, Patent Side Clamps. The improvements make the Press lighter, stronger, easier on the horses and more powerful with a shorter lever.



Steel Case Reversible Press.

Made of flanged steel sheets riveted together in the same manner as a steam boiler, hence its great strength combined with lightness, and increased durability as neither storm, heat of worms will affect it.

Our Steel Case Press is the most profitable and popular Hay Press for the Farmer, Presser or Hay Shipper, by reason of compact bales, and working in buildings with only the lever vibrating outside, and for making the popular 17 x 22 size bale. We guarantee all our Presses. Send for descriptive catalogue and price. The Huntingdon Machine Works.

BOYD & CO., Huntingdon, Que.

Natives digging and loading asphalt at Trinidad Lake

Genasco is the roofing of the age. Its foundation has stood for ages past.

It beats shingles. They warp, crack, split, and rot—more so now than ever before (lumber is getting scarcer, and shingle-quality is becoming poorer every year).

Beats tin, which rusts and needs painting regularly. And even with paint tin doesn't last like it used to—quality has deteriorated here, also.

Coal tar has the same old faults it has always had—gets soft and melts in the summer sun, and gets brittle and cracks in the cold, and leaks.

Genasco

the Trinidad-Lake-Asphalt Roofing

is the one roofing that lasts. It is made of Nature's everlasting waterproofer.

Trinidad Lake Asphalt has withstood the suns and storms of centuries; and in Genasco it gives the same lasting resistance to sun, rain, snow, wind, heat, cold—and even fire.

The oily nature of this natural asphalt keeps Genasco alive and strong to defend itself; and this is why Genasco is lastingly waterproof.

The Kant-leak Kleet waterproofs the seams of Genasco without cement, and prevents nail-leaks besides. It gives the roof an attractive appearance.

Ask your dealer for Genasco mineral or smooth surface Roofings with Kant-leak Kleets packed in the roll. Guaranteed, of course. Write us for samples and the Good Roof Guide Book.

The Barber Asphalt Paving Company

Largest producers of asphalt, and largest manufacturers of ready roofing in the world.

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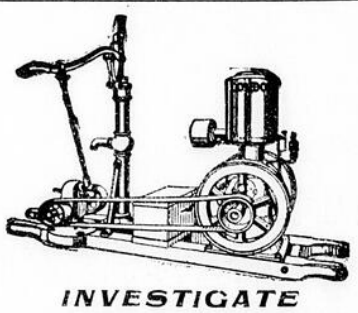
Cavarhill Learmont & Co., Montreal, Que.; D. H. Howden & Co., Ltd., 200 York St., London, Ont.



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The "LONDON" Ga or Gasoline Engine

Shipped complete with all the gasoline, water and muffler connections made.

Ready to connect battery wires and start as soon as uncrated.

Catalogue 17 G. tells you.

1 1-2—2 1-2—3 1-2—5 H.P. self contained.

LONDON GAS POWER CO., LTD.

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The Marlin Model 20 REPEATING RIFLE

You can buy no better gun for target work and all small game up to 200 yards.

Without change of mechanism it handles .22 short, long or long-rifle cartridges perfectly. The deep Ballard rifling develops maximum power and accuracy and adds years to the life of rifles.

The solid top is protection from defective cartridges—prevents powder and gases from being blown back. The side ejection never lets ejected shells spoil your bead and allows quick, accurate repeat shots. With simple take-down construction, removable action parts,—least parts of any .22—it is the quickest and easiest to clean. A great vacation rifle. Ask any gun dealer.

The 136 page *Marlin* catalog will help you decide what rifle best suits your individual desires. Send 3 stamps for it today.

The Marlin Firearms Co.

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Asbestos Cement Shingles Defy Fire and Weather

This is the ideal roof for every building on your place.

Costs only a trifle more than wood shingles. Lasts forever without need for repairs or paint. Fire-proof and weather-proof. Made from refined Portland Cement interlaced with Asbestos Fibres. Commands a lower insurance rate on building. Write for booklet describing Asbestos Cement Shingles, Asbestos Corrugated Sheathing, Building Lumber etc.,

The Asbestos Mfg. Co.,

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Paint your barn

Lumber costs more every year. Save money in repairs and rebuilding by using S-W Commonwealth Barn Red. Durable, handsome and easy to spread. Adds years to the life of your barn. Go to your local dealer for

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We make Peerless Gates to last a lifetime—and to look well and work right as long as they last. The frames of

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THE BANWELL HOXIE WIRE FENCE CO., Ltd.
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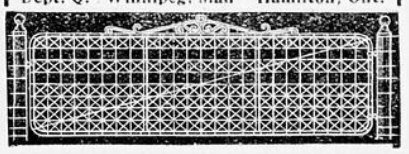

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Any little girl can do the churning with

MAXWELL'S Favorite Churn.

It makes the smoothest, richest, most delicious butter you ever tasted.

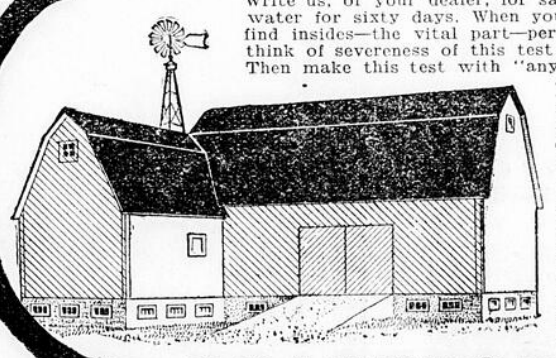
The roller bearings—and hand and foot levers—make churning an easy task, even for a child.

All sizes from ½ to 30 gallons.

Write for catalogue if your dealer does not handle this churn and Maxwell's "Champion" Washer.

David Maxwell & Sons, St. Mary's, Ont.

Make this 60-Day Test of Brantford Roofing--then Test Any Other Make



Write us, or your dealer, for sample of "Brantford Asphalt Roofing". Place it in water for sixty days. When you remove it, rip open with heavy knife, and you'll find insides—the vital part—perfectly dry, life-like, solid—as "before" test. Just think of severeness of this test! The result is evidence you "cannot" overlook. Then make this test with "any other" Roofing. You'll find the wood pulp—jute or cotton-cloth insides soaked—softened—lifeless. It 'cannot' withstand severe weather, which is, at its worst, not "one-twentieth" so severe as "Brantford's Test". Wood pulp is like paper. It 'arts' like paper, when soaked—wilts away. How "could" you expect such a foundation to fight off Roofing Enemies! For resistance, it "must" depend upon animal fat, grease, or other refuse coating, themselves veritable mines of danger. They evaporate--wear off--expose shameful foundation to awaiting enemies. This coating cannot 'prevent' penetration-- protect defenceless insides from harm. But "Brantford Asphalt Roofing" Foundation is one sheet of evenly-condensed, long-fibre "pure Wool", with life and body of its "own". A "secret" mixture of "Asphalt" is "forced" into it, soaking every fibre. After mixture dries, foundation possesses resisting-power "no" amount of soaking or bending can effect.

BRANTFORD ROOFING

after special Water-proof Coating, into which Silica Sand is rolled under pressure, is applied, becomes a solid mass of resistance. It is weather, acid, alkali, frost, water-proof, "Cannot" freeze-crack or melt. Wonderfully pliable. Brantford has but one cost--first. Write for free Book and Samples.

Brantford Asphalt Roofing, No. 1, 2, 3.
Brantford Rubber Roofing, No. 1, 2, 3.
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Mohawk Roofing, one grade only.

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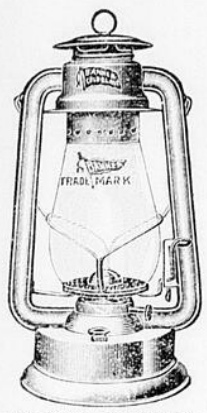
"BANNER" Cold Blast LANTERNS

BANNER TRADE MARK

Cost no More than inferior Lantern



Handsome appearance

Just ask to see a "BANNER" Lantern, compare it with what you have been using.

Send coupon in lantern for Calendar. Patent well, Patent Lift Lock. Absolutely Wind Proof.

Burns 15 hours longer than any other.

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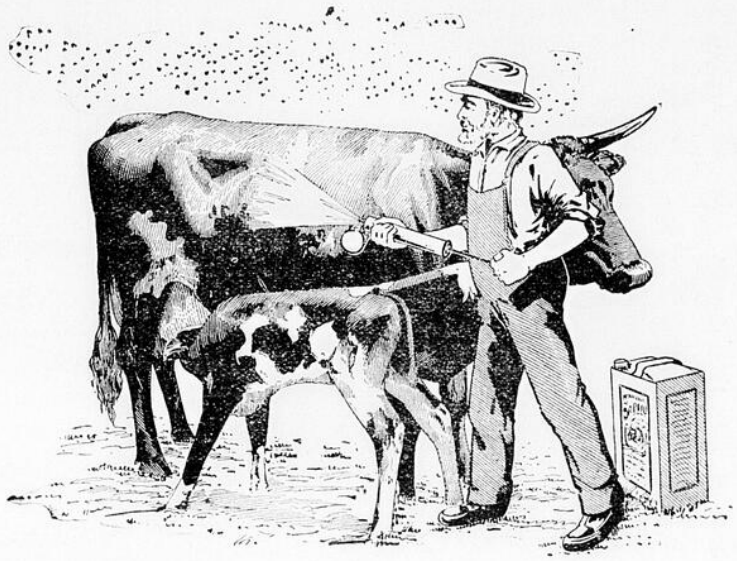
To all farmers,

Does your cows produce as much milk as they should? No —— Then protect them from flies with

COW COMFORT



Unrivalled for the cure of skin diseases, scurf, wounds of all sorts... Ask for our booklet on "How to care for Milking Cows".

THE SAPHO M'F'G. CO., Limited

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You might as well have a Furnace that will burn both Wood and Coal—

And one that can be changed from a Coal to a Wood Furnace at a moment's notice.

¶ The "Hecla" burns wood or coal equally well.

All you need to do if you want to burn wood is to slip a wood grate in through the big door of the furnace. Not a bolt or screw is necessary. You can fix it yourself without soiling your hands or clothing.

The wood grate is supplied free with each "Hecla" furnace, and doubles its usefulness to those who sometimes want to burn wood.

Note the Air Jets in the Door.

They are there to heat the air that passes into the fire chamber. Hot air consumes the gas; cold air checks the fire.

"Hecla" Furnace

Four Grate Bars.

Ever notice how a coal fire burns faster at the edges, leaving more ashes there than at the centre of the fire pot? Now, you can shake down the ashes in a "Hecla" without losing any of the good coals in the centre.

The "Hecla" has four grate bars which can be shaken separately, so that the outside edges can get a thorough cleaning without touching the centre.

Good idea?

The "Hecla" is full of them.

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GET THIS BOOKLET and learn how it saves one ton of coal in every seven. Write now.

CLARE BROS & CO., Limited

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ELLIMAN'S Embrocation

FOR USE ON ANIMALS.

Sprains, Rheumatism, Colics, Splints when forming, Sprung Sinews, Capped Hocks, Overreaches, Bruises, Cuts and Wounds, Broken Knees, Sore Throat, Sore Shoulder, Sore Udders of Cows not in Milk, For Sore Mouths in Sheep and Lambs, For Foot Rot in Sheep, Sprains in Dogs, Cramp in Birds.

Elliman's Royal Embrocation.

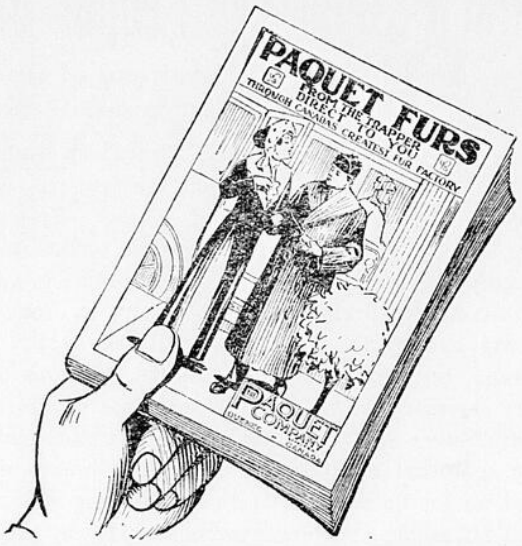
FOR HUMAN USE.

Rheumatism, Lumbago, Sore Throat from Cold, Cold at the Chest, Neuralgia from Cold, Chronic Bronchitis, Sprains, Backache, Bruises, Slight Cuts, Cramp, Soreness of the limbs after exercise. Elliman's added to the Bath is Beneficial.

Elliman's Universal Embrocation.

ELLIMAN, SONS & CO., SLOUGH, ENGLAND.

WILL BE FOUND IN ALL DRUG STORES.



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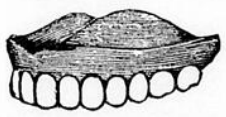
The Coat Illustrated Here

No. 208—Man's Coat in Genuine Raccoon, very good quality, well matched skins, length 50 inches, shawl collar, quilted lining..... ..... $50
Special ....

THE PAQUET COMPANY LIMITED.
QUEBEC. CANADA

OUR TEETH are Beautiful Natural and Guaranteed



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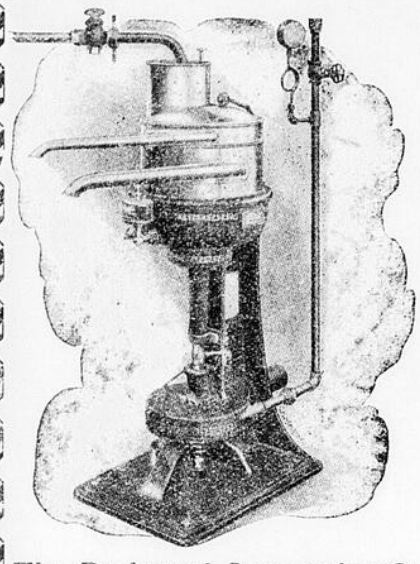

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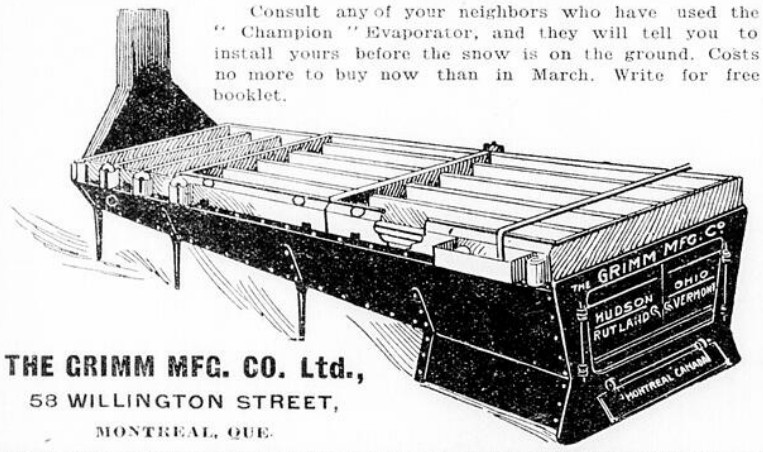

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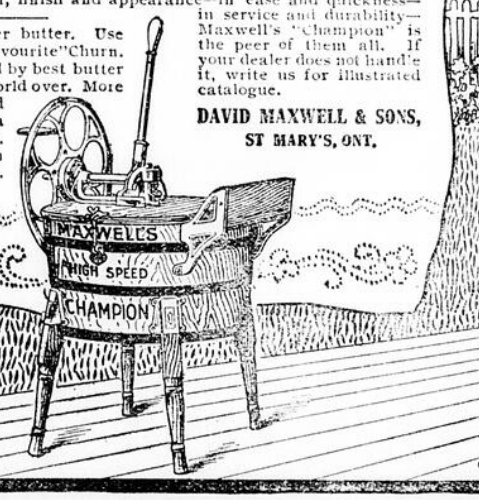

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The Journal of Agriculture and Horticulture

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The Journal of Agriculture and Horticulture

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Editorial

THE MEANING OF AUTUMN

There are many persons who cannot look upon the outside world of Nature in Autumn without feelings of depression and sadness. To them—

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

The abundance of life of Summer is replaced by the " sere and yellow leaf" of declining activities. The glory of the Summer with its deep green foliage and sweet singing birds has departed, the trees stand out like bare skeletons of their former selves, and the October winds scatter the dead leaves that rustle as they pass.

But while the October curfew gives forth doleful sounds of a dying year there may also be heard distinctly the brighter tones of a new life that is to reveal itself after the rest of winter. While there is much dying there is also much life.

Autumn is an ebb in the tide of life and marks a new beginning rather than an end. The branches that are shedding their leaves are already covered with buds, and the ripened fruits are scattering their seeds — the beginnings of a more abundant life next year.

Work and rest alternate in Nature as with man himself. The plants have been making and storing food all summer, and now they rest from their labors.

And what a preparation they make for their winter's rest ! Before the leaves fall all that is useful to the plant is withdrawn, so that there is literally "beauty for ashes". During the retreat of the valuable substances the color of the leaf changes from day to day. Who has not admired the gorgeous autumn landscape of variegated colors with its scarlets and browns and golds ? No artist has been able to paint truly the picture.

Autumn is surpassingly beautiful in its passing, and who would care to have it left out of his life ?

FALL PLOWING.

The article with the above title, contributed by Prof. Klinck to our last issue is of such outstanding practical importance that we desire to beg for it a second reading. Note especially the importance attached to early seeding.—

" All the small grains, with the exception of the field pea, should be seeded in the spring AS SOON AS THE GROUND CAN BE WORKED TO ADVANTAGE".

The hours of early spring are much too precious to be wasted on the plowing which should, and could, have been done in the fall. Note the effect of one week's delay in seeding. Spring wheat sown as early as the ground was fit to be worked yielded 8.43 BUSHELS more per acre, and oats 8.82 BUSHELS more per acre than the same grains sown ONE WEEK later. And this was no chance occurrence. These figures are the average of four years' experience on the Macdonald College lands at Ste. Anne de Bellevue.

The moral is obvious. Push the fall plowing. Lose no time. Keep steadily at it until it is done, or you are stopped by the frost. Plow the heavier lands first now that the autumn rains have come, so that if any of this work is unavoidably left over until spring it may be upon the lighter soils which benefit less from the action of frost.

Plow deep. The deeper the seed bed the greater the facilities for root growth, and the better the chance for a vigorous growth of the plant.

Plow straight and even. Good plowing is the basis of good cultivation, the foundation stone of all good agriculture. A good plowman has just reason to be proud of his accomplishment. Skill in plowing deserves public encouragement. The plowing match should be one of the important events of the fall season in all rural communities. We are

told that hardly a student comes to Macdonald College with a knowledge of the proper way to lay out and finish a ridge. If this is true it does not speak well for the home training of the boys. Plowing is a subject or rather an art, which cannot be taught effectively in the class room. It must be learnt in the field. And field instruction in plowing is not practicable at College— on account of the limitations of time, land, and equipment. Elsewhere in this issue we give Mr. Fixter's directions for laying out and finishing. Let the boys practise them, and give these boys, as well as the experienced hands, a chance to show their powers in a plowing match. These fundamental principles of fall plowing may be summed up in the couplet:

Plow early, plow late ;
Plow deep and plow straight.

AGRICULTURAL INSTRUCTION AT THE FAIRS.

A phase of the fall fair question which deserves, and is begining to receive, attention, is the opportunity offered by exhibitions for the instruction of the public in improved agricultural methods. Practical demonstrations of agricultural, dairying, and, we may add, of household operations, made not to advertise new machinery but to teach the people how to do things well, form an attractive feature of the fair as well as a useful one. Such demonstrations, properly conducted, can and do hold their own in competition with the amusement features. Again, competitions designed specially for young people will bear more valuable and important fruit than those in which only mature exhibitors stand a chance of winning.

Among the fairs of this province, this year's Provincial Exhibition at Quebec has set a good example in the prominence accorded to demonstrations. Among the instructive exhibits of this class were,—

(1) the fruit-growing demonstrations of Mr. Solyme Roy, Provincial Horticulturist (more fully described by Prof. Blair is another column of our present issue) ;

(2) the clover demonstrations of Messrs. Coté of the Dominion Seed Commissioner's Office, and Fixter of Macdonald College; and

(3) the stable ventilation, beekeeping, and poultry exhibits of the Quebec Experimental Union.

The most ambitious of these exhibits was the model poultry yard of the Experimental Union, which was under the energetic and efficient management of Bro. Liguori of La Trappe. A complete poultry yard comprising incubators, brooders, colony houses, fattening cages, etc., was set up and operated on the exhibition grounds. About three hundred pullets and cockerels were brought from Oka, and arrangements were made by which the incubators were kept supplied with hatching eggs throughout the exhibition. Demonstrations in caponizing, killing, dressing, and packing were given by Oka students, and frequent conferences were held by Bro. Liguori. The attractiveness of this exhibit was so obvious that Bro. Liguori was besieged with requests to repeat the exhibit at other fairs.

Equally attractive and instructive was the Union's apicultural exhibit. Even the most experienced bee-keeper finds a glass hive interesting, for it is a rare privilege to see the undisturbed bees at their work. The Dadant hive, designed for the outdoor wintering of bees, must also have been a revelation to many.

Such demonstrations, of course, involve some expenditure of money. But they are well worth all they cost, and the increased attendance which such attractions, properly advertised, will bring will compensate to a certain extent for the outlay. Lectures such as were given this year by Macdonald College men—Mr. Elford on poultry at Compton and Shawville, and by Mr. Cutler on Soil Fertility at Bedford — are not without value, but the impressions produced by practical demonstrations are obviously more vivid and more permanent. And as an attraction, one demonstration is worth a dozen or more lectures.

Demonstrations in certain kinds of household work might also be given. We are told that the exhibits of home-preserved fruits at some of our fairs reveal a regrettable ignorance of the best methods of canning. This is a class of work in which demonstrations could be very conveniently given, and no doubt much good would result.

In the matter of competitions for young people, the Sherbrooke and Huntingdon fairs have taken the very best initial step in establishing awards for the judging of live stock. At Sherbrooke the competitions have been extended to include grain and potatoes. Great interest has been taken in these competitions, and it is worthy of consideration whether something further could not be done in the same direction. With very little expense competitions for children could be organized in the collection and naming of weeds and weed seeds, and in the identification and judging of varieties of apples. Prizes for such things would be of far more value than those for collections of souvenir post-cards or of postage stamps.

We trust that in the planning of future fairs more and more thought may be given by the directors to the educational features of the exhibition, both those for adults and those for children.

PAINT BRUSH IN VERMONT.

As a large portion of Northern Vermont is now badly infested with Paint Brush, we wrote to the Director of the Vermont Agricultural Station to find out what measures have been taken in that state to control the pest. In reply he states that fifteen years ago his Station advised, and also strongly advocated, the application of salt at the rate of 1 1-2 tons per acre to the plants when they first begin to get a foothold (See also Bul. 56, Vt., 1897) . The experience of recent years has not led him to vary to any extent the recommendations given at that time. The Director says that in spite of the strong efforts made to get the farmers to adopt this simple remedy they did not wake up to the situation until it was too late. The fact that few farmers will apply the remedy at the right time, he says, makes the salt treatment an impracticable one. He does not state what other remedies are being applied.

It is recommended that the salt be applied dry, scattered broadcast so as to reach the leaves of all plants. A ton and a half of salt per acre has been found beneficial to grass, nearly doubling its yield.

In our inquiry in the Eastern Townships we failed to find a single farmer who had tried the salt treatment. In fact it was not looked upon with any degree of confidence, for what reason we could not ascertain. Perhaps it was too simple a remedy for the average farmer.

We hope next spring to try the experiment in several localities, and to find out if salt is really effective.

WANTON DESTRUCTION OF BIRDS.

On Monday, September 11th, no less than twenty men were fined $4. and costs each for shooting birds in the suburbs of the city of Montreal on the preceding day.

Sixty birds were found in their possession and many more were thrown away into the bushes as the men fled from the officers of the law. According to the Montreal Witness,—

"All of the sixty birds found in possession of the prisoners were of the insectivorous class, robins, yellow hammers, woodpeckers, and meadow larks, and some were so small they were of no value whatever", (that is to say of no value dead) .

"In excuse for their conduct many of the men asserted that they were utterly ignorant of the law in the matter, and had no wilful intention of violating it."

These were, of course, city men who had no immediate interest in the preservation of bird life. But even among our country boys a knowledge of the importance of birds as allies of the farmer is sadly lacking.

We remember being one of a party of men conveyed in a farmer's wagon one summer evening from Lesage station, near Shawbridge, a few miles into the country. The party were mostly French Canadians, and probably mostly city men going out to spend the week end in the Laurentians. When an owl was sighted on the roadside one of the party whipped out a revolver and took several shots at the bird. The farmer made no protest, and was apparently as desirous of the success of the shooter as any of the party. Indeed the editor was the only one of the party who rejoiced at the fortunate escape of the farmer's feathered friend.

A Wisconsin orchardist recently had the value of the owl impressed upon him by a bitter experience. We quote the incident from "The Canadian Farm".

"This grower had, by care and painstaking work, succeeded in bringing his apple orchard up to a point where it was capable of yielding fruit valued at $8,000 a year, only to have the trees girdled by mice and practically destroyed in one winter. Nailed up on the orchardist's barn door was the carcass of an owl which he had shot and put up as a warning to other owls to keep at a distance. After his orchard was destroyed by mice he applied to the agricultural authorities of his state for a remedu. The expert sent to investigate cut open the stomach of the owl's carcass nailed to the barn door, and to the astonishment of the farmer showed him the remains of nine field mice, which the ow had destroyed. This orchardist by destroying owis and such like birds which prey upon mice, had made it easy for the mice to multiply and finally destroy his trees".

There is evidently need for a vigorous campaign for the education of our men and boys upon this subject, and nowhere more than in the Province of Quebec. We would commend it to our agricultural societies as a subject for discussion at their winter meetings. And especially would we urge upon the individual farmer and upon the school teacher to neglect no opportunity of instructing boys and girls as to the relation of birds to the insects and predaceous mammals, which work such havoc in our fields, orchards, and gardens.

CHILD WELFARE EXHIBIT.

In the cities of New York and Chicago during this year a great exhibit has been held, the purpose being to bring forcibly to the notice of the people the conditions surrounding the children, and the means taken to promote their welfare. Now comes an announcement that Boston, St. Louis and Brooklyn in the United States and Montreal in Canada are to have similar exhibits. The Montreal exhibit will be held in October. Montreal has problems peculiar to itself, and the exhibit will be in both French and English. Montreal heads the list of the great cities of North America in having the highest deathrate of children under five years, 54.92 per cent.

Slum districts are forming that bid fair to rival any in the old world. It is interesting in connection with this exhibit to see the good-will with which the various organizations are uniting to make it widespread and forceful.

Some of the social agencies represented on the executive will show the general character of the interest and will also show how they are trying by united effort to give strength to the undertaking. Representatives are on the executive from the City Improvement League, Association Saint-Jean-Baptiste, Federation Nationale Saint-Jean-Baptiste, Local Council of Women, St. Patrick's Society, Baron de Hirsch Society, and Charity Organization Society. Montreal with its rapidly increasing population offers many problems for solution and it is good to see the French and English joining enthusiastically in an exhibit that aims at awakening an interest in one of our great national tasks, the education and the welfare of the young children.

J. M.

CAN OUR FAIRS BE MADE BETTER ?

Fully realizing how much easier it is to find fault with things as they are than to make them better, we are nevertheless going to offer some criticisms and suggestions in reference to our Quebec fairs, in the hope that they will receive kind and serious consideration at the hands of those in charge. The directors of our fairs should be, and we trust are, ever on the alert to discover means of increasing both the attractiveness and the usefulness of the annual events which they have the honor and responsibility of conducting. And the closer their sympathy with both the exhibitor and the spectator, the more satisfactorily will they be able to perform their duties. We feel confident, therefore, that our remarks will be regarded as friendly, and not censorious.

In another editorial we touch upon the educational opportunities afforded by our fairs, and make some suggestions for expansion along this line. To what we have said there we would add that every encouragement should be given to children of school age to attend the local fair and to make profitable use of the time spent there. The admission price for children should be made very low. The charge of 25c made at Sherbrooke, and that with an age limit of 12 years, is absurdly high. The Toronto Fair authorities have for years followed the commendable practice of setting apart a special day for children, when the admission price is reduced to something like five cents a head. The programme for the day is planned with the children's needs and tastes in view, and it is a great day for the young hopeful of the Queen City, and the surrounding country. If we are correctly informed, nearly one hundred thousand children were in attendance on Children's Day at the recent Exhibition.

Possibly even some concessions in the admission price for adults at Sherbrooke might be good policy. Whether a lower general admission price is practicable we cannot say. Some system of season tickets or family tickets might result in increased profits as well as increased attendance. At Toronto, where the general rate is only twenty-five cents, the Management has for some years permitted the sale of tickets at six for one dollar. They would scarcely continue this if they did not find it profitable. Some such experiment in club rates would at least be worth trying.

Those in charge of the Huntingdon Fair are to be particularly commended for the attention paid to the interests of the spectators. They have evidently made up their minds that the visitors to their fair shall be in a position to use their time to good advantage. It is hardly to be expected that many managements will follow them to the length of excluding all horse-racing and side-shows. But all might well adopt their plan of printing a definite programme for the judging of the live stock so that visitors may be able to view the judging of the classes in which they are most interested. One of our correspondents who visited many fairs this fall was struck by the contrast between this admirably conducted show and some of the others, where the directors themselves had not decided in what order the different classes were to be shown, and events stood still while they debated.

The one-day fair, especially, requires thorough organization to make it successful. Indeed we doubt whether the one-day fair can be made a real success without more expert management than is commonly available. To have the indoor exhibits arranged and judged in time for the visitors to have a look at them is an exceedingly difficult problem. We have heard of one instance this fall where the building was not thrown open to the public until half-past three o'clock, and at four the exhibitors began to remove their exhibits. A fair that treats its visitors with so little consideration is not likely to attract great attendance. And yet who will be bold enough to blame a director for having failed to get the exhibitors and judges to complete their work in the narrow limit of time available for it ? It is the system that is at fault.

The practice of excluding the name of the exhibitor, not only from the entry card but also from the prize ticket is from the spectator's point of view to be condemned. There may be some advantage in omitting the name from the entry card. It is possible that in some instances the name might affect the award. But unless the Management makes provision to have the name of the exhibitor promptly entered on the prize ticket we doubt if more could be gained than lost by requiring the name to appear on the entry card. Certainly some consideration is due to the spectator in this connection.

Whether horse-racing should be banished or not, it is certain that in most of our fairs the light horse is accorded undue prominence, as compared with his heavier brother. At an agricultural exhibition as distinguished from a horse show the emphasis should be laid upon the type of horse that is most useful upon the farm. The Shefford Fair authorities this year demonstrated that a contest between draught horses is feasible and arouses much interest.

Unanimity should be attained in the manner of reckoning the ages of calves. In the dairy breeds, where cows are to be shown in a freshened condition, their last year's calves cannot also be shown if the age is reckoned to the actual date of the fair. Some fairs have adopted the plan of dating the ages of all calves from August 1st. This permits the calf of the preceding year to be entered in the calf class. Some object to this as unfair to the spring calf, which is thus obliged to show against animals of thirteen or fourteen months. Which system is freest from objection we are not prepared to say, but a general understanding should be reached and adhered to. Could this not be attained by a decision of the Council of Agriculture ?

Exhibitors making false entries should be summarily dealt with. We have heard of instances of potatoes of one variety being graded and the various grades entered as separate varieties, and of spring barley being shown for winter barley. Competent judges have no difficulty in detecting such palpable frauds. But the punishment should be severe enough to discourage such dishonest "smartness". A rule to exclude all the exhibits of an exhibitor detected in any fraud would have a wholesome effect.

The Garden and Orchard

A GLASSHOUSE WHICH ANY FARMER MAY HAVE.

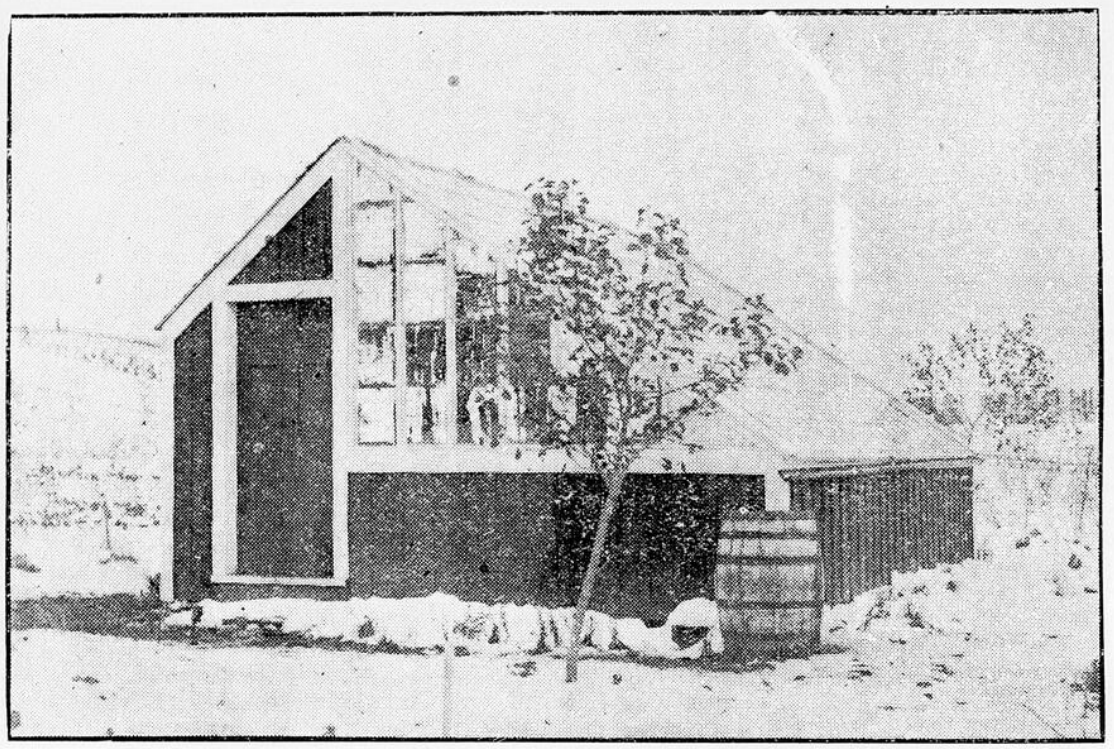
The modern greenhouse, artifically heated, is an extremely valuable adjunct to a market garden. The profits per acre are large. This is readily seen when one takes a glance at the winter tomato crop at Macdonald College, and realizes that they are worth 20c. per pound.

When looking at such a crop we sometimes forget the patient effort necessary for its development from day to day; the necessary attention which must be given to heating, watering, ventilating, fumigating, shading, and the thousand and one little operations which go to make up the daily routine of the market gardener's work. That which we are most likely to forget, however, is the initial cost of such a plant. The cost is great. So great is it, that we hesitate to recommend it to the busy farmer folk, desirable and profitable as it surely is.

To the general farmer and to the market gardener, whose business is not a large one, we recommend the glasshouse or unheated greenhouse. Such a house is here shown.

This house was built on the government farm at Truro about three years ago, for the purpose of showing the farmer boys that a few feet of glass might be enjoyed by all, and that it was really necessary on every farm. For the purpose for which it was built it has worked admirably. This house is 20 feet long and 15 feet wide. The height at ridge is 10 ft., with 6 ft. posts on north

A BENCH OF LETTUCE, SHOWING SIX WEEKS GROWTH WITHOUT HEAT.



A GLASSHOUSE ANY FARMER MAY HAVE.

side, and 2 ft., 8 in. on the south side. The rafters on the north slope are 6 ft. long, boarded and shingled. The part of the roof next the ridge is hinged, and used as a ventilator. This is about 18 inches wide. The south slope of 12 feet is of glass with wooden sash bars. The ends are partly of glass. The rest of the house is boarded singly and battoned. The door is wide enough to admit a wheel barrow. Inside the house is a bench 2 1-2 ft. wide, under the south wall. The walk is 2 ft., wide. A hot bed is placed in centre 6 ft., wide and 2 1-2 ft., high. 18 to 20 inches of manure and several inches of earth may be used in this, and the ordinary hot bed sash used as a cover. On the north wall are two shelves wide enough to hold ordinary seed flats.

The cost of material for this building did not exceed $65.00. To many farmers who gave cheap lumber and some spare time the cost would be much less.

The possibilities of such a house are very great.

The hot bed in centre is doubly protected and any desirable temperature may be maintained there in March. This has been found to be a most excellent place for starting tomatoes, celery, etc. By the time the plants are large enough to remove from bed, the flats are ready to care for them; and the shelves are there for that purpose. A few melons and cucumbers do well here, as soon as the hot bed is cleared of other plants. Lettuce is a cool weather plant and that side bench will give you a most excellent crop of lettuce in early spring and another in the Autumn. The accompanying cut shows a fall crop of six weeks growth planted six weeks before Thanksgiving.

This crop sold for 60c., per doz., or $9.00 for the bench. Under this bench Rhubarb may be forced and the profits of the house much increased in this way.

This kind of house is very popular in the Maritime provinces. Some are large, comparing favorably with the modern greenhouse, and are found to be satisfactory for the purpose for which they are used.

E. M. STRAIGHT,

Macdonald College.

DEMONSTRATION WORK IN HORTICULTURE AT THE QUEBEC EXHIBITION

The department of Agriculture through its able representative, Mr. Solymus Roy, Provincial Horticulturist, did effective demonstration work at the Quebec Exhibition in showing visitors at the fair how to prepare and apply spray mixtures ; recognize various insect pests and fungous diseases, and apply proper remedies; the kind of nursery stock to buy and how to plant it; and how to grade and pack fruit in barrels and boxes.

Apple trees were shown of various grades, pruning tools were used on specimens provided for such demonstration work, and the importance of doing thorough work well illustrated. Mr. Roy was assisted by one of the assistants of the horticultural department of the La Trappe Agricultural School. At stated periods lectures were given on various phases of orchard practice. Apple packing in barrels and boxes was a particularly good feature of this work.

A spacious tent was provided in a central place on the grounds, and judging from the many people who availed themselves of this opportunity of getting good practical information much good will result. The department of Agriculture has adopted a wise and progressive policy in regard to this, as with other lines of agricultural educational work, and it is to be hoped that similar work will be conducted in the future.

W.-S. BLAIR.

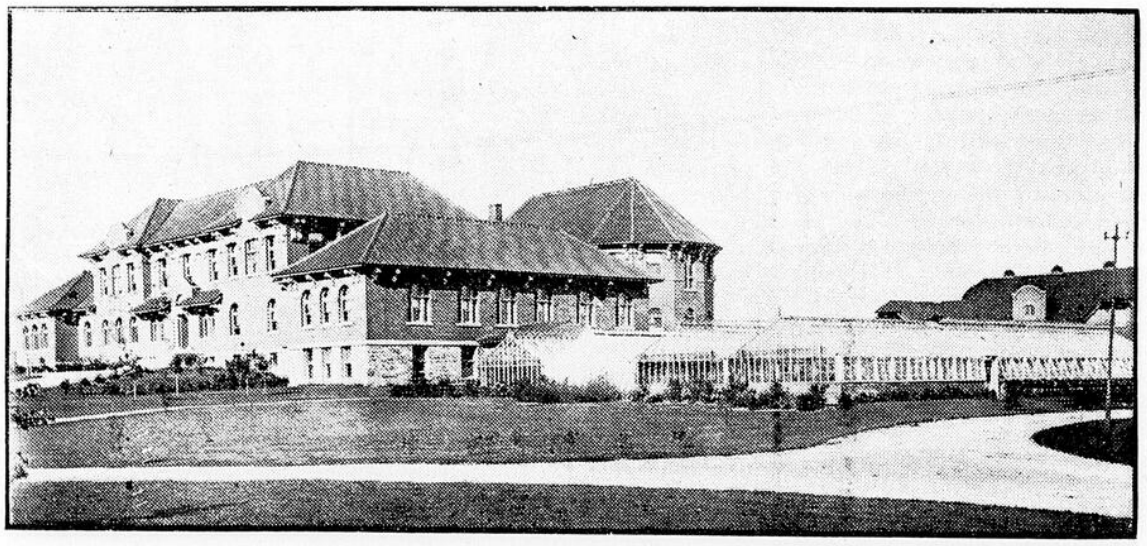
HORTICULTURAL PRODUCTS AT EXHIBITIONS IN QUEBEC PROVINCE.

Quebec Provincial Exhibition.

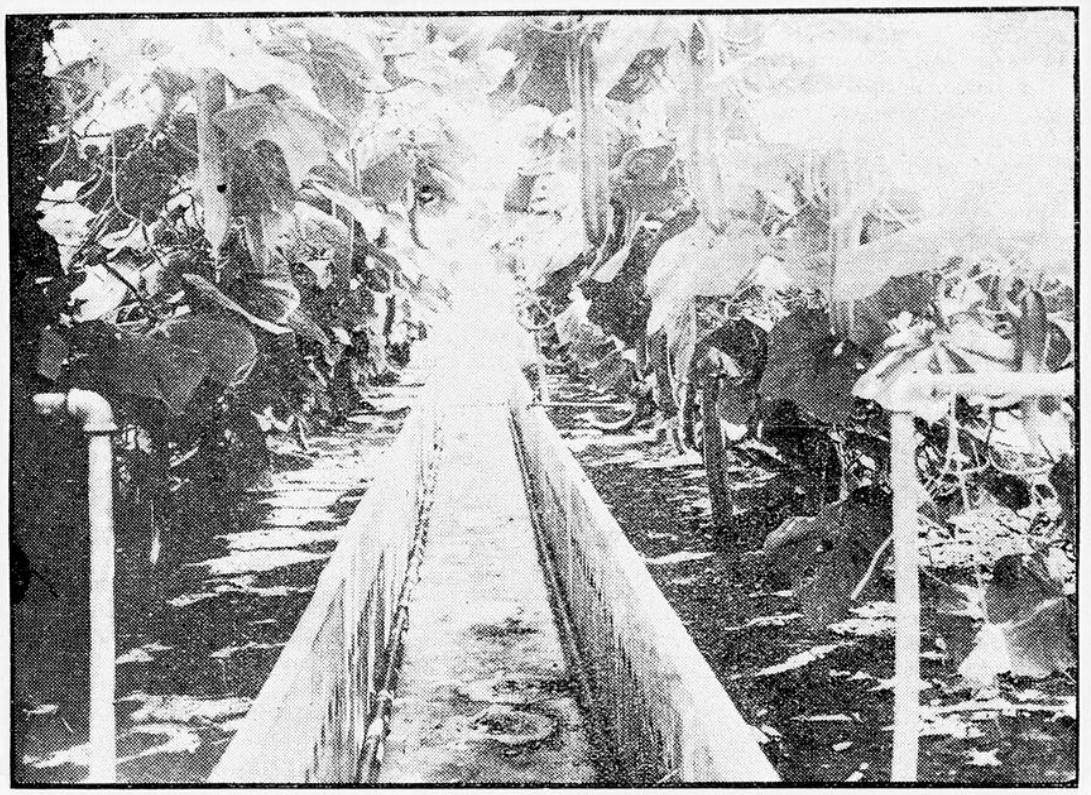
The Provincial exhibition at Quebec City, Aug. 28th to Sept. 2nd, is held too early to secure a good exhibit of some of the leading Quebec apples. Fameuse and McIntosh Red, two of the standard apples for this Province are, on average seasons, not far enough advanced to make a creditable display. This season, however, is unique in that apples, grapes, plums etc., are about 10 days in advance of other years in reaching maturity. This in a measure accounts for the excellent display of apples at the Quebec exhibition at this early date. The season also has been favourable for the development of spot-free apples. Freedom from this disease is due no doubt to the extremely dry early summer with much less than the usual atmospheric humidity.

The Exhibit of apples at Quebec was large and the fruit generally was good. In the single plates class some exceptionally fine Duchess. Wealthy, St. Lawrence, Alexander, Russets and Wolf River were shown. The McIntosh Red and Fameuse entries were not large but the fruit shown was well grown and well colored. There were several collections all of which were creditable, the prizes going principally to Rouville Co., growers. Two orchardists from Rougemont, Mr Chs. Levesque and Mr. Paquette, carried off a good share of the prizes in apples.

The exhibit of European plums was not large. European plums generally in this province failed to set fruit, altho showing considerable bloom, due no doubt to injuries to the pistil while still dormant during the winter. There was a fair show of Americana sorts such as De Sota,



VIEW OF GREENHOUSES AT MACDONALD COLLEGE.



CUCUMBERS GROWING IN GREENHOUSE AT MACDONALD COLLEGE.

Cheney and Hawkeye. The pears were few in number but excellent specimens. The Flemish Beauty Variety was most in evidence and is without doubt the most valuable variety for this Province.

An interesting feature of the fruit exhibit was the demonstration exhibit that was shown from the sections where demonstration orchards are located. Five boxes of well-graded and well-packed apples were forwarded by the executive of each of the demonstration orchards at the request of the Provincial Department of Agriculture. This added much to the attractivness of the fruit display, and the department is to be congratulated on having this exhibit put up. Many visitors expressed surprise that such apples could be grown in the Province, and it would seem that the staging of such exhibits is extremely desirable if we wish to advertise the possibilities of this Province in fruit production.

The exhibit of vegetables was unusually good. The vegetable sections around Quebec city evidently have not suffered from the extremely dry weather prevailing in many other parts of the Province. The celery was exceptionally good and there is no good reason why celery should be imported into this province to supply our markets. Climatic conditions in sections bordering on the St. Lawrence below Quebec are such that the celery of the finest quality can be cheaply produced. Irrigation is not necessary to produce crisp stalks and the temperature is more suitable than in other sections of the province. The Charlesbourg vegetable growers carried off the majority of prizes. The exhibits of collection of vegetables which were arranged in a conspicuous place in one end of the main building was a feature of much interest. It was rather difficult to decide as to which of the three exhibitors should have first place. The exhibit put up by the Hon. C.-E. Dubord's gardener was neatly arranged, and while not as extensive as that put up by the two Charlesbourg exhibitors had a slightly better quality of produce and was awarded first place. Many of the first prizes for vegetables went to the gardener who has charge of Hon. C.-E. Dubord's extensive vegetable farm at Beauport, Que.

The exhibit of flowering plants and cut flowers was not large, nor was it well staged. This was due to no fault of the exhibitors. The first place set apart for the fruit and flower show was a tent which unfortunately was blown down soon after the exhibits bad been arranged, which made it necessary to remove the exhibits to more suitable quarters. The flowers however were badly damaged, and as a result the display was anything but satisfactory. There were some good pot plants but the cut bloom was poor. It is to be hoped that in the future more attention will be given to this important exhibit and a suitable place for staging the exhibits be provided.

SHERBROOKE EXHIBITION.

"Is this exhibit from British Columbia?" was the remark frequently heard from visitors entering the fruit building at Sherbrooke. Why B. C., should be on their mind was due to an exhibit put up in the main building at the fair by a progressive real estate firm dealing in B. C., fruit lands. Their exhibit was attractive in size but the fruit exhibited did not show up B. C. to very great advantage. That Quebec Province can produce fruit equal to that of any province in the Dominion, of certain standard varieties, was clearly demonstrated by the excellent fruit display at Sherbrooke. It would be well if more attention in the future is given at our principal fairs to the displaying of attractive fruit exhibits in a conspicuous place in the principal building, thus advertising the possibilities of the Province as an apple growing country.

The apple exhibit was the best ever shown in the Province. The fruit was uniformly good. The Duchess, Wealthy, Bethel, St. Lawrence, Fameuse, Alexander, Golden Russet and Blue Pearmain were particularly well grown. The competition was particularly close between two exhibitors from Cowansville, Mr. Johnston and Mr. Hall. These exhibits show care in selection and handling and were a credit to the province. In best collection Mr. Johnston was first, with Mr. Hall a close second. Missisquoi Co., is well suited to apple growing, many varieties succeeding there that do not do well in many other parts of the Province.

The exhibit of plums and pears was not large but good in quality.

Abbottsford and Rougemont were represented by apples packed in boxes for export. In some cases the fruit was poorly graded, and the pack slack. A tight pack can only be secured by using well graded fruit, and unless the pack is tight the box is not suitable for export. The attractive wrappers used by the Fregeau Brothers, Rougemont, were a commendable feature of their exhibit.

The vegetable exhibit was not as large as one would expect. The potato exhibit was not large but uniform and of good appearance. The vegetable collections were not large nor well arranged as compared with the Quebec or Richmond Fairs, There were excellent specimens of cabbage, celery, onions, melons and various root vegetables.

Sherbrooke always puts up a good flower show, in fact, the best by all odds of any provincial exhibition. The entries in the "pot plants" class were large and the quality of the stock good. In cut flowers it would be difficult to get together a better grown collection. The sweet peas were exceptionally good. A suitable building is provided for this exhibit and the plants are well staged, the exhibitor having a good opportunity to display his stock to the best advantage.

RICHMOND EXHIBITION.

The exhibit of horticultural products at the Richmond County Fair indicates that this part of the Province is well adapted to the growing of all sorts of horticultural products of the finest quality.

The large display of vegetables all of which were well grown brought out keen competition in many classes. There were some exceedingly well grown Montreal melons, onions and celery. The potato exhibit was not large but excellent in quality. In awarding the prize for best collection of vegetables the two competitors in this class were complimented on the excellence of their display. The judge while giving full credit for attractiveness of arrangement awarded first place to the exhibit showing the best grown products. Both exhibits were nicely arranged, the second prize collection, however, was unusually attractive and did great credit to the two young ladies who put up the display.

The apple exhibit was much superior to that shown at previous exhibitions. There were many entries, considering the smallness of prize money offered. The single plate exhibits of Alexander, Wealthy, Fameuse, Golden Russet, Bethel, Blue Pearmain, McIntosh Red and St. Lawrence were excellent, and would do credit at any fruit show. The collections were large with several competitors. Judging from this exhibit more attention should be given to apple growing as a commercial proposition in Richmond Co., the country being evidently well adapted to the growing of a high class product. Certainly better colored and more perfect fruit of the varieties shown could not be produced.

Samples of Moore's Early, Campbell's Early, and Delaware grapes well matured were exhibited. There were some fine plates of Flemish Beauty pears. There were some interesting collections of seedling apples shown, none of which, however, were better than existing well known varieties

The exhibit of flowering plants and cut bloom was large and well staged, making in all a very attractive display of well grown plants, showing that no little attention is given

to this important phase of horticulture at this exhibition. As is the case at all exhibitions attended in the Province the name of the prize winner is not marked on the prize card and the visitor has no way of telling who the exhibitor is. Such a practice is a great mistake as much more interest would be taken in the display were the name of the exhibitor written on the prize card. There seems to be no good reason why this information should not be given on the prize card.

ABBOTSFORD FRUIT EXHIBITION.

The Abbotsford Fruit Growers' Association held their annual exhibition on the 6th Sept. There were a large number of entries in the single plate class of apples. The exhibits were all excellent and a better showing of uniformly good fruit could not be expected. A striking feature of all fruit exhibits this year is the high colour of the fruit, and the Abbotsford grown fruit was certainly ideal in this respect. Mr. Chas. Fisk, Mr. W. R. Honey, and Mr. E. E. Buzzell carried off a good share of the prizes.

The vegetable exhibit was not large but average in quality. Some excellent flowering plants were exhibited as well as cut flowers. Other departments were well represented and the exhibit throughout was creditable.

The prizes for best weed collection, with seeds of each, given by Dr G. M. Byers, Montreal, were captured by Miss Winifred M. Honey, first, and Miss Helen Lovett 2nd. Such exhibits are instructive feature of an exhibition, and much interest in various weeds has been created through these collections, proving of great educational value to the community. It would be advisable for exhibitions generally to offer prizes for similar exhibits.

ROUVILLE COUNTY FAIR.

The above exhibition held at Rougemont brought together a great number of people from all parts of the County. The space given up to fruits and vegetables was not large and the prizes offered were small, which no doubt accounts for the limited number of exhibits. The fruit exhibit while not as large as one would expect to find in this fruit county was excellent in quality. The standard varieties were well represented by well grown specimens of good colour. The Fameuse, McIntosh Red, Wealthy, Blue Pearmain and St. Lawrence were especially good.

The exhibits of vegetables were fairly good with several nicely arranged collections. The quality of these products is not as high as one would like to see, but this is no doubt due to the extremely dry weather prevailing during the summer in this section.

There were some excellent specimens of house plants in pots and a fair collection of cut flowers,— in all a very creditable show.

A notable feature of this exhibition was the great Interest taken in the various exhibits by those in attendance, and it would seem possible to very much increase the value of such exhibitions by offering larger prizes in the different horticultural classes, thus bringing together better and larger exhibits.

W. S. B.

THE MEETING OF THE POMOLOGICAL SOCIETY AT INVERNESS.

Meetings well attended ; Practical Talks and Demonstrations in the Orchard; Successful Exhibition of Fruit, Flowers, and Vegetables.

The Annual Summer Meeting of the Quebec Pomological Society, held at Inverness, Megantic County, on Aug.29-30, is now some way in the past, but its influence for the good of Horticulture in the Province of Quebec will be felt many years hence. The weather was ideal; the country looked at its best; and the speakers were anxious to help. These factors coupled with the fact that the people were the "kindest" and the most "eager" that we have met, resulted in the most successful meeting that the Society has enjoyed.

Perhaps the most noticeable thing connected with the meeting was the clock-like precision with which everything had been arranged for. Trams were waiting at the station to take the delegates to their destination ; dinner and tea were generously provided by the ladies; implements for orchard demonstration work at hand; the excellent town hall of Inverness in readiness for the use of the Society; and the people out in number — attentive, eager, helpful.

It was not difficult to know "why", after one better knew the President, the Rev. H. A. Dickson of Rectory Hill. This man had worked like a Trojan to convince his people that Inverness was well suited for orchard work, and the taking of the Summer Meeting to that locality was part of his plan.

The afternoon of the 29th was given over to demonstration work in Mr. Dickson's orchard at Rectory Hill. The freedom of the trees from insects and fungi demonstrated the care of the man; and the load of fruit showed that apples could be grown there, and of most excellent quality.

Prof. Crow of the O. A. C., Guelph, Prof. Macoun of Ottawa, and others were thoroughly at home in the Demonstration. Such processes as "budding", "grafting", "pruning", were performed and explained.

The evening meetings were given over to addresses by the leading experts of the Dominion, including Professor Lochhead of Macdonald College, Professor Macoun of Ottawa, Professor Crow of the O. A. C., Guelph, and the Deputy-Minister of Agriculture. Professor Blair of Macdonald College, owing to pressure of work, was present only for a short time. These addresses were of practical nature and the discussions that followed were helpful and enjoyed by everyone.

The exhibition of fruit, flowers, and vegetables, was noteworthy. It was quite evident that the people had been the victims of apple tree agents. Any standard apple might be named, anything from a Siberian Crab to a Northern Spy ; while many apples unsuited to any part of Quebec were on exhibition. The prize list was here open to criticism. In many cases a premium was placed on such apples as the Quebec farmer, on account of climatic conditions, is debarred from growing. Many plates showed great merit. One plate of Russian Transparent was superior to any I have ever seen, while many others would have stood well at much larger showings. The vegetables were very good for the season. They were large smooth specimens. Care was shown all through this department— too much care in some cases for they had been washed until, with potatoes, the skin had been entirely removed. This is a mistake. In some cases the variety could not be distinguished owing to this.

The flowers were hard to beat. Many specimens were prize winners anywhere. These pot plants were given a prominent place in every home. They were cared for, and the plants showed their keeping.

We have hinted before at the kindness of the people. They opened their homes to the strangers. They gave them the best that money could buy, and a right royal welcome. Even the hotel keeper refused money if the stranger had attended the Pomological Meeting. Everyone was convinced that they had not found such welcome before, and expressed the hope that at some future time they might have the pleasure of again visiting Megantic County.

E. M. S.

DEMONSTRATION ORCHARDS

THE ADVANTAGES OF SPRAYING FOR INSECT AND FUNGUS PESTS — CULTIVATION OF ORCHARD SOIL — CHOICE FAMEUSE APPLES — ALFALFA FIELD — THE THINNING-OUT OF FRUIT — BENEFITS OF COOPERATION.

With the object of improving the cultivation of fruit trees the Provincial Government has established four Demonstration Orchards this year, at St, Hilaire, at Abbottsford in Rouville, Co., at St. Joseph-du-Lac in the county of Two Mountains, and at Havelock in the county of Huntingdon.

Last July, Mr. Gigault, deputy-minister of agriculture, paid a visit to the Demonstration Orchard, and others, of the Cooperative Society of St. Paul d'Abbottsford. He noted

An out-of-door Meeting of the Pomological Society an the Orchard of Rev. H.-A. Dickson at Rectory Hill, Megantic Co. Prof. Macoun of Ottawa is addressing the audience. On his right is Mr. Peter Reid, Secretary of the Pomological Society, and on Mr. Reid's right is Professor J.-W. Sow of the Ontario Agricultural College, Guelph. Seated on the bench is Mr. G.-B. Edwards of Covey Hill.

with pleasure the effects of the Government Experiment Orchard on unprogressive fruit growers, who thus get inspiration for the improvement of their own orchards. This Experiment Orchard is a beautiful sight, and its verdure testifies to the vitality of the trees.

The orchard consists of 80 apple trees. Half of it has been subjected to cultivation by the Cooperative Society, the other half has been left alone, with the object of testing results of fruit production. On the cultivated half chemical manure was spread. The other half had none. The difference in yield is a clear demonstration of the advantages of chemical manure.

Mr. Blair of Macdonald College, Ste Anne de Bellevue, met Mr. Gigault at Abbottsford.

In the presence of the Deputy-Minister, insect and fungus spraying was done by two men. A bamboo tube attached to a hose is connected with the forcing pump. This long stiff tube sends the liquid over the foliage, sprinking the leaves on the surface, beneath, and all over. This spraying, which needs only to be done two or three times in a summer, gives wonderful results. The trees thus treated produce an abundant yield, free from diseases and grubs, and selling at a good price.

Many Abbottsford farmers were at the Experiment Orchard, and Mr. Blair gave explanations of the effects of spraying, and the methods of application. The deepest interest was shown and many have already begun the practice.

It was reported that there are many young trees half killed by the severe cold last spring after the thaw, when the sap had begun to rise by the action of the sun. The frost has cracked the bark, and these trees will probably die. In future this can be prevented by covering the trunks of the young trees, and thus shielding them from too sudden changes of temperature.

Mr. Chas. Fisk, secretary of the Cooperative Fruit Growers' Society of St. Paul, has an orchard in excellent condition. He followed the experiment and agricultural science movements generally, and applied his knowledge with wonderful results. He practised spraying and found it beneficial. Last year he had the very best Fameuse apples and, as there are always exporters who want the best products at fancy prices, he sold four bushel boxes of apples at the astonishing price of $2.50 a box, and realized a profit of $100.

Mr. Fisk also has an alfalfa field which is a lesson in progress to farmers.

It is well known that alfalfa, which is a leguminous plant like clover, possesses the power of returning a still greater quantity of nitrogen to the soil. Mr. Fisk realized this truth and has profited greatly by it. Last year he harvested three good crops of alfalfa from his field. This year he has cut his first crop, and the second is well on .

In his orchard he has begun to practice fruit-thinning to ensure uniformity in the annual yield. It is too soon yet to calculate results.

Mr. Chas. Byers, president of the Cooperative Society, is another progressive fruit grower. He was formerly a grower of orange and lemon trees in California. After selling his orchard down there at a high price he determined to start fruit growing in the most favorable spot possible, and went in search of a mountainous district to suit his fancy. He went to British Columbia, the Niagara district, through Ontario, the province of Quebec, Prince Edward Island, Nova Scotia and New Brunswick, and finally settled on St-Paul d'Abbottsford as being, according to his professional experience,the most suitable place for fruit-growing. And Mr. Byers is well satisfied with his orchard.

The Cooperative of St. Paul works well. The fruit growers get good ideas in the way of new methods, quantity and quality of their produce, its preparation and ultimate sale.They understand the importance of cooperatives, to increase capital and so permit of the construction of cold storage warehouses to keep the fruit in good condition until such time as its scarcity raises the price.

A grant of $800 has been given this year by the Department of Agriculture to a joint committee consisting of three representatives of the Cooperative, three members of the Pomological Society, and a representative of the Department, to assist the experimentation of orchards which is under the control of the Pomological Society.

If the go-ahead farmers of Abbottsford undertake to build a cold storage warehouse, perhaps the government will give them a grant.

THE SMALL FRUIT PLANTATION

An address given at the Meeting of the Quebec Pomological Society at Inverness.

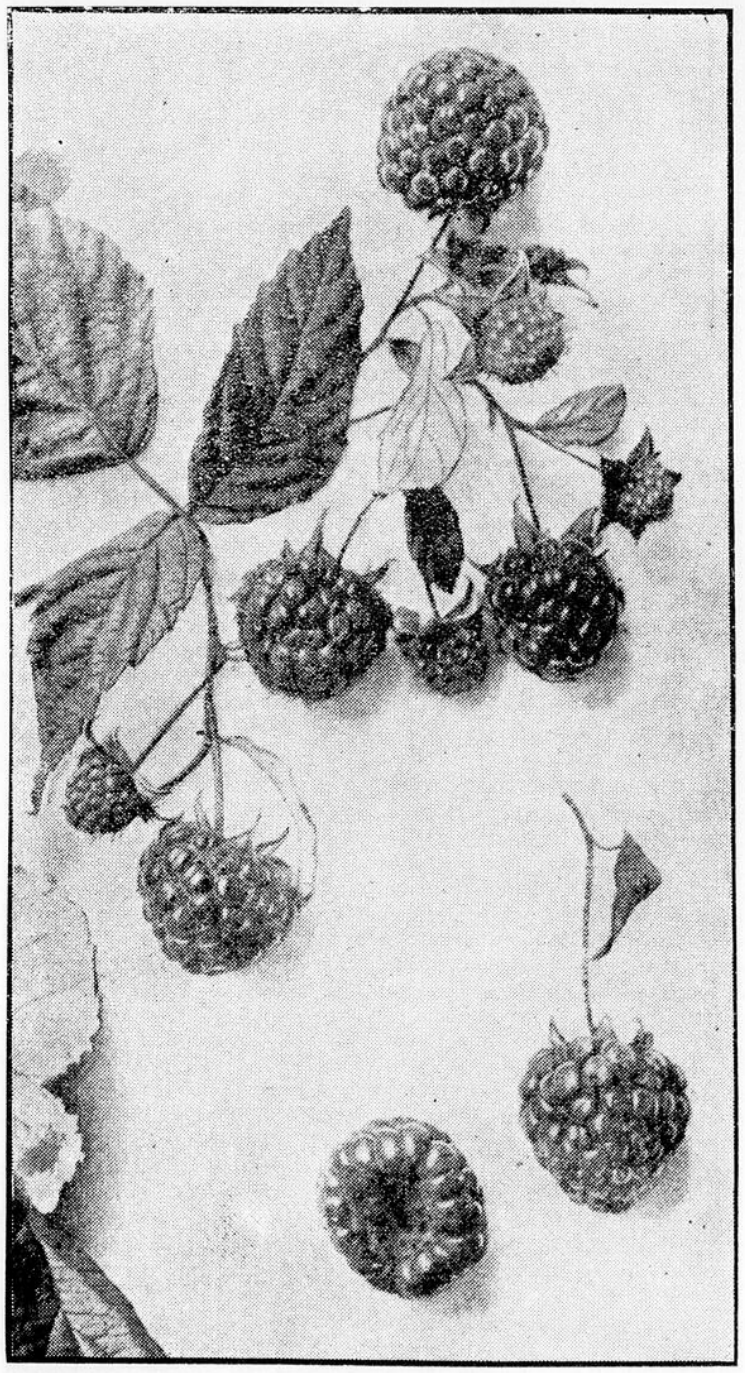
It is always with some hesitation that I attempt to show men how things should be done, for in truth, as Bailey says, our ignorance of how plants live and have a being is most profound. Climatic conditions, difference of soil, etc., have also had a hand in adding to the confusion already existing in regard to the correct handling of bush fruits, so that we find the greatest difference of opinion concerning what should and what should not be done. However there are many points in which, for the most part, we may agree.

THE SITE. — It is not necessary to attach a great deal of importance to this. Much has been said concerning a northern slope. The heat of summer is more detrimental in some cases, I believe, than the cold of winter, and a northern slope will often help you over this difficulty. Drought is the great enemy to be avoided, and a location that will in any way help to counteract its effect should be sought.

THE SOIL. — Bush fruits will do well on a great variety of soils. It must be a soil, however, retentive of moisture, and yet carry no standing water for any part of the year. The moisture content of soil cannot be over-estimated with these fruits, for without it, during the growing and ripening period, the crop is a failure. So dry was it at Macdonald this year, that we were obliged to irrigate, and then our crop was very light. Having the site and soil just right it is high time to consider

VARIETIES. — On one block of Raspberries at Macdonald this year, the Marlboro gave us an average of 46 boxes to the row; Cuthbert 9 ; Herbert 43 1-2; Columbia 46; Sunbeam 20 1-2; King 113. This is sufficient to convince you that the choice of variety is a matter of some importance. Of Red currants for general culture we recommend—Wilder, Pomona, Victoria, Cumberland Red, Red Dutch. White — White cherry, large white, white grape. Concerning Black currants — I was going to say I did not recommend them at all; but many people appreciate them and I understand that the demand is steadily increasing. Saunders, Collins Prolific, and Victoria, are recommended. The Agawam and Ancient Britain are still considered among the best of the Blackberries.

In Gooseberries, the Downing is the best in my opinion, while many would put the Pearl, a cross between Downing and Ashton's Seedling, superior to it. English varieties are so subject to mildew that I scarcely recommend them. I have taken it for granted that you will buy your first plants from the nursery. The propagation of these plants is not difficult, however, and I shall say a few words concerning the process later on. Having obtained the plant, it



HERBERT RASPBERRY.

PEARL GOOSEBERRY.

is absolutely necessary to protect roots from "wind" and "drying". Don't conclude that a few minutes' sun won't hurt. It is ruinous. If they must be kept some time before planting, better prepare a trench, untie the bunches, place them in it, and bring fine soil in close contact with the rootlets. They are safe here for some time. Here we shall leave them "healed in" as we say, while we

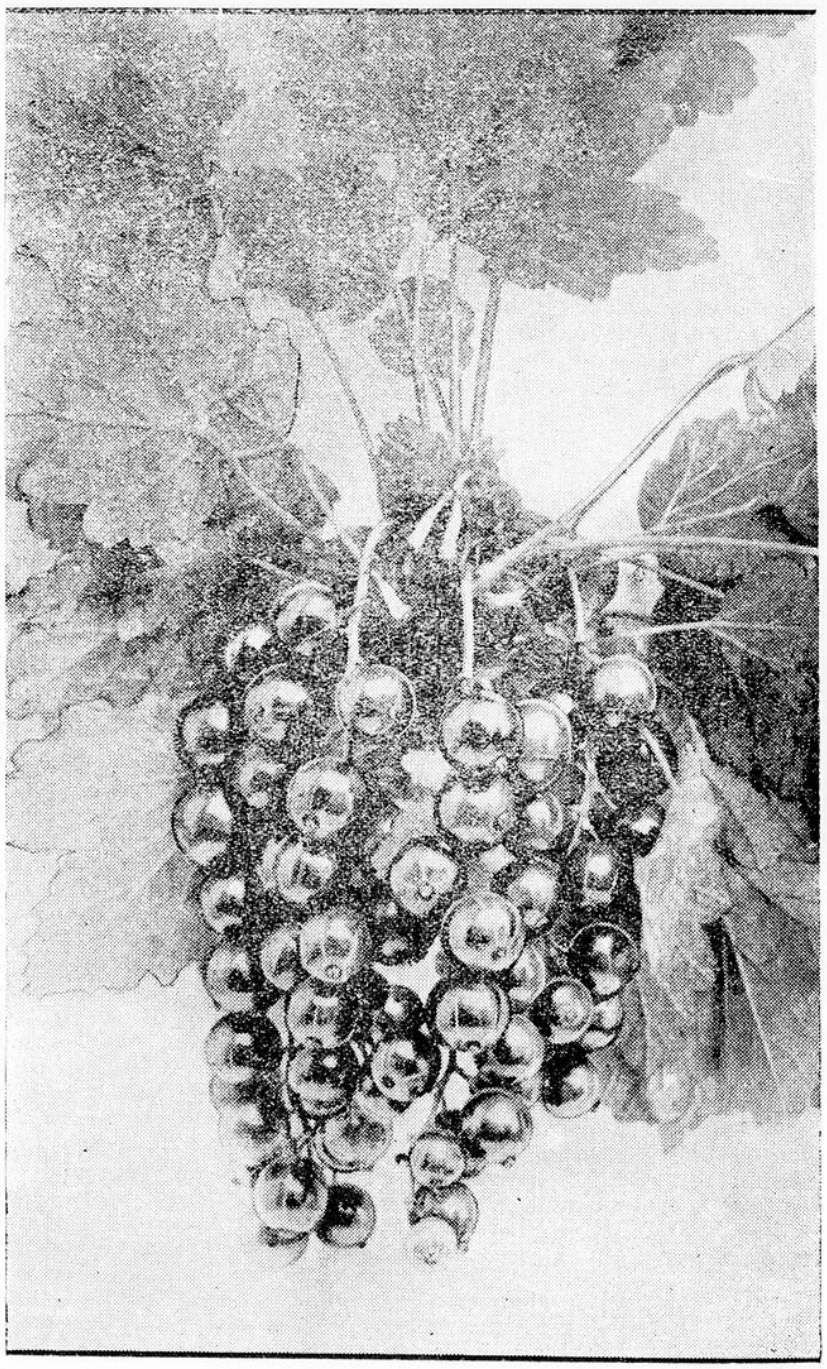
PREPARE THE SOIL.— There are so many ways of accomplishing the same result that I shall let you do it as you prefer; but see to it that soil is in excellent tilth, and when you are sure that it is, go over it once more. Don't make the mistake that my neighbor made, who received his plants and had not much time to care for them. He opened a furrow with his plow, stood the plants in it, and again, with the plow, turned the furrow back, and lo! the planting was done.

FERTILIZER. — A good dressing of barnyard manure is most excellent. If fairly well decomposed it will do no harm if applied at planting time, and thoroughly worked in. Soil which is uniformly fertile by previous culture and manuring is much preferable to one which has been neglected and heavily fertilized at planting time. As with other fruits, potash is essential for the best development of small fruits. Barnyard manure does not contain it in sufficient quantities unless an excessive amount is used, which may cause excessive growth with consequent lack of hardiness, and diminished fruitfulness. Muriate of potash is one of the best forms in which potash may be supplied. 150 lbs. per acre along with the dressing of manure should be about right, and does give good results.

PLANTING.—This may be done in many ways Rows 6' apart and plants 2' apart in row is about right. Some growers plant 5' apart each way, and practically all cultivation is done with horse by cultivating in two directions. This is known as hill culture. It has much to recommend it, but you find little of it in Eastern Canada. The method which I have used is to run marker over field, and then with plow open a trench. If plants are to be set at equal distances both ways run marker over field after furrows have been struck, and where they intersect, set the plant; and do it at once, for if soil dries in the furrow your chances of success are much less. In my own field work I did some planting in furrows which had been struck some days before, and on same day other planting was done in furrows freshly made. The result was so noticeable that there was no room for doubt. The plants were the same. The same degree of care was exercised in the planting, yet the percentage of failure in the dried soil was very great.

CULTIVATION. — During the summer the ground should be cultivated frequently and weeds kept down with great care. Cultivate after every rain to conserve moisture, and to keep soil in fine state of division. Cultivation in years following need not be quite so frequent. A thorough cultivation in early spring followed by a mulch of strawy manure has been quite satisfactory, and has shown exceptionally good results with gooseberries. After picking season is over mulch may be worked in and cultivation proceeded with. Some growers are emphatic in saying that cultivation should stop in July, so as to allow the wood to ripen, Others are equally sure that not only should cultivation cease, but that a cover crop should then be sown, as in the apple orchard. It may be true! I don't believe it. For some reason canes formed in late season sometimes come through when older ones kill during the winter. This is probably due to the fact that the heat of summer weakens these canes to such an extent that all resistance is gone.

PRUNING. — Old canes of raspberries and blackberries are best removed and burned as soon as fruiting is over. Any insects contained in them are then destroyed. They cut early, and the early removal helps in the general cleaning up of the plantation. The different fruits each constitute a separate problem, so far as the pruning is concerned. The black currant bears most of its fruit on wood of the previous season's growth. The red and white currants produce their fruit on spurs which develop from the wood two or more years of age. Depend on two and three year old wood to bear the fruit. Gooseberries are borne on wood one,



CHERRY CURRANT.

two, and three years old ; mostly on two and three years' canes. Raspberries on one year wood. Black berries largely on 1 year wood. The problem is this. See to it that you have plenty of bearing wood at all times. This can only be secured by the removal of the older wood, and a knowledge of just what you want. Some form of hooked knife will be found most convenient for this work. In summer when canes have reached the desired height pinching back is resorted to. This gives you stocky bushes, with many laterals.

THE SUCKERING NUISANCE. — This is a nuisance but not so grave a problem as many suppose. A man once told me that money would not tempt him to plant raspberries on his farm unless they were surrounded by a trench so wide and deep that the bushes could not jump it. Otherwise he would be driven in the deep sea. Another man thought it necessary to board over the whole ground not occupied by the plants. Cultivator with teeth square on end will do better work than pointed ones. Some kind of cutting device may be arranged on back of cultivator, which will clear out the suckers quickly. In changing plantation careful work must be done to rid the field of the old plants. All vegetation must be kept down for one season, which will be quite sufficient to give you a clear field.

WINTER KILLING. — In New Brunswick we find it necessary to turn Raspberries and Blackberries down for winter. It may not be necessary in all parts of Quebec, but I know it is necessary in some sections. I am told that at Rougemont it is not necessary, and I am not in a position to deny it. The turning-down process is not a very tedious or expensive one. One man turns them down while another puts soil on the tips. Thus they are held in position. The cost of laying down and lifting would be about $5.00 per acre. Where blackberries are trained to a trellis as in the Hudson River Valley, the posts are hinged by a pivot to a short post. The entire trellis is then turned down on the approach of winter.

PROPAGATION. — The common methods of propagation consist in a division or continuation of the parent by means of suckers, or cuttings, according to habit of the species.

Currants by cuttings. — Make cutting in fall. They may be planted in open, or placed in sand in the cellar. Gooseberries may be propagated by cuttings but the process is not so easy, Layering is the common method. Raspberries and blackberries are commonly propagated by suckers. The method is quite satisfactory and is certainly the easiest way. Root cuttings are easily made, but there will be a fairly large percentage of failures. Black raspberries are propagated by burying the tips. In nature they root themselves, as the grass helps to hold them in position while the process is going on; but on cultivated land the wind keeps them moving to such an extent that it is necessary to bury the tip.

INSECTS. — " The Currant Worm" is known to everyone growing gooseberries or currants. When larvae are young they are easiiy killed with Paris Green; 1-2 lb. to 40 gals. is usually sufficient. The Currant Borer lays an egg in a bud on the young wood, and the caterpillar, when hatched, eats its way into the cane, and destroys the pith. Close pruning is the only remedy. Raspberry Cane Borer, Oberea Bimaculata, is troublesome at Macdonald. During June tips of raspberries are often found fading and bent down. The stem is girdled by a very pretty beetle. It remains in the cane during the winter as full grown larvae. Pruning is effective. Red spider is very troublesome during dry weather. It is hard to control.

It is thus seen that there is nothing difficult about the culture of small fruits beyond the care in the handling of any crop. The yield is fairly remunerative. Raspberries should give 70 bushels per acre. At 10 cents per quart the value would be $224. per acre. Currants should give 100 bushels per acre. The price would run a little less. Gooseberries should give 200 bushels per acre. The thorns are there, the picking is a problem; but in face of all I am satisfied that small fruits should occupy a larger place on the Quebec farm.

E. M. STRAIGHT.
Macdonald College.

The Farm and Farm Crops

WHERE THE PAINT BRUSH GROWS

An Inquiry among the Farmers of the Eastern Townships.— What the Best Farmers are doing to Control this Weed.— How they View the Situation.

(Continued from our September 1st issue).

IN MISSISQUOI COUNTY

The good farmers along the Cowansville-Dunham road are not afraid of Paint Brush in land that can be cultivated. Mr. Chas. Ruiter, owner of the Pinehurst Jersey Stock Farm, said on being interviewed : "We have no trouble with Paint Brush. It is not nearly so hard a weed to eradicate as Quack grass or Sow thistle. To eradicate Paint Brush it is necessary to cultivate the land thoroughly —one plowing is not sufficient — and to manure it well. If corn or hoed crops follow there will be no fear of trouble from this weed. The lack of labor, it should be emphasized, is a great drawback to clean farming. For example, this year it was utterly impossible for me to cultivate my root crops on account of lack of help, so I shall lose my root crop on that account."

Mr. George Beach, another of the prosperous and influential farmers near Dunham village, considers that Paint Brush can be controlled by good cultivation and suitable rotation, but he is deeply concerned about the spread of the weed in his rough pastures. " When you give advice regarding the control of Paint Brush in the "Journal of Agriculture ", consider well, he said, " the particular and peculiar conditions that exist on most of our farms. Remember the fact that labor is scarce, that many of our pastures are too rough to cultivate, and that we do not live under the ideal conditions that exist in the minds of some writers in agricultural papers. I do not know whether sheep will keep this weed under control in pastures or not".

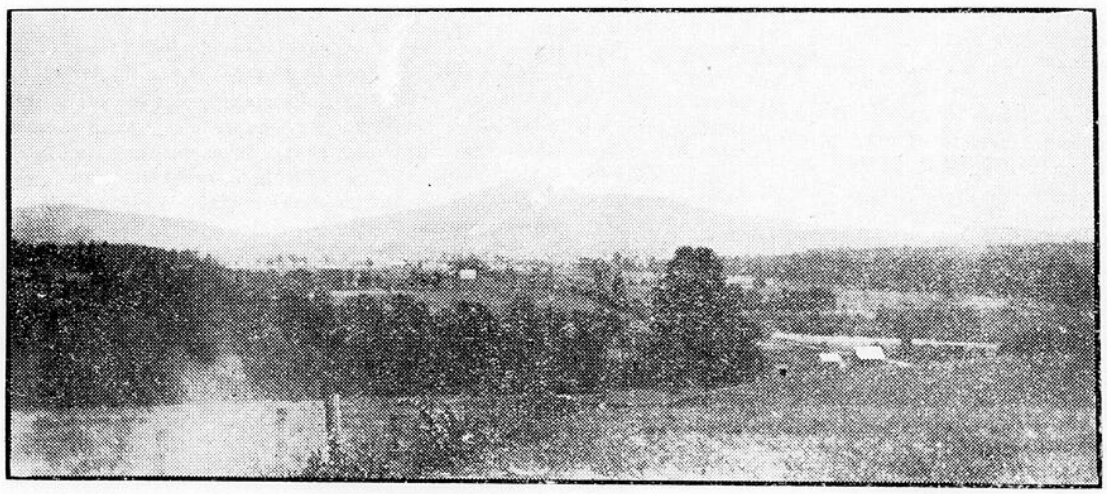
Joseph Lee and Son thought Paint Brush was worse this year on their farm than it was last year, but it has not yet given much trouble in their pastures. They did not believe that a single plowing of sod in the fall, followed with oats seeded to clovers and grasses, would kill it.

Mr. M. Curley of Dunham village said he did not know how to deal with Paint Brush in rough pastures. " Twenty-five and thirty years ago every farmer in this district kept a flock of sheep and the pastures ", he said, "were much cleaner of weeds than they are now. Yes, I believe farmers should keep more sheep, but sheep-worrying dogs have put sheep out of business. So far as Paint Brush is concerned it need not be dreaded if only good cultivation is given. One reason for the spread of this weed is the fact that many of the farms are rented and proper attention is not given to the control of weeds".

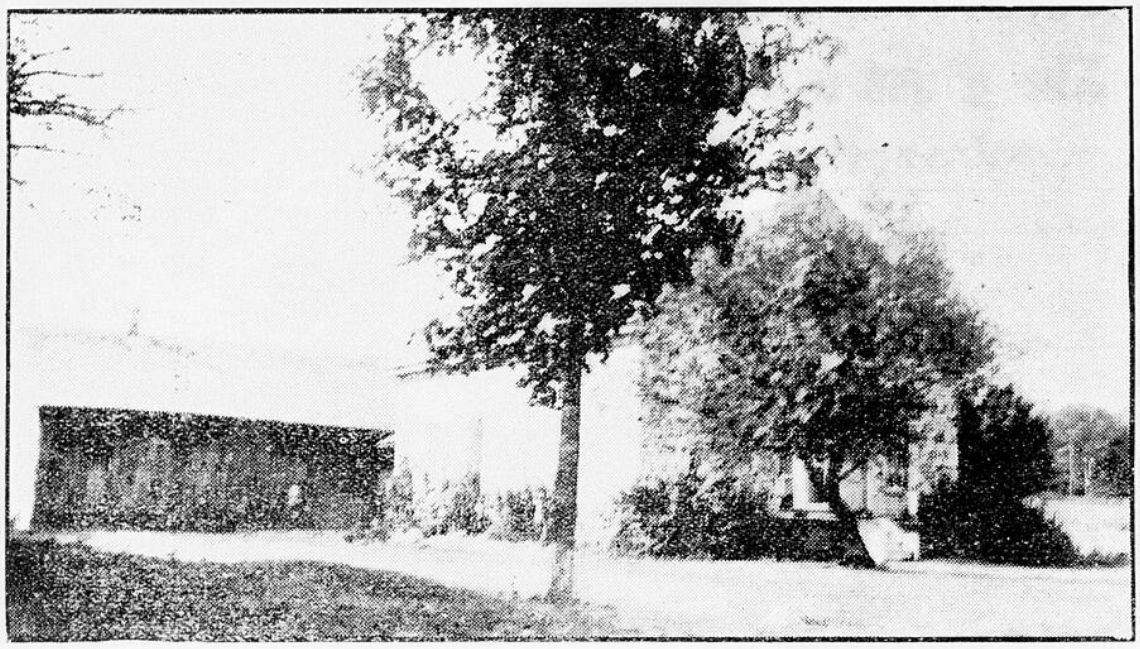
Paint Brush is very bad in the hilly district about the Pinnacle mountain near the border of Vermont. No person appears to be doing much to control it for no practicable remedy seems to be available. Very few farmers keep sheep, but it would appear as if they would be obliged to turn to this industry if they ever hope to control the situation.

The farms in the valley leading from Freligsburg to Stanbridge East are not infested to any great extent, but there are some other bad weeds that have gained a foothold and will be hard to dislodge. Wild Carrot or Bird's Nest is very plentiful along the roadsides, and in some cases the fields are invaded. Knapweed occurs plentifully along the roadside in one locality. One of the worst cases of Sow thistle infestation was seen in an oat field between Stanbridge East and Bedford. These three weeds require careful attention and handling; if they are carelessly treated they are liable to spread and become most serious pests.

In the section of country about St. Armand Paint Brush is not as bad as it is farther east, but every farmer knows it and has had some



View of Pinnacle Mountain from Freligsburg Road. The farms about this Mountain are badly infested with Paint Brush.



THE HOME OF MR. W. J. MOE, WHO LIVES BETWEEN ROCKBURN AND FRANKLIN.

dealings with it. Mr. W. A. Smith of St. Armand said that the railways were not doing their duty in keeping their property clear of weeds. Moreover, he thought that no great progress would be made in keeping down weeds and in preventing their spread until Government appointed a Weed Inspector. Frequently it is necessary to force a careless neighbor to do his duty, but no farmer wants to make enemies of his neighbors. A government official could do this very well.

IN HUNTINGDON COUNTY

While very little time was spent in the vicinity of Huntingdon some inquiries were made as to the prevalence of the Paint Brush in the townships surrounding the town. W. H. Walker, Esq. M. L. A., who knows the district about as well as any person and who is one of the most progressive farmers of this prosperous county, said that Paint Brush was present to some extent but up to the present could not be considered a troublesome pest. To be sure it has a foot-hold in pastures that have been allowed to run out, but in most farms to the south and west of Huntingdon the land is well cultivated and a systematic rotation of crops is practised. As a result Paint Brush does not make headway.

Mr. Gordon Wood, the newly appointed District Representative, altho' not well acquainted with the district, was of the opinion that Paint Brush will never become much of a pest where good cultivation is followed.

In the eastern portion of Huntingdon County, however, the Paint Brush is more of a pest than in the western part. There is more broken land that is in permanent pasture which cannot be cultivated. In such land Paint Brush is a real and threatening pest, and the farmers do not know how to prevent its spread. Messrs Wm. Cameron and Robert Neely of Herdman expressed themselves quite freely regarding the situation. They believed that ordinary cultivation will kill Paint Brush, but they did not think that the too common practice of giving but one plowing to sod, sowing it to oats and seeding down to clover and timothy would control or kill the weed. They thought that sheep would keep down the weed in pastures, but unfortunately but few farmers kept sheep in their neighborhood. Mr. Neely said that years ago most farmers kept sheep and the pastures were then much freer from weeds of all kinds than they are now. Sow Thistle and quack grass were, he considered, much more to be feared in cultivated land than Paint Brush.

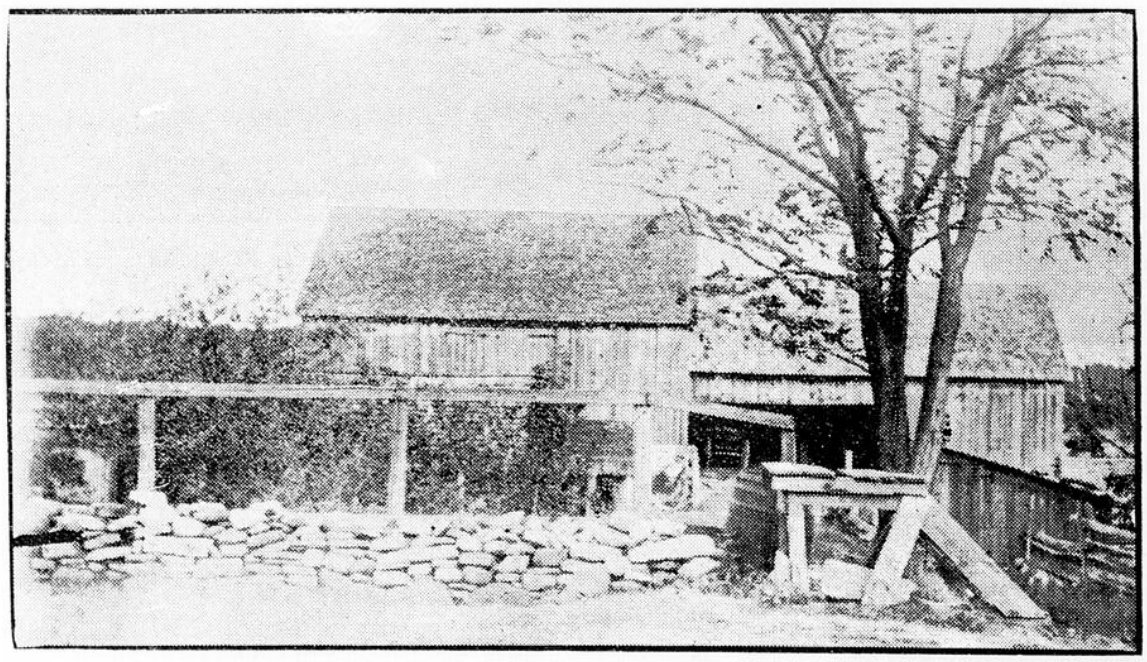
We called upon several farmers between Rockburn and Franklin Centre, who were good enough to discuss the Paint Brush situation with the "Journal" representative. Mr. W. J. Moe said that the weed was abundant on loam, but not on gravelly soil. "I have no trouble in dealing with Paint Brush", he continued, "in land that I can cultivate, but I do not know how I am going to fight it in the upper pastures. I do not know if sheep will keep the weed clipped down or not. I do not mean to say that I do not mind the weed in my other fields for I do very much. I have to spend more time than I can afford with the help I can get in fighting the weed. The Paint Brush seed is carried by the wind from infested pastures to cultivated fields so that one has to be constantly on the watch for its appearance. It does undoubtedly increase the burden we farmers have to bear. With regard to the cultivation necessary to kill the Paint Brush I believe it will require at least two or three cultivations in late summer and fall. If a good crop is brought on the following year so much the better. My experience points to the fact that it is easier than quack grass to kill, but still it must get more than a single plowing if we desire to control it".

Mr. George Blair, one of the best farmers of the district, said: "I have very little Paint Brush on my farm. I attribute this freedom from the weed to the fact that I am very careful to exterminate it as soon as I find it in any of my fields. I believe that a good farmer will have no difficulty in keeping his cultivated fields free from this weed. I am much more afraid of Sow thistle and quack grass. No, I see no way of controlling Paint Brush in my pastures. I do not know what is going to become of them in time."

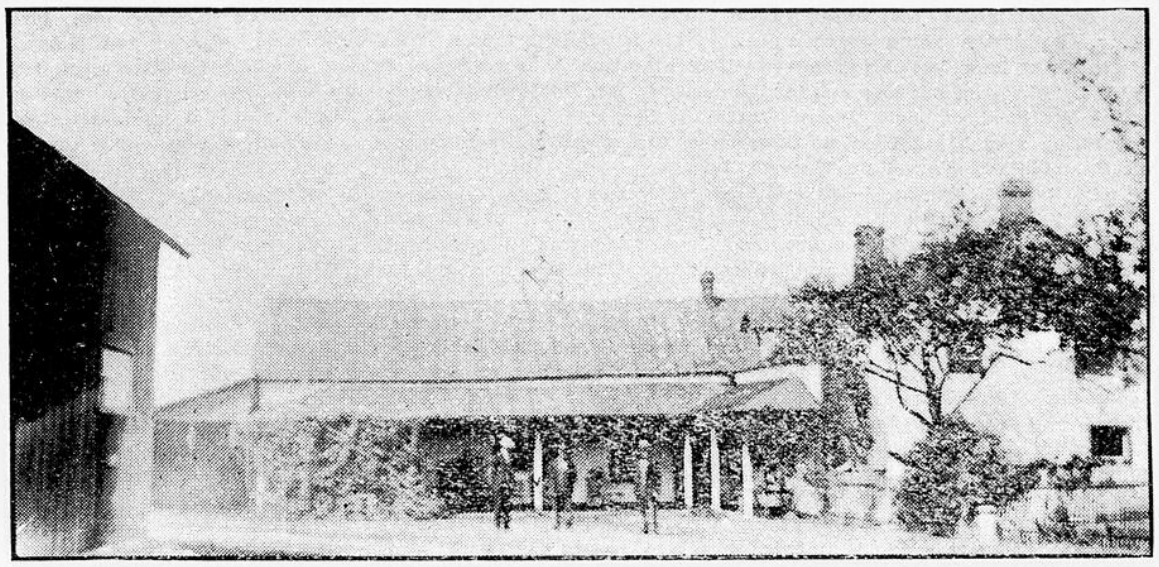
Messrs. Clark Goldie, Fred. Fulton and Ben. Johnston, other excellent farmers of the same district, had practically the same opinions regarding the prevalence and control of Paint Brush as Messrs. Moe and Blair.

There is much Paint Brush on the high broken land between Franklin and Covey Hill. This land will, moreover, form a source of infestation for the surrounding country. No remedy seems to be at hand but the development of the sheep industry on this extensive tract of rough land.

Mr. George B. Edwards of Covey Hill, an extensive fruit-grower and for many years a Director of the Pomological Society of Quebec, received the Journal representative with his accustomed warm-hartedness, and discussed the Paint Brush problem with him. "We have so much rough land that can't be cultivated it is impossible to keep Paint Brush under control. Sheep will keep it down to some extent but my sheep have been worried by dogs so much that I am half inclined to give up sheep entirely. I hope the Legislature will soon pass an Act that will allow municipalities to regulate the keeping of dogs and to compensate the owners of sheep for any losses incurred from dogs. There is no use at the present time in any person attempting to keep sheep there is no way of getting at the dogs or the dog-owners.



THE BARNS AND STABLES ON THE FARM OF MR. W. J. MOE.



THE HOME OF MR. GEORGE EDWARDS OF COVEY HILL. MR. EDWARDS HAS LONG BEEN A MOST SUCCESSFUL FRUIT-GROWER.

"I have no trouble in killing Paint Brush", Mr. Edwards continued, "in land that can be tilled. Quack grass is worse than it. Just south of us here in New York state the farms are terribly infested with Paint Brush. I sometimes think that if we could get quack grass to grow in our pastures it would soon oust the Paint Brush and at the same time furnish good feeding". "I have not noticed much of the weed between here and Hemmingford".

In our drive from Franklin Centre and Ormstown we observed at intervals along the roadside considerable Paint Brush.

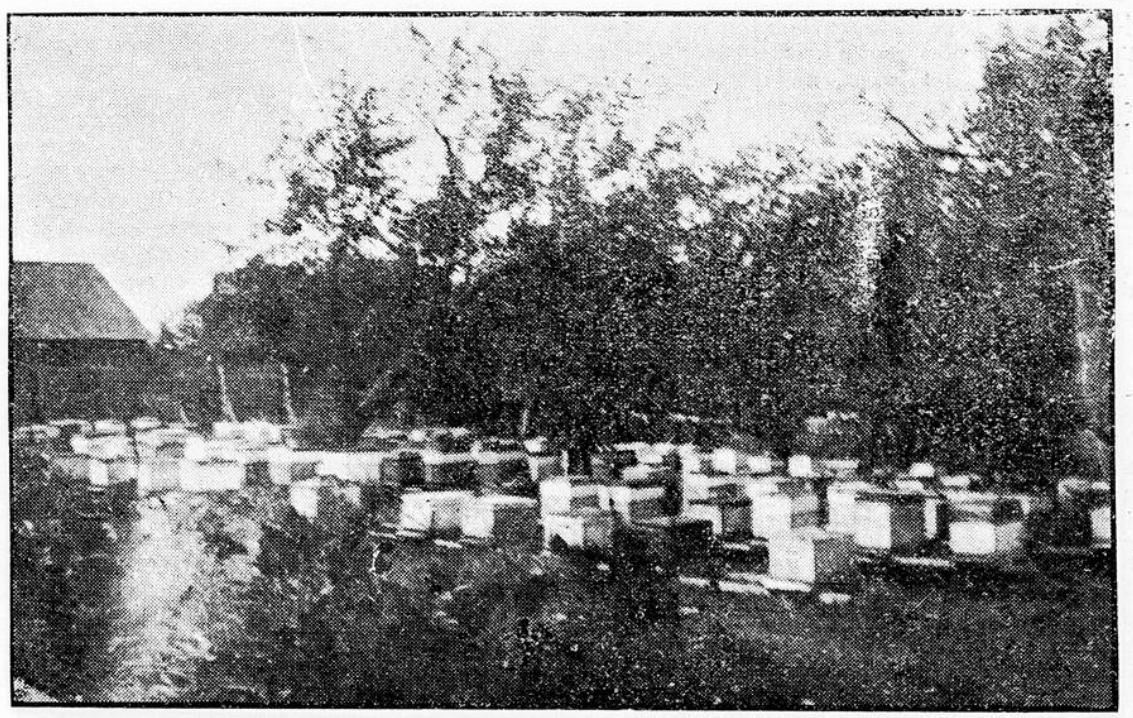
GENERAL CONCLUSIONS.

We believe we are justified in drawing the following general conclusions from our many interviews with farmers who have had experience with Paint Brush both in pastures and cultivated lands, and from our own personal observations on infested farms in several counties:—

1. Paint Brush is a most persistent weed in pastures and tends to crowd out the grasses by its habit of spreading over the ground by runners and by its leaf habit of lying close to the ground.
2. The best farmers are able to control Paint Brush in land that can be tilled. Where good cultivation and a rotation of crops are practised this weed does not give serious trouble.
3. Paint Brush, like many other weeds, is hard to dislodge from rough pastures that cannot be tilled. This phase of the situation gives farmers most concern.
4. It is not enough to plow infested sod but once before sowing to oats. This treatment may kill a few of the weeds, but it stimulates the others present to greater activity. Too many farmers are practising this one-plowing method.
5. When sod land infested with Paint Brush is plowed as shallow as possible just as soon as the hay crop is removed, then rolled and harrowed, then disc-harrowed thoroughly ten days later and cultivated at intervals until autumn, then plowed deeply just before winter sets in, the Paint Brush as well as many other noxious weeds will be pretty well exterminated. If corn or hoed crops follow the next year and continuous cultivation be given, not only Paint Brush but also quack grass will be killed.

   It is important to enrich the land at this stage and when seeding down is done to give a heavy seeding of clovers and grasses-about 20 pounds per acre.
6. Sheep will eat Paint Brush, and there is strong evidence that if a sufficient number are kept in rough pastures there will be little trouble from this pest. Much of the hilly infested land of the Eastern Townships can, we believe, be reclaimed by sheep pasturing.

W. L.



THE APIARY BELONG TO MR. EDWARDS, COVEY HILL, WHO FINDS BEE-KEEPING GOES WELL WITH FRUIT-GROWING.

HARVESTING AND STORING THE ROOT CROP.

The best time to Harvest Mangels and Turnips; Care required to Store them properly for winter use.

HARVESTING MANGELS.

Mangels and sugar mangels growing, as they do, so much above ground, and much exposed, are more susceptible to frost than other roots. It is therefore necessary to begin pulling about October 15th. The date of pulling must be regulated according to locality. In some districts it may be necessary to pull a few days earlier, and in other districts a few days later. The roots should have as long a season of growth as possible, for the nearer the roots come to maturity the greater will be their feeding value, and they will keep better and later during winter. If pulled too early they are apt to become soft, and to heat; and if frozen they will spoil in storage.

The common practice, and the most advisable in taking up mangels and sugar mangels which grow well up out of the ground, is to pull and top them by hand. Each root is pulled with both hands, then all the tops are gathered together, and with a sudden jerk the tops are broken off. It is preferable to break or twist the tops off by hand, for when topped with the knife they are more liable to decay. For convenience in loading into carts or wagons throw four drills into one row; this is convenient for both pullers and loaders. If there is no danger of frost, allow the roots to remain on the ground 24 hours after being pulled and topped as this will improve their keeping qualities by drying them, and any soil pulled will shake of much more easily before reaching the root cellar. If there are indications of frost, roots should be either housed or covered with leaves, as a few degrees of frost will injure mangels after they are pulled.

Should mangels get frost bitten, allow them to remain in the field to thaw out before handling them, as the least handling when frozen will break the skin and encourage rot. Sugar beets and carrots are more difficult to harvest owing to their long underground roots. It is best to run a subsoil plow or an ordinary plow without a mouldboard along one side of the row, loosening and cutting off some of the strong fibrous roots, and enabling the puller to take up several tubers at one time. These are usually pulled and laid in rows to be topped with the knife and thrown into baskets or boxes for convenience in loading. The time to harvest carrots and sugar beets in most districts is between October 20th and 30th. Turnips being much hardier should be left in the ground longer as a slight freezing will not injure them so long as they get thawed out before they are housed or pitted.

HARVESTING TURNIPS.

There are several successful ways of harvesting turnips. One of the easiest is to top them with the ordinary hoe, and turn the roots out with a sharp-shared plow with the mould-board removed. By striking the tops of two rows together the turnips can be plainly seen, and if turned inwards on the row of tops they are clearly visible for loading into wagons or carts. Another plan is to top with the ordinary hoe, and drag them out of the ground with the harrows by harrowing across the drills, letting the harrows lap, if necessary. The method answers well in sandy soil, but in clay soil the turnips are considerably injured, and as a rule there is more earth clinging to the roots than is desirable. With this plan the tops have all to be removed before harrowing.

When help can be secured, the old method of pulling and topping by hand, using a large heavy knife, is preferable. One stroke to cut the top root, the second stroke to cut the top off, and by a slight swing while cutting, the top four drills are thrown into one row for convenience in loading. Turnips should be left on the ground a day or two after being pulled, as they are not so easily injured by frost as other roots.

DRAWING TO THE CELLAR OR PIT.

The ordinary low wagon will be found best as it is advisable to run the roots over a slatted chute so as to sift out the earth. No tops should remain on the roots as they will soon decay, and injure the roots. Where the roots drop into the cellar they are liable to heat unless a ventilating shaft is first put in as close to the opening as possible, and running from the bottom to the top of the root cellar.

There are two important matters in connection with the successful storing of roots. The first is to keep them sufficiently cool, the second to prevent them from freezing. Heat will spoil them as quickly as frost, and vice versa.

VENTILATION.

The principle of ventilating the root cellar is the same as that required to cause a draught in the stove. There should be shafts made down outside the wall to enter at the level of the floor below; with large openings directly through the roof. The outside doors and windows should be kept open every day until there is danger of frost. To keep out the frost have the root cellar at least two-thirds below the surface of the earth. About December 15th, it may be necessary to bank up to the roof with stable manure. Where there is no root cellar, or insufficient room, roots may be pitted successfully. Select a high dry spot convenient to the buildings. Mark out a pit the required length, and about five feet wide, and excavate two or three feet deep. But if there is danger of water, excavate only three or four inches. The earth should be laid along the sides for covering. Build the roots up to a point three or four feet high, then cover with straw about four inches, and with earth about eight inches. This covering may be sufficient until about the middle of November. Then cover with 4 to 6 inches of stable manure and twelve inches of earth. To make provision against excessive frost it is advisable to cover the pit the last of December with long stable manure. To ventilate the pit, take two boards one inch by six inches wide, and eight feet long, nail good strong strips of wood crossways up three feet, the other five feet to be boarded solid, leaving the top open until severe frost comes. Then put a bunch of straw in to keep the frost out These shafts should be put in every eight or ten feet apart, along the pit, the slat work to extend through the roots to the bottom of the pit. It is desirable to keep an even temperature in the pit. To ascertain the temperature an extra shaft may be put in to allow a thermometer to be raised and lowered, and temperature noted, as heat and frost have to be guarded against.

The greatest success in growing roots will be obtained when the following conditions are observed:—

Systematic rotation of crops;
Roots to follow a fresh clover sod;
Manure once in the rotation; and
Thorough cultivation in preparation for the crop, and after the roots are sown.

J. FIXTER.

THE QUEBEC EXHIBITION.

The Provincial Exhibition held at Quebec, Aug. 28th.—Sept. 5th. was a decided success.

Fine weather brought out large crowds from both city and country to see the numerous entries in the various departments. Grain, roots, and corn made a splendid showing. In grain many specimens of wheat, oats, and barley were shown. Many of the samples of wheat shown weighed 61 to 63 pounds per bushel, while in oats there were some fine samples of Banner, Abundance, and Ligowo. In barley the six-rowed types were most in evidence, All the grain shown gave evidence of careful selection and harvesting.

The exhibit of grain in straw was slightly below what it could be, this being the first time many had shown. Many exhibitors have something to learn in putting up a good sheaf. It might be well here to recommend to the Directors that a sheaf of grain be always required to be shown with the bag, as it has been known that the same bag of grain has appeared at fairs for several years.

In corn for ensilage, a splendid lot of fairly well matured varieties were shown, as also the ripened grain.

The Apiary Exhibit would do credit to many of our larger shows. About a dozen exhibitors showed in each of the many classes. Both comb and extracted honey were put up in neat cases and glasses, and were so tastefully arranged in the centre of one of the large halls that a great deal of attention was attracted to this department. Maple products also made a fine showing — sugar and syrup of the very best quality could be found.

The exhibit of farm machinery attracted a great deal of attention. Many new and useful implements were shown. This branch of the Exhibition might be extended with very great advantage to the farmer, the exhibitor, and the Exhibition. Several of the machines shown were quite new to the farmers of the Province, and farmers in general would be greatly benefited if they used such machinery on their farms. A few that may be especially mentioned are— the complete gasoline engines; the small but useful grain threshers; the double cut-away harrow; the many useful styles of disc harrows; and riding plows both double and single. The great Blizzard Blower which is capable of cutting over 100 tons of ensilage per day was also giving demonstrations of its work. One of the machines that attracted most attention was the Sawyer-Massey Clover Huller. This machine is owned by the Government, and through the enterprise of the Hon. Mr. Caron instructors were in attendance each day giving information to farmers as to the value of growing clovers for seed, and the working of the clover huller. This machine was quite a novelty to the average farmer of the province, being so much larger than the ordinary small grain thresher.

If the instructions given by Mr. J. C. Coté of the Seed Branch of the Department of Agriculture, Mr. Curtis, and Mr. Caron of the Sawyer Massey Co., and Mr. John Fixter of the Macdonald College were generally followed more clover would be grown, more up-to-date machinery used, and better farming would be the result.

J. F.

AT THE PROVINCIAL FAIR. PRACTICAL DEMONSTRATIONS UNDER GOVERNMENT AUSPICES.

The great Provincial Exhibition which took place at Quebec from Aug. 28th to Sept. 5th was a brilliant display of agricultural progress, and the many farmers who visited it profited immensely by the practical instruction for which the Department of Agriculture and the Experimental Agricultural Union of Quebec had made special arrangements; and also by the splendid exhibition of up-to-date, modern farm implements.

THE DEPARTMENT OF AGRICULTURE AT THE EXHIBITION

Taking advantage of this great gathering of farmers attracted by the Provincial Exhibition, and wishing to instruct them on matters of vital importance at the present time, such as Road Improvement, the growing of clover seed, forestry, aviculture, stable ventilation, etc., the Hon. J.-Ed. Caron, Minister of Agriculture, originated the happy idea of practical demonstrations on the Exhibition grounds themselves, before thousands of interested spectators anxious to learn and turn to good account the skill of the lecturers from this Department.

With this object the honorable minister had a large space reserved devoted to drainage work, had a pretty kiosk constructed where the officers of the Dept. of Agriculture and the specialists who were lecturing could meet, and a large tent was pitched for demonstrations in orchard cultivation.

PRACTICAL DEMONSTRATIONS IN ROAD-MAKING.

The different machines used at the Exhibition, and belonging to the Dept. of Agriculture were —Crushers, worked by powerful steam locomotives (from 15 to 18 horse power), road machines, water carts, and steam rollers. These were sent by the Chas. A. Paquet Co. Ltd., of Quebec, and by J. C. Dore & Son, of La Prairie. They were operated under the supervision of J. B. Cloutier, who gave detailed explanations to all questions put to him on road making.

With this complete equipment several sections of macadamized road were constructed throughout the Exhibition. They comprised respectively macadamizing of three kinds—

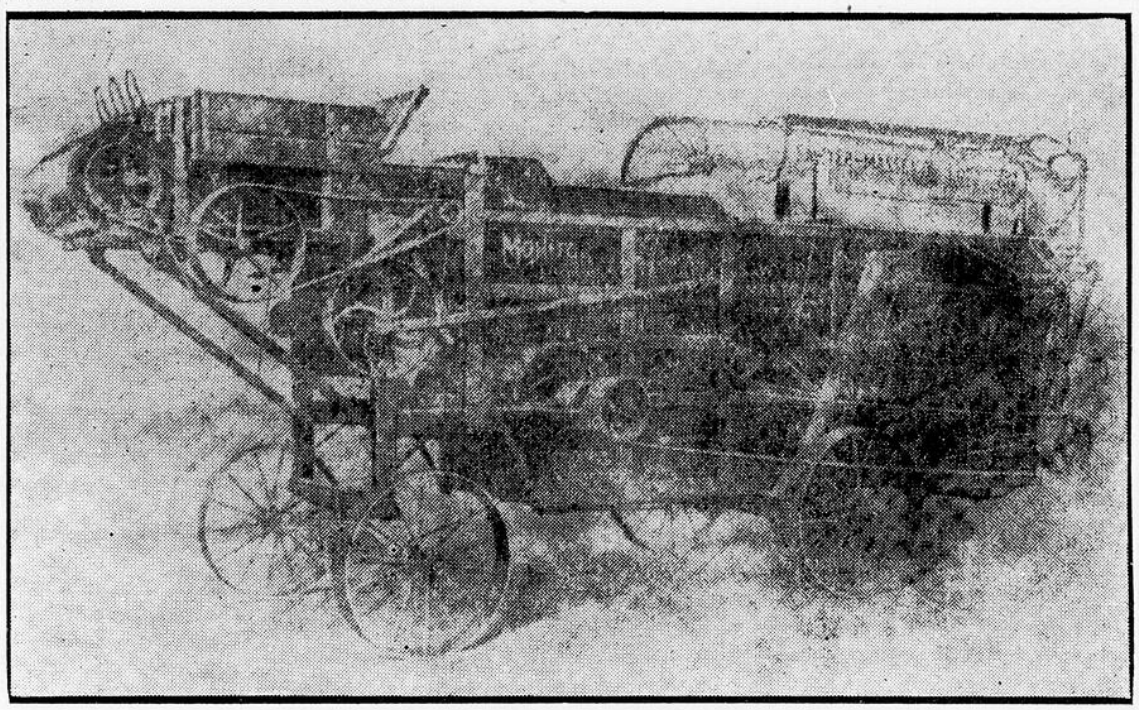
Macadamizing without foundation.
Macadamizing with rock foundation
Macadamizing with V—shaped rock foundation.

The crusher furnished three kinds of stones which were deposited in three layers, beginning with the largest.

The farmers were deeply interested; and many members of the rural municipalities were so impressed by the macadamized roads constructed before their very eyes that they expressed the fixed intention of bringing before their respective councils the tremendous importance of immediately accepting the generous offers of the Government regarding road improvement in the Province.

THRESHING OF CLOVER SEED

As our readers already know, the Department of Agriculture has purchased two great clover hullers which are at the disposal of the farmers. These splendid, improved machines were built by the Sawyer-Massey Co., of Hamilton, Ont., and do good work. One of these machines was on the Exhibition grounds, and as it takes to run it normally at least a 13 h. p. motor, a steam engine from the stone crusher was brought into action. Attached to this powerful motor the clover huller did marvellous work, and the not particularly ripe clover hay which passed through it yielded the seed free from husk and comparatively clean. It should be added that the clover thresher works better late in the season when the weather is dry and cold, and par-



"THE MONITOR" CLOVER HULLER, manufactured by the Sawyer-Massey Co., Hamilton, Ont. The Department of Agriculture has two of these machines, which are placed at the disposal of farmers having clover to thresh in sufficient quantity.

ticularly when the seed clover has been harvested dry. Also the hay should have as few weeds as possible.

Under good conditions the clover huller of the Sawyer-Massey Co., does excellent work. It separates the clover seed from the husk; cleans and recleans it so well that by the time it leaves the machine the seed is ready for market.

At the Exhibition a French Canadian farmer, Mr. Caron, who lives in Ontario and is deeply interested in the production of clover seed, told us he had bought a clover huller from the Sawyer-Massey Co., for $800., and every year harvested and threshed 25 arpents of meadowland of seed clover; besides that he threshed clover for neighboring farmers who paid him well. The farmers in Ontario are well alive to the importance of clover cultivation, and never neglect an opportunity of harvesting the seed. In fact, this seed has become a veritable gold mine to the farmer, considering what it costs.

We farmers in the province of Quebec do not sow enough clover, and neglect harvesting the grain. There are thousands of dollars that could be saved if we took the trouble.

THE EXHIBITS OF THE EXPERIMENTAL FARMS.

This year, for the first time, the two new Federal Experimental Stations of Cap Rouge and Ste. Anne de la Pocatière joined at the Central Experimental Farm, Ottawa, and formed a wonderful display of the rich products of our Canadian soil, — corn, fodder, and fruit. The whole was a beautiful spectacle, made still more effective by well designed bill-posters. Messrs. Eugene Pelletier of Ottawa, and Jean Croteau of Quebec, employed by the Experimental Farms, deserve our heartiest congratulations on the success of their exhibition.

GOOD PLOWING.

Directions for Setting Out and Finishing the Lands.

Many of our young men who have never practiced for a plowing match may find the following a great help in setting out the ridges and finishing the furrow. After the stakes are set, the first round or two furrows should be cut as near as possible to 1 in. deep by 2 in. wide; the second round cut 4 in. deep by 6 in. wide; the third round 5 in. deep by 7 in. wide; fourth round 6 in. deep by 9 in. wide. Those depths should give almost a level ridge. The 6 by 9 is to be continued until the second last furrow, when a 5 by 7 inch furrow may be cut, leaving the last sod to be turned about 4 by 6 inches. This should leave the furrow shallow enough to allow the mould furrow to be brought to the level of the ridge. Should the society in which the plowman lives call for different depths and widths, the same principle will apply.

J. FIXTER.

HOW TO THRESH CLOVER.

"Journal of Agriculture."—

I have a field of Clover which I intend cutting for seed. The first crop was taken off in June. I would like to know how to harvest it as it is getting ripe; and if a grain mill will thresh it. Would you let me know how you thresh it on the College Farm ? — A. N.

Reply. —

See that your clover is thoroughly ripe before you cut it. The seed should be fully developed and be easily rubbed out in the hand before cutting. The best machine for cutting is the common self-rake reaper. It may also be cut with the binder. If the binder is used do not tie in bundles. Allow the sheaf discharger to work continuously. This will put the clover in a fair-sized row which can be easily lifted with a barley fork. Allow the clover to dry thoroughly in the field before drawing to the barn. It is best to thresh with the clover huller, but it can be done with a common grain thresher. We have threshed with the smallest two horse machine and with the large Peerless grain thresher. This season through the action of the Government of the Province of Quebec clover hullers are at the disposal of the farmers for threshing their seed. If you have no huller in your district and have to thresh with the grain thresher leave the threshing until frosty weather. Have a good full set of teeth in both the cylinder and concaves, and close them as tight as possible. The clover heads are usually all broken off by the first passing of the cylinder. All the short material and chaff should be saved and run through several times,— the long material to be run through but once. Threshing clover seed with a grain mill is considerable trouble but when the farmer sees the amount of money to be made in growing seed, and the increased crops from the decay of the clover roots, it will not take long to make the price of the regular clover huller. An excellent plan would be, for several farmers to club together, grow large quantities of clover, and purchase a clover huller to do the threshing.

J. FIXTER.

HOW TO APPLY MANURE.

"Journal of Agriculture".—

I have recently purchased a farm, and some of the fields have been cultivated and cropped, without receiving any fertilizer or manure for many years. At present I have no live stock to make manure, but can get it by the car load, costing at my station about $20.00 per car, Will it pay to buy the manure at that price, or would it be better to purchase commercial fertilizers.

R. T..

Reply. —

There are several things to take into consideration. First, the danger of introducing weeds of which the average manure from the city is full. Second, some car loads are little better than straw, while others contain excellent manure. Should you purchase manure I should advise putting it into a pile and rotting it without heating the manure. This can be accomplished by driving on the pile every time when unloading, and packing it firm, or by putting it into a low flat pile. If you find the manure is very short or thoroughly rotted it may be applied directly to the land. To get the most out of the manure I should advise you to top dress your newly seeded meadows, and after two seasons' hay crop has been taken off plow under the manure and sod, and follow with a hoed crop of corn or roots. Then follow with a grain crop and a heavy seeding of clover and timothy. After the grain crop is removed apply another light dressing of manure on to the newly seeded field. If manure is applied in this way it will pay to purchase at $20.00 per car. As to the commercial fertilizers, I would advise you to experiment on a small scale first. If you find good results larger quantities can be secured.

J. F.

THE PHILOSOPHER ABOUT THE FARM

How Plants Prepare for Winter.

In the world of plants, Autumn (and the latter part of Summer) is a time of preparation, not only for the severities of Winter, but for the activities of Spring.

It is interesting to observe the various ways in which the different species of plants have solved, under the guidance, we do not doubt, of a far-seeing and loving intelligence, the problem of future existence as it faces them in Autumn. The change is nothing less than the transformation of a tender tropical plant into a hardy arctic form, capable of withstanding temperatures many degrees below the freezing point.

Many small plants lay up for themselves a conspicuous store of food in their roots, rootstocks, or basal leaves. If left to themselves, the aerial parts may die while the storage organs maintain a dormant, resting life, bearing the while the buds of flowers and leafy shoots, ready to spring, in due time, into active life and growth. The carrot, turnip, beet, onion and potato are examples among cultivated plants ; the dog-tooth violet, the spring beauty and the trillium among wild

plants. In their case, the storage organ with its buds represents the whole plant during the dormant season — it is simply a resting stage, adapted to meet the conditions of existence in winter.

Indeed, most of the perennial plants of our region, both large and small, assume a reduced form in Autumn, and retire, as it were, into the narrowest limits for the Winter. Trees lay up a good store of prepared food within their body cells. Since no special storage organ is developed and the store is concealed and divided among so many cells, we do not observe the process. The broad-leaved deciduous trees reduce their exposed surface by dropping their leaves, having previously withdrawn the prepared material from them into the stem. The underground surface of the trees is probably greatly reduced by the death and disappearance of the millions of root-hairs, by which they absorbed water and its soluble contents during the working season. It will be worth while to observe whether the buds, which represent next year's shoots, leaves and flowers, are fully formed before the leaves fall, and when the brittle layer is formed across the base of the leaf-stalk.

When this layer is completed, the leaf will break off quite smoothly at that place, when gently pulled or bent back.

Many herbaceous perennials withdraw the prepared food into their underground parts and die down to the ground. The Asters and Golden-rods, whose flowers brighten the waste places in Autumn, are examples. In this hidden and condensed form they pass the winter. On the return of warm weather the concealed buds rapidly develop into aerial branches bearing fresh leaves for the summer work.

Annual plants, such as the common grains, do not attempt, unless sown late in the season, to live till another spring; but before they die, they store up a supply of rich food in each of their ripening seeds for the use of the minute plants, which every seed contains. A grain of wheat is a resting stage of the young wheat plant with its supply of food packed in with it. The embryo corn plant can be seen in outline, lying in one side of the grain. If the grain be soaked, the little plant can be easily taken out away from the stock of food in which it was partly embedded. But the parent plant is dead having given its life in preparing food for its numerous young. It does not live to see a second spring. Its young live in its stead.

It is plain that such forms as buds, tubers &c., which do not arise from flowers as seeds do, are resting stages, by which plants not yet exhausted nor ready to dietide over the winter season, while a seed is the resting stage of an embryo plant which is to start another generation of its kind.

It will give children, at home or at school, much pleasure to interpret the various dormant forms which plants assume, and to try whether any of these resting forms can be stimulated into active life and growth in autumn by imitating the conditions of spring. Some bulbs such as the Paper White Narcissus respond at once if set in a bowl of gravel with water enough in the bottom to keep the base of the bulb moist. The bowl and bulb should be kept in a cool room or cellar for a while, till roots have been formed to absorb the large amount of water which will be needed for the rapid growth of the stem and leaves.

Before Christmas, if started early in October, it will develop into a beautiful plant with a large cluster of fragrant white flowers.

Roman hyacinth bulbs will develop in pots in garden soil with some pebbles or fragments of earthenware in the bottom for drainage.

While rooting, they must be kept cool and "moist" but not "wet". They will bloom about the 1st of December if planted early.

J. B.

PRIZE WINNERS IN QUEBEC FIELD CROP COMPETITIONS.

The following is a list of the successful competitors in the Field Crop Competitions conducted by the Seed Commissioner of the Federal Department of Agriculture in some of the counties of this Province.

In many of the counties only four prizes were offered, but we give the names and addresses of, as well as the total points scored by, the first five competitors in each county, irrespective of whether there were four or five prizes awarded. In some of the counties, however, as Jacques Cartier, the names and addresses of only three competitors are given. This is due, in some cases, to the fact that the judges considered that other fields of grain entered were unfit for seed purposes ; in other cases there were only three competitors entered.

There is a wide variation between the scores in different counties. The explanation of this is that while any one judge may reasonably be expected to award points uniformly, according to hfis ideai of perfection, it is not to be expected that different judges will score uniformly. That is to say, in one competition a certain judge may arrange the prize winners with total scores ranging from 90 to 80 points ; whereas another judge, scoring the same fields, might award 92 points for the first prize and as low as 75 for the fifth.

ARGENTEUIL. — OATS.

		Points.
James A. Drew,	Beechridge,	91 1-2
W. J. Rodger,	Geneva,	86
James Bradley,	St. Andrew E.,	85
J. A. Wood,	Genoa,	84 1-2
John Mason,	Mabel,	83 1-2

ARTHABASKA. — OATS.

		Points.
J. B. Couture,	St. Paul de Chester,	89
Olivier Leclerc,	Warwick,	86
Ephrem Bellavance,	Ste. Hélène de Chester	85
Joseph Verville,	Arthabaska,	81
William Walsh,	Tingwick,	80

BONAVENTURE. — OATS.

		Points.
W. W. Willett,	New Richmond West	89
J. J. Fallow,	New Richmond Station,	88 1-2
H. S. McColm,	New Richmond West,	87 1-2
Robt. Cochrane,	New Richmond Centre,	87
G. Campbell,	New Richmond West,	86

COMPTON. — OATS.

		Points.
D. McIntosh,	Cookshire,	91
Nelson Stratton,	Cookshire,	86 1-4
T. W. Taylor,	Cookshire,	84 1-2
J. A. McClarey,	Hillhurst,	84
Jno. Adams,	Flanders,	82 3-4

DRUMMOND. — WHEAT.

		Points.
Xavier Charpentier,	L'Avenir,	86
John J. Moore,	Sydenham Place,	83
Thomas Duff,	Danby,	80
James E. Duffy,	Danby,	78
Antonio Janelle,	St. Cyrille de Wendover,	75 1-2

HUNTINGDON DIV. A. — OATS.

		Points.
M. D. McNaughton,	Dewittville,	90
McNaughton Bros.,	Dewittville,	88
W. H. Trainer,	Franklin Centre,	87 1-2
A. Muir,	Huntingdon,	86 1-2
M. Walker,	Huntingdon,	83 1-2

HUNTINGDON DIV. B. — POTATOES.

		Points.
Jno. Waddell,	Covey Hill,	90
Geo. Bustard,	Vicars,	87 1-2
R. T. Brownlee,	Hemmingford,	87
J. C. Rutherford,	Hemmingford,	84
Stewart Cleland,	Hemmingford,	83 1-2

JACQUES CARTIER. — OATS.

		Points.
Malcolm Hodge,	Lachine,	83
J. Dositthé Legault,	Pointe Claire,	75
Rémi S. Décary,	Dorval,	72

LEVIS. — OATS.

		Points.
Modeste Demers,	St. Nicolas,	89 1-2
Benjamin Moffatt,	St. Nicolas	88
Octave Olivier,	St. Etienne,	85
Juvénat des Frères,	Lévis,	83 1-2
Rév. L. Auclair,	St. Jean Chrysostôme	81

MEGANTIC, NO. 1. — OATS.

		Points.
Thomas Longmore,	Leeds Village,	92
Patrick Quain,	Reedsdale,	91 1-2
C. H. George,	Inverness,	89
Mrs. R. Little,	Irvine,	87 1-2
John Quain,	Reedsdale,	86 1-2

MEGANTIC, NO. 2. — OATS.

		Points.
Joseph Morin,	St. Pierre Baptiste,	87 1-2
Phidime Michaud,	Somerset,	86
Honoré Gingras,	Ste. Julie,	85 1-2

PONTIAC DIV A. — OATS.

		Points.
Peter Dumas,	Maple Ridge,	88 1-2
James Carswell,	Dunraven,	87
James Cahill,	Dunraven,	86 1-2
J. J. Hodgins,	Shawville,	82 1-2
Anson C. Murphy,	Shawville,	82

PONTIAC DIV. B. — WHEAT.

		Points.
William McKinnon,	Chapeau,	89
Thomas Leahy,	Chapeau,	88 1-2

P. H. Lackie,	Allumette Island,	85
Paul Desjardins,	Desjardins,	84 1-2
Martin Gavin,	Chichester,	83 1-2

QUEBEC. — OATS.

		Points.
Joseph Couture,	Lorette,	90 1-2
Frank Byrne,	Charlesbourg,	83
Pierre Gauvin,	Lorette,	82
Jean Paquet,	Lorette,	79 1-2
William O'Neill,	Lorette,	79

RICHMOND. — OATS.

		Points.
H. J. Elliott,	Danville,	85
Jos. Lay,	Melbourne,	81 1-2
J. A. Smillie,	Richmond,	78
J. P. Mills,	Gore,	77
A. T. Lyster,	Richmond,	76

ST. HYACINTHE. — OATS.

		Points.
Horace Morin,	St. Hyacinthe,	90
Jos. Gauthier,	St. Charles,	88
Ephrem Michon,	La Présentation,	82
Louis Lalime,	St. Hyacinthe,	80
Nap. Girard,	St. Hyacinthe,	79

SHERBROOKE, — POTATOES.

		Points.
S. Jardine,	Suffield,	88
I. Kirby,	Sand Hill,	84
E. Ducker,	Sherbrooke,	82 1-2
A. Ames,	Lennoxville,	77 1-2
J. Nichol,	Lennoxville,	76

STANSTEAD. — OATS.

		Points.
W. F. Davison,	Ayer's Cliff,	90 1-2
F. J. Blandin,	Coaticook,	87
O. Martin,	St. Catherine,	86 1-2
Henry Green,	Dixville,	85
Chas.E. Baldwin,	Coaticook,	82

WRIGHT. — POTATOES.

		Points.
R. A. McConnell,	Hull,	91
W. J. Radmore,	Rochon,	81
G. E. Routliffe,	Simmons,	78
N. Lavigne,	Aylmer,	75
Jno. Baillie,	Aylmer,	72

CLUB ROOT IN TURNIPS.

By H. T. Güssow, Dominion Botanist.

This destructive disease, known also as " Finger-and-Toe" or " Anbury," has been found during last year to spread slowly in the Maritime provinces, and especially in Prince Edward Island. The disease produces peculiar knob-like swellings on the roots of turnips, cabbages, cauliflowers and other cultivated and wild plants of the same Order. When this disease is allowed to spread without check the crops referred to will suffer severely, and the land will become infested for a number of years. The disease is due to a minute micro-organism of the group of slime fungi, which has received the technical name "Plasmodiophora Brassicoe", Wor. The spores or reproductive organs are present in infested soils in large numbers and they are liable to carry the disease to any succeeding crop for a considerable time. The roots of the plants mentioned are attacked at a very early stage. As the plant grows the peculiar swellings will increase in size and in many instances no " bulbs" will develop, the parasitic organisms using up all the energy of the plant. Plants once attacked cannot be saved. When the roots are harvested it is important at once to separate all diseased roots from sound ones, and, providing the percentage of infected roots is not too large, they should be destroyed by fire, or the organism should be killed by the application of quick lime. For this purpose a pit should be dug in the ground and all diseased tubers and portions thereof placed therein. The roots should be covered with a quantity of stone lime and the pit closed with soil; it should then be left undisturbed for about three years.

Under no conditions should diseased roots be given to stock, first because the food value of the roots is much impaired—especially when they have begun to decay, secondly because the health of the animals is likely to suffer, and thirdly because the spores of the parasitic organism may pass through the body of the animal without losing their power of germination; thus the disease is liable to be spread through the droppings from such animals. The roots should always be boiled before being used as food. For human consumption diseased turnips are totally unfit, being very distasteful.

The soil of a diseased field is always a source of infection, and no turnips or allied plants should be grown on ordinary soil unless it has been thoroughly limed. Stone lime only, broken up into small pieces, should be used for this purpose, and should be spread over the field at a rate of at least 100 bushels of lime per statute acre. The land may then be ploughed, but it is advisable not to let turnips or any similar crop enter into the rotation until after three years have elapsed. Mangolds, potatoes, grain, clovers, etc., may safely be grown.

No rubbish or broken bits of roots should be left on the ground, but should be completely removed, nor should any such matter be thrown on to the manure heap or other place from which it is likely to be returned to the land. Weeds such as Shepherd's Purse, Wild Radish, Field Mustard, Hedge Mustard, etc., should also be destroyed, as they have been found to be attacked by the same disease.

Further information on this or any disease of agricultural and other crops will be gladly given on application to the Dominion Botanist, Central Experimental Farm, Ottawa.

Live Stock

REGISTRATION OF FRENCH CANADIAN HORSES

Important Notice.

As we receive from time to time applications for the registration of horses in the Stud Book of the Breeders' Association of the Province of Quebec, which book was closed by order of the Association on December 31st 1909, it has been decided to reopen the Stud Book during the interval between August 15th and December 31st 1911.

All persons who wish to have their horses inspected for registration should make direct application for such registration by letter addressed to the Live Stock Commissioner, Department of Agriculture, Ottawa. This application should be made promptly in order that the inspection may be completed before December 31st 1911, the date when the Stud Book will be permanently closed.

J. A. COUTURE,

Secretary, French Canadian Horse Breeders' Association.

IMPROVED YORKSHIRES FOR SALE.

Young boars and sows of different ages. Also a Tamworth boar.

J. M. LECLAIR, Manager.

SENATOR F. L. BEIQUE,

Box 106, Lachine Locks, Que.

CANADIAN NATIONAL EXHIBITION.

I. — AS SEEN BY OUR ONTARIO CORRESPONDENT

IMMENSE ATTENDANCE, HANDSOME SURPLUS. —INADEQUACY OF THE ACCOMMODATION FOR LIVE STOCK. — THE LIVE STOCK AND DAIRY EXHIBITS.

The Canadian National Exhibition for 1911 has passed into history. It has gone on record as surpassing any previous Canadian show in the extent and quality of the exhibits and in total attendance. The attendance this year did not go to the million mark as many Toronto enthusiasts hoped, but very near it. The aggregate reached a total of over 916,000, or nearly 80,000 people more than in 1910, and the exhibition association has the handsome sum of $50,000 or more, to turn over to the city treasurer.

The success of any fair cannot, however, be measured alone from the number of people who attend, or the largeness of the surplus, after all expenses have been paid. The quality and extent of the exhibits must be taken into account also. And on these points the Canadian National was an unqualified success, judged purely from the agricultural end of it. In fact so large was the exhibit of live stock, particularly of cattle and horses, that there was not accommodation enough for them in the stables, and improvised quarters had to be provided for a large number, one exhibitor taking his carload of cattle home rather than run the risk of having them housed in unprotected quarters.

The Great Canadian National has thus reached a stage where it must build for larger things. The provincial accommodation which has done duty for so many years in the live stock department is not in keeping with the requirements of a national or international show, which it was this year. More accommodation for live stock is urgently needed, and should be ready for next year's show.

CATTLE.

The cattle display was a long and strong one all the way through and there were very few sections in which there was not keen competition. Two special $500 prizes were given this year, through the generosity of the Ontario Department of Agriculture. One went to beef cattle, and the short-horn breed had the "plum" this year. The other went to dairy cattle, and the Holstein breeders had the honor of fighting for it. Another year these prizes will likely be given to another of the beef and dairy breeds, respectively. It was given in each for the

best anima male or female, of the kind shown, and served in a very effective way to increase interest in the herds affected, and to bring out a larger number of exhibitors.

The Short-horn exhibit was a high quality one throughout. Its chief feature was the high average quality and the number of animals entered that had won distinguished laurels at previous shows. There were three American exhibitors on deck, and these carried back to Uncle Sam's domain all the champion honors but one, including the $500 special. There is, however, satisfaction in the fact that this special went to the Ontario herd bull " Meadow King", champion at Toronto in 1910, and sold afterwards by Miller Bros., Brougham, Ont. to W. H. Miner, Chazy, N. Y., who exhibited him this year. He won senior and grand champion honors. The junior champion bull was shown by J. A. Watt, Salem, Ont. The two championships in females went to Carpenter & Ross, of Ohio, their champion cow "Dale's Gift" beating "Bridal Boquet" the champion of a year ago, and also shown by Mr. Miner. The classes all through were well filled and it was a fine display of the "Reds, whites, and roans" that the judge, J. L. Reid of Allan, Scotland, had to pass judgment upon.

Herefords and Aberdeen - Angus were out in force this year, and put up better exhibits than have been seen at Toronto for some years. L. O. Clifford, Oshawa, was the largest exhibitor of the "White Faces", his fine bull "Refiner", that had so many premium honors at Western shows this season, was champion. That veteran Hereford breeder, H. D. Smith, Hamilton, Ont, formerly of Quebec, was out strong too, landing the female championship with his splendid cow Princess 7. The "Doddie" breeders of Ontario had the fine herd of J. D. McGregor of Brandon Man. to back them up this year, and a fine display of Aberdeen-Angus was the result. Both the championships went to the West.

In dairy cattle there was a better all-round display than has ever been seen at the Canadian National, especially in Holsteins and Ayrshires. It is never one man's win in the Holstein section at Toronto. More exhibitors come out in this section than in any other, and while the old ones continue to come they never have a walk-over as is often the case in some of the other breeds. The $500 special for the best Holstein went to a breeder who had never exhibited at Toronto before. The winner of this special was the bull, " Lagan Prince Schuiling " bred in Perth county Ontario, and shown by T. Wood of Mitchell. He is a splendid type of the dairy animal, combining length, depth, and lots of strong masculine character. He was of course the champion Holstein bull. The championship in females went to Haley Bros. on " Calantha Fayne", a junior heifer calf. There was high average quality all through the Holstein sections. N. Sangster, Ormstown, Que., won quite a few important prizes.

There was no big drawing card in the way of a $500 special to help the Ayrshire men out this year, yet they put up the largest show of any of the herds of cattle, being a score or two ahead of the Shorthorns in number. It was a strong quality show too, and the judge, W. F. Stephen, Huntingdon, had no easy task. Quebec, As usual, figured largely in the prize money. P. D. McArthur, North Georgetown, Que., won both male championships, his splendid bull "Netherhall Milkman " fresh from his victory at shows in Western Canada, landing the grand championship. The senior championship in females went to that veteran in Ayrshire showings, R. R. Ness, Howick, Que., on " Finlayson Maggie 3rd". The junior and grand championship went to the Ryanogue Farms, New York State, on "Hobsland Nancy 2nd" purchased at the Hunter sale a few months back.

The Jersey display was about of the usual kind, with no new exhibitors in the lists. Sir Wm. Mackenzie won both male championships, his aged bull "Pearl of Kirkfield" winning again grand champion honors. He also had the senior and grand champion female, B. H. Bull & Son, Brampton, coming in for junior honors.

HORSES.

The show of horses was larger than could be accommodated. In heavy horses the Clydesdale once more maintained its place as the popular breed. There have been larger shows of this kind at Toronto, but none where the average quality was better. A feature was the large number of Canadian bred horses that figured largely in the prize list; competing with high-class imported stock. The sensation of the Clydesdale show was the presence of the famous Morris six-horse team from Chicago. This team has travelled all over America, visited England, and stands out as the best aggregation of draft horses on the continent. One of the six horses was bred and raised in Ontario, the now famous "Bobbie Burns", and when his former owner, Mr. Alex. Doherty, of Wexford, Ont., drove him in the single harness event the crowd cheered him to the echo.

There were a few old exhibitors absent from the judging ring this year, the most notable being the firm of Graham Bros., Claremont, Ont., who had been exhibitors of horses at Toronto for twenty-eight years in succession, previous to this year, and had captured championships by the score. While their absence, and that of others, helped to make some of the classes weaker, there was not be any means a weak show. The quality all through was just as good as we have seen at any previous fair. The champion stallion was found in Baron Kiloin, a full brother to Lord Ardwell, the stallion with which Sir William Van Horne swept everything at Western shows this season. Baron Kiloin was imported by Graham, Renfrew Co., Toronto, and is a horse of quality, with size and fine underpinning. Next to him in the aged class stood Hyacinthus, imported by Smith & Richardson, another horse of substance and high quality. The championship in females went to May Queen, an Ontario bred three-year-old, shown by Alex. Doherty.

In the heavy draft classes, Clydesdales figured prominently, and a fine display of Canadian-breds faced the judges. The championship in stallions went to a year-old son of General Favorite, shown by Joseph Kilgour. A G. Gormley won out in females with his finely bred mare, "White Heather", sire Fullerton, a stallion that has a record for good stock.

Shires made a better showing than for some years past, and honors were strongly contested for. The gray stallion "Proportion" won in aged stallions, and landed the championship. He is owned by Porter Bros., who also won the female championship with their three-year-old filly "Kitchener's Topsy."

Never has a better show of Percherons been seen east of the great lakes. It was a strong show throughout. The three-year-old stallions formed a line-up that were equal in quality to anything shown in the West, where the Percheron is more popular than in the East. The championship in stallions went to J. W. Tackabirry on his model gray stallion "Glasdorae" and in females to Hodgkinson & Tisdale of Beaverton on "Imperatrice."

With the exception of the Thoroughbreds, the light horse show had nothing over previous shows at Toronto. The thoroughbreds, however, put up one of the best displays of the breed ever seen at Toronto. The Canadian National Bureau of Breeding were strong exhibitors and winners. The Hackney display brought out nothing very new, championship in stallions going to that old-time winner "Crayke Mikado". The same might be said of the standard-breds, the horses to the top being "Mograzia" and "Okum Belle", champions in males and females respectively, and from the stables of Miss K. L. Wilks of Galt. The harness classes were long and strong throughout.

SHEEP AND SWINE

As usual the display of sheep and swine was good. Sheep were not out in as large numbers as last year. The swine classes were, however as strong as ever, with the bacon breeds to the front.

DAIRY PRODUCTS

The display of cheese and butter did not vary from that of other years in quantity. In quality it was fine all the way through. The trophy for the best cheese exhibited went to R. A. Thompson, Attwood Ont., whose total score was 98.49 points. The butter trophy was won by John Anderson, Renfrew, Ont., whose butter scored 98.99 points. W. H. Stewart, Frontier ; J. H. Martin, St. Valentine, and J. H. LeClerc, Foster, represented Quebec, and carried away some of the best awards, the first named securing first in section 1, wuth a score of 98.25 points.

"Ontario".

II.—FROM A QUEBEC POINT OF VIEW.

AYRSHIRE EXHIBIT EXCEPTIONALLY STRONG.

The record brightens as the Canadian National ages. The show recently concluded, differed from its forebears in degree, not in kind. This year the evidence of inadequate accommodation for Live-Stock was more outstanding than ever. Desirable growth in any exhibition must get genuine support from our best breeders. These breeders must have comfortable and convenient shelter for high-classed stock if the quality of the show is to be maintained. They expect it and rightly so.

AYRSHIRES.

The Ayrshire breeders from the Province of Quebec were there in full force. Such a strong combination of uniform breed-type, substance and quality, is rarely seen.

The herds of R. R. Ness and Hector Gordon of Howick, Que.; P. D. McArthur, North Georgetown, Que.; and Ryanoque Farms, Brewster, N.-Y., are quite sufficient to remind the reader of the quality and excellence of the showing.

Ontario Ayrshire Breeders also made a most creditable showing and won a portion of the good prizes. The herds of Alex. Home & Co., and Wm. Stewart & Son of Menie, Ont.; A. S. Turner & Son, Ryckman's Corners, Ont.; Trethway Farm, Weston, Ont.; H. C. Hamill & Co., Box Grove Ont., and D. Hillaker of Burgessville Ont., made competition keen and decisions close.

HOLSTEINS

Mr. Neil Sangster of Ormston, Que., had the undivided honor of exhibiting Quebec Holsteins in strong competition with Lake-View Farm, Bronte, Ont.; A. C. Hulet and James Rettie, Norwich, Ont.; Haley Bros, Springfield, Ont.; and John McKenzie of Willowvale, Ont. Mr. Sangster's herd showed remarkable excellence. One of the most notable wins was in the 2-year- old Bull class, where Mr. Sangster's "Pleasant Hill, Korndyke, Pontiac," won first honors. This bull was selected as Reserve Grand Champion of the $500 Breed Prize.

Long distance transportation always increases the risk that breeders are obliged to face when exhibiting their stock. This being true is sufficient explanation why Quebec Breeders of Horses, Beef Cattle, Sheep and Swine, were not at the Canadian National in full force.

To those Breeders who overcame the difficulties involved in transportation and who won a name for Quebec with the excellence of their stock, a great deal of credit is due.

R. B. C.

SHERBROOKE FAIR

In spite of the fact that Providence this year did not favor Canada's great Eastern Exhibition (the weather being anything but cheerful on the second day) the Fair will rank well with the big ones of the Dominion. Other fair dates including Toronto clashed with those of Sherbrooke, and no doubt prevented some of Quebec's best breeders from attending. However, a number of Ontario breeders were present, and on the whole the stock classes were well filled.

The horse exhibit has been better than it was this year. Quite a large number were shown but had it not been for a very few veterans such as Robt. Ness & Sons of Howick, T. B. McCaulay of Hudson Heights, and Geo. Pepper of Toronto, quality and class would have been conspicuously absent. These exhibitors with perhaps one or two more, however, furnished an abundance of good material, and of course captured the bulk of the prizes.

In cattle, Ayrshires provided the feature of the display, although French Canadians, Jerseys, Holsteins, Aberdeen-Angus and Shorthorns were all represented. The Ayrshire prizes were fairly well distributed among James Boden of Danville, D. Watt and J. Logan of Howick, — Boden getting most of the individual prizes while Watt took male championship on a promising yearling bull, and first on aged herd female championship going to Logan on his aged cow, and also first on the young herd. Messrs. Denis, Coulomb & Sylvestre exhibited the French Canadians. Bull & Sons of Brampton Ont were there with a string of Jerseys, and competed with Dr. Ball's herd from Ayer's Cliff. Dr. Ball also showed a herd of Guernseys. Messrs. Spofford & McLeod divided honors in the Angus classes, and Geo. Parker was the chief exhibitor in Shorthorns.

Sheep and swine were both strong this year, and would indicate that the province was paying more attention to these two classes.

Poultry as usual made a splendid display.

Fruit and vegetables deserve special mention. The exhibit was large and equally attractive in appearance and quality.

H. B.

COUNTY FAIR REPORTS.

ARGENTEUIL.

The Argenteuil Agricultural Society held its annual fair on the 5th, 6th, and 7th of September, at Lachute. In comparison with previous years hardly as large a number of exhibits were out. Especially was this marked in the horticultural and cattle classes. The managers of the fair should endeavor to locate the cause of this deficiency, and take steps to remedy it, because formerly the cattle exhibit was one of the strongest features of the fair. No doubt the dry weather of the past summer, together with a change of date of the fair (which was originally set for three weeks later) was partly responsible. A fairly good exhibit of horses was brought out in both the heavy and light classes. A few very good individuals in the Clydesdale classes were exhibited. The sheep exhibit was up to the average, some very creditable Shropshires and Leicesters being on exhibition.

G. W. W.

BEAUHARNOIS.

Live Stock the prominent feature.

Any fair to be of greatest educational value should have for its motto "Better Agriculture". First-class stock always claims admiration and this year at St-Louis de Gonzague on Sept., 14th, live-stock was a very strong feature of the show. It was an all round success without artificial attraction, showing that the visitors had the correct motive for attending.

A great deal of credit is due President Allen McDonald of Valleyfield and Secretary W. Martin of St-Louis, along with their Directors.

Those who were in a position to know stated that all the entries eclipsed those of previous year, the entries in Dairy Cattle comparing very favorable with those of the largest Fairs in the Province.

Horses were unusually strong. Clydesdales appeared in largest numbers, although the other heavy breeds were well represented. In Light Horse classes the competition was keen too. A striking feature of the horse display was the high show-condition in which they appeared.

A stronger showing of Dairy Cattle at any District Exhibition would be difficult to find. Uniformity in breed-type with the promise of being "producers" was specially evident. A large number of special prizes increased enthusiasm in the vicinity of the Show Ring.

The Sheep display was larger than that of last year. Cotswolds and Leicesters were unusually strong.

The Swine exhibit was not extensive but was of good quality. Chester Whites and Yorkshires were most in evidence.

In the Agricultural Building the Dairy and Fruit exhibits were the chief attractions. The quality of these exhibits reflect a great deal of credit on those responsible for its management.

R. B. C.

BROME.

A very successful fair was this year held by the Brome County Agricultural Society at Brome, on the 11th, 12th, and 13th of September, there being both a good exhibit and a large attendance. The class in live stock contained some very good individuals. In cattle — Ayrshires, Holsteins, Guernseys, and Shorthorns were all represented; while in horses the lighter roadster type was much more in evidence than the heavier class. Hogs were exhibited in good numbers and were of good quality. Probably the most outstanding feature of this fair is the splendid exhibit in the building, the classes in Domestic Work, Maple products, Cookery Garden and Field Crops, being filled to overflowing.

Agriculturally there was a marked contrast between it and Huntingdon. Whether this is due to the Management, or to the demands of the people, who may be more given to sport, is perhaps a question. However, from an agricultural, educative point of view Brome certainly has to take second place to Huntingdon. Yet an abundance of good stock was exhibited, particularly light horses and swine. The county is well known as a light horse section, and most of the farmers seem satisfied to continue with this class rather than take to the heavier horse. Horse racing occupied a prominent place on the programme, and during the last day most of the time was given up for this purpose. Swine would rank second to Bedford as a county fair exhibit.

H. B.

HUNTINGDON, DIVISION A.

The annual fair of the Agricultural Society, Division A, Huntingdon, was held at Huntingdon on the 7th and 8th of September. Although the number of exhibits was said to be below the average, the fair on the whole was a decided success. This fair contains a number of commendable features which are not generally found in the average fair. For example— the judging competition of live stock for farmers' sons under twenty-five years of age; the printed programme containing the events, together with the time each class is judged; the absence of side shows and horse-racing. Along with the general promptness and business-like method with which everything is conducted these features make it to say the least a very educative fair, and one which other societies will do well to copy.

The exhibit of cattle and horses are the strong features of the fair. In cattle, Ayrshires led in numbers although a very good exhibit of Holsteins were out. Heavy and light horses were out in good numbers, and some excellent individuals were shown in both cases. The display in the building was very commendable, although the exhibit of fruit was rather small.

Taking it all round, Huntingdon may be put down as a thoroughly agricultural show, and as such, from any standpoint will rank as a real success.

G. W. W.

HUNTINGDON, DIVISION B.

The fair of the Huntingdon Agricultural Society, Division B, which is held in the Township of Havelock, came off on the 12th of September. The weather, being rather cold and windy, no doubt prevented a number from attending. Nevertheless there was a fairly good attendance. The exhibits on the whole were fairly good. Horticultural products made a very creditable exhibit, while live stock was shown in fairly good numbers. I think that this fair could be made still more valuable if it extended over two days instead of one. This would allow a greater length of time for both observation and judging, which at the present time is very hurried.

G. W. W.

MISSISQUOI.

The Missisquoi County Fair was held at Bedford on the 29th, 30th, and 31st of August. The weather was all that could be expected, which favored the large attendance at the show. The exhibit of live stock was fairly good, especially the hog exhibit which was exceptionally large and of good quality. In horses, the roadster types were much more in evidence than those of the heavy draught, while in cattle the exhibit was good, two noticeable herds being those of Montgomery and Kay, both of which were afterwards exhibited at Sherbrooke. The Swine Exhibit was pronounced by Professor Barton of Macdonald College, who acted as judge, to be the best he had ever seen at a county fair. Sheep, however, were a disappointment to him, especially in view of the fact he claimed that in this county they should prove particularly valuable, and he was quite surprised to find them so much neglected.

The exhibit in the building was rather light and said to be below the average. Horse-racing played a very important part at this fair, so much so that it is probably distracting the attention of the public from the more educative features, but it seems nearly impossible to manage a fall fair without the introduction of horse racing to attract the crowd.

G. W. W.

RICHMOND.

The Richmond Agricultural Society held their annual fair at Richmond on the 13th and 14th of September. The fact that the fair dates and that of Nomination collided somewhat lessened the attendance on the last day. The exhibits in the building were very good, two splendid collections of garden vegetables deserve special mention for both their size and quality. The classes in Live Stock were fairly well filled. Although the light horses classes were much better filled than the heavy at this show, it is encouraging to note the recent introduction of Clydesdale fillies.

G. W. W.

SHEFFORD.

On the thirtieth and thirty-first of August, Shefford County held her annual fair at Waterloo. The event came off fairly successfully. The weather was fine and a large crowd turned out. Live stock made a fair showing. In cattle one well fitted herd of Ayrshires was brought out, but the majority of the cattle were exhibited in rather poor fit. The lighter stamp of horses was shown much more extensively, and contained better individuals than did the heavy. A special prize was given this year for the best pulling team of

horses, This event created a great deal of interest, and was won by a team of strongly built heavy horses, and was a splendid illustration of the value of the draught horse for farm work.

The introduction of a little system in running off the different events would, I think, add greatly to the value of the county fair, as the intervals between the various events were rather lengthy to be enjoyable. This defect has been overcome by the managers of some fairs by publishing a programme of events, together with the time at which such class is judged. With the programme the spectator is enabled to so plan his day's outing that he may get the greatest amount of benefit from the fair.

G. W. W.

JUDGING COMPETITIONS

A number of Quebec's best fairs, including Sherbrooke and Huntingdon, have seen fit to provide Judging Competitions for young men. In this they make no mistake. The interest manifested was particularly keen this year, and the work on the whole surprisingly good. These competitions, if properly conducted and allowed a little time on the programme, can be made excellent features of any fair, not only as an opportunity for those who take part, but both entertaining and instructive to the many visitors who can very easily be attracted to them. This year explanations were given before, and after, the boys did their work on the various classes; and the crowds of outsiders who gathered around at the time may be taken as a measure of the interest and appreciation manifested in this work from year to year. Usually a number of Macdonald students, either regular or short course, take part, and for them it is an excellent opportunity for practice and further experience.

AWARDS IN THE JUDGING COMPETITIONS.

HUNTINGDON FAIR.

Ayrshires—

1. Alex. R. Ness, Howick, Que.
2. W. H. Elliot, Howick.
3. W. C. Tully, Athelstan.
4. G. Gordon, Moe.

Holsteins—

1. E. S. Crutchfield, Huntingdon.
2. A. H. Crutchfield, Huntingdon.
3. Denis McCarthy, New Erin.
4. W. G. McDougall, Tatehurst.
5. Barclay Muir, Huntingdon.

Heavy Horses—

1. W. G. McDougall, Tatehurst.
2. W. H. Elliott, Howick.
3. Barclay Muir, Huntingdon.

GRAIN.

No. 1. Chas. McClary. Hillhurst.
2. V. Matthews, McDoaald College.
3. Geo. Muir, Howick.
4. B. T. Read, Ulverton.
5. A. Denis, St. Cuthbert.

POTATOES.

No. 1. Chas. McClary, Hillhurst.
2. A. Taylor, Dewittville.
3. V. Matthews, McDonald College.
4. C. Denis, St. Cuthbert.
5. Geo. Muir, Howick, Que.

SHEEP.

No. 1. A. Taylor, Dewittville.
2. C. Denis, St. Cuthbert.
3. Geo. Muir, Howick.
4. E. Miltimore, Sherbrooke.
5. E. C. Warner.

SWINE.

No. 1. E. Miltimore, Sherbrooke.
2. A. Taylor, Dewittville.
3. E. C. Miltimore, Sherbrooke.
4. R. E. Husk, Ulverton.
5. C. Denis, St. Cuthbert.

DAIRY CATTLE.

No. 1. B. T. Read, Ulverton.
2. Chas. McClary, Hillhurst.
3. I. Kirby, Sand Hill.
4. A. Taylor, Dewittville.
5. C. Denis, St. Cuthbert.

BEEF CATTLE

No. 1. Geo. Muir, Howick.
2. A. Taylor, Dewittville.
3. C. Hodge, Cookshire.
4. G. Matthews, McDonald College.
5. A. B. Lyster, Kirkdale.

The Dairy

THE QUEBEC COOPERATIVE CHEESEMAKERS SOCIETY.

Cheese Factory and Creameries Competition.

Montreal, Aug. 24 1911.

With the aim of discovering the various merits of the proprietors and manufacturers of dairy products, and to encourage them in the same path, the Cooperative Society has this year opened a competition for the best factories and the best makers of butter and cheese.

There will be 10 prizes, a total of $300., for cheese makers.

10 Prizes, a total of $300., for butter makers.

10 Prizes, a total of $300., for the best kept cheese factories.

10 Prizes, a total of $300., for the best kept creameries.

The whole sum of the makers' prizes will be paid over to them.

There will be a division of the prizes for the best kept factories, between the owner and the maker, the proprietor receiving 3-4, and the maker—1-4.

The entry to the competition for the best kept creamery is free.

The entry to the competition for the best kept cheese factory will be $2.00.

The prizes are given by the Hon. J.-E. Caron, Minister of Agriculture of the Province of Quebec.

All entries must be recorded at the office of the manager of the Cooperative Society, 45 William St., Montreal.

AUG. TRUDEL,
Manager.

DAIRY COMPETITION.

This year, as usual, competitions in dairy products will be organized, and the makers of butter and cheese who desire to compete are asked to send their names and addresses to the secretary of the competition, Department of Agriculture, Quebec. These names will be listed, and when the time for competition arrives orders to forward the products will be addressed to them with the necessary instructions.

The prizes will be the same as in preceding years, that is to say, a diploma, a bronze or silver medal, and a money prize.

NOTICE.

Registration of Factories.

Proprietors, managers, or agents of cheese factories or creameries are reminded that they must register their factories with the Department of Agriculture at Quebec before January 1st 1912. Those who have not yet registered, and have not the necessary blanks, should apply for them at once to the Department.

THE DANGERS OF COOPERATION.

Some time ago we drew the attention of the dairymen in the district round Montreal to the advantages of cooperation in selling milk to the Montreal city dairies. Among the many advantages of such combined selling, and certainly not the least important, is that the dairymen would be more sure of their money for the milk, as the Montreal representative could discriminate in selecting his buyers, and the combine could start legal proceedings more easily.

Lately, however, we learnt that some ambitious milk producers wish to go much further, and collect the retail profits also, by starting a cooperative city dairy. Such a step should not be taken without due consideration, and we would point out certain dangers in the path to success.

A cooperative milk supply company has exactly the combined charges, difficulties and expenses of the individual milk producer, sales agent, and city dairy, that individually did the work before. The only advantage of the cooperative system is the good will of all parties concerned. The direct consequence of this fact is that the men who attend to the various branches of the industry must be thoroughly competent and in the same class with the able managers of the successful city dairies; otherwise the issue will be a failure. It is this simple truth that is generally overlooked in cooperative industries. The patrons often imagine that cooperation itself is quite sufficient, and forget to select the right man who will make the business pay, or are unable to procure such a man at short notice.

Once a man asked a friend what the difference was between a shoe trust, and a cooperative shoe company that was just then incorporated. The friend gave the following definition:— " A trust is a cooperation of successful producers and salesmen, whilst in cooperative business the successful salesmen are conspicuous by their absence. " A great many cooperative concerns have been successful from the very start because the promoter was a good manager, but such concerns generally lose in efficiency when the original promoter retires. The same happens with non-cooperative companies, and the history of the failure of a city dairy may be a lesson to our would-be dairy owners.

Four years ago a man came to a large city with ten thousand dollars in his pocket, and the intention of becoming the owner of a city dairy. He had two brothers who were willing to help him. They started on a small scale, one man supplying the brains and his brothers the unskilled labour. The dairy flourished and increased considerably in size until one day our friend found that the concern had outgrown him, and that it was impossible for him to attend to all details personally. He tried to hand over some of the responsibilities to his brothers ; but they made a failure of it as they had no managing ability. The city dairy referred to is now in a state of liquidation, as it was impossible to run it without skilled management. Our friend tried for a long time to run it alone, but when he attended to the factory end of the business the city trade would go all wrong, and when he gave his attention to the city trade the factory was a failure. This example taken from a private business holds good for many cooperative concerns. The only difference is that in cooperative business the patrons are so numerous that the capital, and therefore the losses, are much larger.

(Continued Page 88) .

AUCTION SALE

—— OF ——

200 SHEEP AND 100 SWINE

(Males and Females) All pure bred and Registered

ORGANIZED BY THE

GENERAL STOCK BREEDERS' ASSOCIATION

OF THE PROVINCE OF QUEBEC

UNDER THE PATRONAGE AND WITH THE FINANCIAL HELP OF

Honorable J. E. CARON, Minister of Agriculture of the Province of Quebec and Honorable S. FISHER, Minister of Agriculture of the Dominion.

AT MONTREAL

At the East End Cattle Market

(CORNERS OF FRONTENAC AND IBERVILLE STREETS)

At 10.30 A. M.

Thursday, 12th October 1911

AT QUEBEC

At Savard Park, At 10.30 A. M.

WEDNESDAY, 18th OCTOBER 1911

The way to the East End Cattle Market, at Montreal, is as follows:

From Grand Trunk Railway depot and from Canadian Pacific Railway depot, (Windsor St.) Take WINDSOR & ST LAWRENCE street cars, going east; change car at MONT-ROYAL street, going east; get off at FRONTENAC street.

From Canadian Pacific Viger station: Take St. Denis street car going north, change at Mont-Royal street going east; get off at Frontenac street.

The sheep offered for sale will be of following breeds: Leicester, Cotswold, Lincoln, Shropshire, Hampshire, Oxford. The breeds of the swine offered for sale will be Yorkshire, Berkshire, Chester, Tamworth, Duroc-Jersey.

CONDITIONS— CASH, except to Farmers' Clubs and Agricultural Societies which will be allowed time on terms that will be given on day of sale.

FOR FURTHER INFORMATION ADDRESS

J. A. COUTURE, Secretary of Stock Breeders' Association,

49 GARDEN STREET, QUEBEC.

This spring we happened to be in Rotterdam, Holland, when a large cooperative city dairy went bankrupt, after losing $100,000 in three months. When this cooperative concern started three months earlier, everything seemed in their favor ; they controlled lots of milk, and the existing city dairy was making big profits. However, they forgot that these profits were made by a very capable manager, and that to get these profits they must have a still better man at the head of their dairy; and so they lost accordingly.

We cannot describe in detail the qualities necessary for a successful manager of a city dairy. We only want to make it plain that if cooperators expect the combined profits of existing concerns they must supply the brains also which made these profits possible. Most business managers have grown old in the concerns they manage and no greenhorn can beat them at their own game. If milk producers want to start a successful cooperative dairy they must pay for a trained manager. This is very expensive, as it is difficult to induce a really capable man to start on an uncertain future. One of their own number won't do. We therefore advise our farmers to keep near home. They have sold milk for years, and are able to do that at a profit, so they can cooperate in selling milk to city dairies, and thus remove competition among themselves and raise the milk prices. But they ought to be very careful before invading the city dairies, and thus remove competition compete with experienced men grown old in the trade.

J. VANDERLECK.

HOW TO GET THE HIGHEST PRICES FOR CHEESE AND BUTTER.

Insist on your cheese and butter makers joining the Provincial Cooperative Society.

Question. — We do not sell our cheese at the price given in the papers. When the sale of cheese is given as 11 1-2c. and 12c. per pound we only get 10c. Why are we cheated like this ?

How can we sell at a higher price? We are tricked by the makers or the buyers.—X. St. J., Shefford.

Answer. — As a rule the sale prices of cheese and butter published in the papers are correct enough. One thing is certain and that is that if your cheese passes through several hands it leaves commission with each agent, and by just so much the patron is the loser. Our sale system is most defective and there is too much apathy and unconcern among the farmers. In fact they do not watch the trade closely enough. We are not business men, and we let the owners and makers at the factories have their own way too much. I do not wish to preach revolt to the farmers but it is time they awoke. If the "Journal of Agriculture" was read more carefully they would know that there exists a Provincial Cooperative Agricultural Society of Cheese— and Butter-Makers, supported by the government of Quebec, which pays for dairy products according to their value; they would know that the sale of these products was not left to chance since the Government guarantees the sales; they would know that this Society pays the highest market prices, not only of Quebec but in the whole Dominion. I do not mean to say that your cheese will fetch 12c. the pound when it is only worth 10c., but at least you will have the satisfaction of knowing why your cheese only sold for 10c, instead of 12, if the customary price is 12c. You will be told whether it is the result of bad factory equipment, or the ignorance or neglect of the maker, or the patrons' bad milk. In fact you will see your way in the matter, while at present you grope along not knowing whom to make responsible—the proprietor, the maker, or the patrons.

This is what you must do,— 1st., nominate 5 or 7 directors; 2nd, form an Inspection Syndicate; 3rd, register your factory in the Quebec Cooperative Agricultural Society of Cheese-Makers with Mr. Auguste Trudel, 45 William St., Montreal.

If your maker, or the proprietor of your factory, refuses to render you an account, leave them all and form a cooperative cheese society. I know many makers who have failed because they have treated their patrons badly, not rendering account of the sales, not building curing rooms or cooling rooms, or not wishing to replace defective equipment, etc., etc. The public, weary of this treatment, have left them, some buying hand separators, others combining and forming cooperative societies. Yes, the time is past when the butter and cheese maker had absolute control of the commodity brought him. He serves the public, and if they wish to sell his dairy products through the Quebec Cooperative Agricultural Society of Cheesemakers he must consent with alacrity. Further, I must warn you against the makers who refuse to do this; they either have bad equipment, or lack the knowledge required to produce a first-class article. Good makers with good equipment and the requisite knowledge of their trade hasten to enroll in this cooperative society. They are not afraid of competition for the sale of their products. Those who condemn the Provincial Cooperative Society are governed by personal interest, and because they miss the commissions on the sales they condemn it. Truly the Quebec Government never did a greater deed than when this Society was organized, whose aim is to pay the farmer the value of his butter and cheese. What can be more just than paying for a product according to its value ? That certain buyers regard this organization with disfavor is not to be wondered at. Before now a buyer has mixed good and bad products, making an average price and therefore great loss to the farmers. This is easy to understand. Here is an example. — An egg merchant mixes fresh eggs with old ones. Will not the fresh eggs have lost most of their value? It is just the same when good dairy products are mixed with those of inferior quality. When these products only fetch one price why should the farmer bring good milk to the factory if the superior quality sells no better than the inferior ? And what motive has the maker for improving his system and the patrons for improving the condition of the milk if the price for the good and bad product is uniform ? It is strange that we never thought before of selling our products according to their value and that the cheese and butter exporters could not discriminate in price. Further, they tell me that the buyers were against the classification of dairy produce so as to buy cheaper, and that they were making most of their profit by purchasing bad butter and cheese. How so ? By lowering the price of superior products. This is simply robbing the good maker, and the good patron. At last the Government has intervened, and to stop this abuse has decided to unite all good makers of butter and cheese in the Province in a Cooperative Society, and to sell directly to the exporters without employing commission agents.

Certain exporters and commission agents, more interested in money-making than in classifying products, show their teeth and criticise this act of the Government. But right-minded honest exporters, having at heart the sale in England of good dairy products, approve, and have determined to buy from the Cooperative at the highest market price and according to value. All the better, for if the exporters had unanimously refused the produce of the Cooperative, the latter would have sent their products direct to England. Who can complain then of the Government's action, when you are now paid the value of your products?

Farmers, you must not hesitate. Compel your makers to join the Cooperative. For terms, write to A. Trudel Esq., 45 William St., Montreal.

DR. W. GRIGNON.

BRIE CHEESE.

The manufacture of Brie cheese is a very profitable industry for the farmers of Brie, a small village in the department of Somme in the north of France. The actual labour spent in making the cheese is very small, but to conduct the curing in a satisfactory way is not so easy and only first class cheese is saleable.

Brie cheese belongs to the group of soft cheeses and its ripening is partly due to moulds of the penicillium variety. It may be useful to discuss the ripening process before describing the manufacturing.

The ripening can be divided in two different phases. In the first we have the development of organisms which enable the real curing germs to do their work later on. We might call these germs preparatory organisms. This group consists of lactic acid bacteria and two varieties of Penicillium (candidum and album) and prefers acid surroundings. The real curing organisms of the second group need a neutral or alkaline medium.

From the moment the curd has formed in the cheese-vat the lactic acid bacteria grow rapidly, turning the material more and more acid. A few days later the penicillium appears, gradually covering the surface with a velvety layer. After about a fortnight the mould dies, the layer of velvet becomes thinner and thinner and the cheese turns red, that is, the whole surface becomes covered with numerous orange coloured colonies which attack the casein and peptonize it (make it soluble) . The inside of the cheese, which was white and acid, undergoes a change starting at the outside, and becomes yellow and alkaline. This is the normal ripening of the cheese, but often without any apparent cause the Penicillium stays away, or the red colour does not appear.

These are the difficulties the cheese maker has to guard against.

We will consider now the different manipulations to which the milk is subjected in order to give the desired fermentation.

Immediately after milking rennet is added to the warm milk, which has a temperature of 86° F., and the coagulation is complete in two hours. The coagulated milk is sliced and ladled into bottomless metal moulds placed on straw mats ; the slices taken as big as possible. In this way each mold is half filled and put away until the evening milking, when the milk is again treated in the same way and the moulds filled to their full capacity. Each mould takes 12 to 16 quarts of milk. After the morning filling of the moulds, they are placed seven high to keep the temperature up. The cheesemakers collect the milk of two milkings to get the right acidity, otherwise the mould development is retarded. The right acidity was given us as 22 degrees of an unknown scale.

Nearly three quarters of the content of each mould must drip off as whey and in order to do this quickly the moulds are placed on the table in a slanting position.

At this moment the fermentation starts, the growth of the organisms being encouraged in every way. The rooms are connected with the cow stable and so a moist heat is produced. For the development of the moulds the rooms must be kept at 64°-68° F. If the temperature is too low or the curd not acid enough the penicillium does not appear. After 4 days the cheese is placed in the dry-

ing room, where it remains until sold. The temperature is kept below 58° F., and the mould develops uniformly, without forming a very heavy coating. At the end of about 10 days it is nearly 1-2 inch thick. The cheese is turned daily, thus restricting the mould development.

In the older cheese-factories the cheese vat, moulds and boards, are teeming with organisms, necessary for the ripening of the cheese; but there is still a more certain means of inoculation. As we said before, the metal moulds have no bottom, but are placed on small mats of straw or other material. The straw mats, called cajets, are in direct contact with the curd. They are exchanged daily and thus convey the germs from one cheese to another. It is a point of honour among the cheese makers to keep these cajets in a perfect condition, but they are always liable to become a source of infection. The cajets must be dried regularly and in winter this in done near the fire, often in a general waiting room, where dust of all kinds contaminates the cajets. Such a cajet put under a Brie cheese is sure to cause trouble. Many manufacturers keep their cajets in a separate room, but it is very difficult to prevent contamination altogether.

Some of the most troublesome infections are in the first place the well known green mould, Tericillium glancum. It is of the same group as the useful moulds and is the ripening organism of Camembert Cheese. In Brie cheese, however, it is a regular curse and farmers call it the " black nuisance ", due to its dark shading, Oidium lactis. The milk mould is another pest, and causes running of the cheese. It is as much feared as the green mould, but luckily it can only develop in cheese that is too wet or not salted.

Mucor mucedo, may also appear sometimes. This mould is easily recognised for it forms long threads with black balls at the end. It gives the cheese a bitter taste and prevents the growth of penicillium for want of space. It appears generally near the stable, the fumes of which are supposed to be very nutritious.

When these infections become too prevalent the cheese maker disinfects his rooms with sulphate of copper, whitewashing them afterwards. This treatment destroys all mould life, and cheese put in such a drying room will not ripen at all. The cheesemaker borrows some cajets from a more fortunate neighbour. Gradually the moulds reappear and soon the fermentation runs its normal course.

Other cheesemakers wash the walls, moulds, and boards with whey from their other cheese, and so encourage the ripening.

As early as 1898, Roger advised the use of pure cultures, isolated from first quality cheese. Curd treated with such cultures showed the appearance of penicillium several days earlier, and the feeling is that these cultures will do much to prevent the growth of troublesome organisms.

We investigated the whole process of the manufacture of Brie Cheese extensively, and do not see any reason why it could not be produced in the province of Quebec.

The demand for soft cheese is increasing by leaps and bounds; the actual labour is very small; and we see good profits for the small cattle holder in this province.

J. VANDERLECK.

Poultry

SEASONABLE NOTES.

Get those early pullets into winter laying quarters and give them liberal but restricted range with an abundance of green food in addition to the regular ration. If the growing feed differs much from the laying feed make a gradual change and not an abrupt one. An abrupt change of diet will sometimes start old hens laying, but it should not be necessary with pullets and in some cases may get them out of condition.

Heavily fed pullets should be kept busy to keep them in good order and to prevent their becoming too fat before starting to lay. After laying is established they are not liable to put on enough fat to hurt them, but exercise won't do any harm. Exercise does not mean that you should make the birds work for every kernel they get. Exercise is a good thing, but it isn't necessary to work them so hard that they burn up most of their food in making power for muscular work. Sometimes you can have too much of a good thing.

This is a season when some folk sell off a lot of their pullets and hens "because they don't lay, and grain is so high." Nine times out of ten their birds have had just enough food to keep them alive and in fair order, with no surplus for fat making or for making eggs. If you can get a chance to buy such birds that are of good size and healthy, buy 'em. In from two to three weeks time with a liberal ration you can have them laying and you can keep them laying all winter. Many will be sold for what it costs to raise them and less.

If there are any leaks in the poultry house roof, patch them up. You want a good tight roof before fall storms and winter snows come. Give the poultry houses an overhauling and begin to prepare for the cold season.

Fall colds may be prevented by avoiding the following common sources of trouble: Close, poorly ventilated sleeping quarters, crowding, dampness, filthy roosting coops, sleeping on the floor, irritating dust, musty or mouldy litter, prolonged exposure to chilling winds and storms without suitable shelter.

If catarrhal colds result from sudden climatic changes, place the birds in open air quarters, feed liberally, cleanse mouth and nostrils with a solution of one teaspoonful of creolin and one pint of water or use this solution to dip their heads in. In the latter case dip every day or every other day (according to the severity of the cold) for one week; this treatment will usually cure.

It is a good time now, before the pullets are housed for the winter, to have a good general poultry house cleaning. Sweep down all dust and cobwebs from the ceiling and walls, clean out the nests, remove eight inches or more of the top of earth floors, use disinfectants freely, whitewash the interior of the house or spray it with disinfectants. Clean the windows, put in fresh clean sand or fine gravel on the floor, use clean straw, hay, excelsior or sawdust for nesting material.

Whitewash is a good sweetner. Strain it through a fine wire strainer or through burlap and apply with a spray pump.

For a whitewash that will not rub off try the following, put on with a broad brush: Slake one peck of lime in boiling water, keep it just covered with water while slaking. Strain through a coarse cloth. Add two quarts of fine salt dissolved in warm water, one pound of rice meal boiled in water to a thin paste, one-quarter of a pound of whiting, and half a pound of glue dissolved in warm water. Mix all thoroughly and let it stand covered for a few days, stirring it occasionally. Heat this wash before using and apply hot.

Before plowing up the runs give them a good top dressing with air slaked lime.

QUEBEC CHEESEMAKERS' COOPERATIVE SOCIETY.

BUTTER SALE,, AUG. 25th 1911.

By Aug. Trudel, manager, at the Board of Trade.

Quantity of boxes.	Quality.	Buyer.	Price.
296	Extra		
	Special	Matthews Ltd,	25 3-4 c
315	Special	C. D. Warrington,	25 1-2 c
32	No. 2	Can. Agri. Produce Co.,	25 c

CHEESE SALE, AUG. 31 st 1911.

WHITE.

Quantity of boxes.	Quality.	Buyer.	Price.
738	Special	Jas. Alexander, Ltd,	13 3-8 c
1167	No. 1	Hodgson Bros., & Rowson Ltd,	13 5-16c
711	No. 2	Lowell & Christmas Ltd,	13 1-4 c

COLORED.

260	Special	Coop. Wholesale Society,	13 3-8 c
522	No. 1	Lowell & Christmas, Ltd,	13 3-8 c
140	No. 2	Lowell & Christmas Ltd,	13 1-4 c

CHEESE SALE, SEPT., 7, 1911.

WHITE.

Quantity of boxes.	Quality.	Buyer.	Price.
897	Special	Lowell & Christmas Ltd,	13 7-8 c
940	No. 1	Gunn, Langlois & Co.,	13 13-16c
532	No. 2	Jas. Alexander, Ltd,	13 3-4 c

COLORED.

381	Special	A. McCullough & Co.,	13 13-16c
399	No. 1	Lowell & Christmas Ltd.,	13 1-4 c
107	No. 2	Gunn, Langlois & Co., Ltd,	13 5-8 c

CHEESE SALE, SEPTEMBER 14.

WHITE.

Quantity of boxes.	Quality.	Buyer.	Price.
1055	Special	Gunn, Langlois & Co., Ltd,	14 11-16c
920	No. 1	Jas. Alexander, Ltd,	14 9-16c
715	No. 2	Gunn, Langlois & Co., Ltd,	14 7-16c

COLORED.

267	Special	Hodgson Bros., & Rowson, Ltd,	14 9-16c
443	No. 1	Lowell & Christmas Ltd,	14 1-2 c
233	No. 2	Gunn, Langlois & Co., Ltd.	14 7-16c

Woman's World

CHILD WELFARE.

This is the age of the child. He is coming to his own at last.

Never before in the world's history was there so much done to make the period of childhood a delightful one; never was so much study and thought bestowed upon this period of childhood for its own sake; and never was so much effort made to insure the period of childhood for the child.

In January of this present year at a cost of $100,000 the city of New York held what they called a Child Welfare Exhibit.— At this, in addition to what was paid for, there was a limitless amount of volunteer work.— Following this, in May Chicago took the materials New York had gathered, added $50,000 to that, and held a similar exhibit. The Superintendent of Chicago Schools is a woman, Mrs. Ella Flagg Young, and she, with her body of supervisors, decided to make this a great occasion. Instead of using pictures, she ruled that the exhibit must be real life. Singing in chorus by thousands of children who have never sung together before until gathered for the occasion from the different schools, was very wonderful in the accuracy of time and in the skill and knowledge of their parts. There was a great variety of games and folk dances, hundreds given by different groups of children. One hour each evening was given to the Boy Scouts, in which they carried through a program.

To get a hint of some of the exhibits that were shown, and of the breadth and variety, we quote a few from the lists.

Team work for City boys.
The Settlement as a Neighbor.
Rest room for babies.
Play zones for children.
Play things for Children
Foods and Feeding of children.
The Baby tent.
Medical School Inspection.
Etc., Etc., Etc.

A statement was made of all the wage earning children, and how many hours a week they attended school. Physical training has great attention in Chicago, and the wonderful results were seen in this exhibit. The crippled children have special schools in New York where they achieve wonders. Juvenile courts are established where children may be tried for offences in a special court. This had a first place in the great exhibit.

And now Boston, St. Louis, and Brooklyn are going to try this plan of bringing before the citizens and visitors this wonderful work, and in October of this year Montreal is to join the number and give to its citizens both in French and English a Child Welfare Exhibit.

Montreal is said to grow at the rate of from 25,000 to 40,000 yearly.— Congestion is great in some quarters and we shall soon have slums as bad as can be found in the world. Infant mortality has a very high rate, and it is hoped that such an exhibit may reach the whole city and be of lasting benefit.

J. M.

THE TEETH

"An ounce of prevention is worth a pound of cure."— There is no way in which this old maxim can be better applied than in the care of the teeth. It has been found by careful investigation into the relation of poor teeth to educational progress, that children with poor teeth do not advance as rapidly in the public schools as the children whose teeth are comparatively sound. It is also claimed that bad teeth are a menace to health and that there is a close connection between sound health and sound teeth. These facts have been gathered after careful inquiry.

If a child's teeth decay rapidly it is only reasonable to suppose that as the bone formation of the teeth corresponds in large measure with the bone formation of the rest of the structure, and all body tissue is practically in the same state of health, if the teeth are weak the health of the whole body is below par.

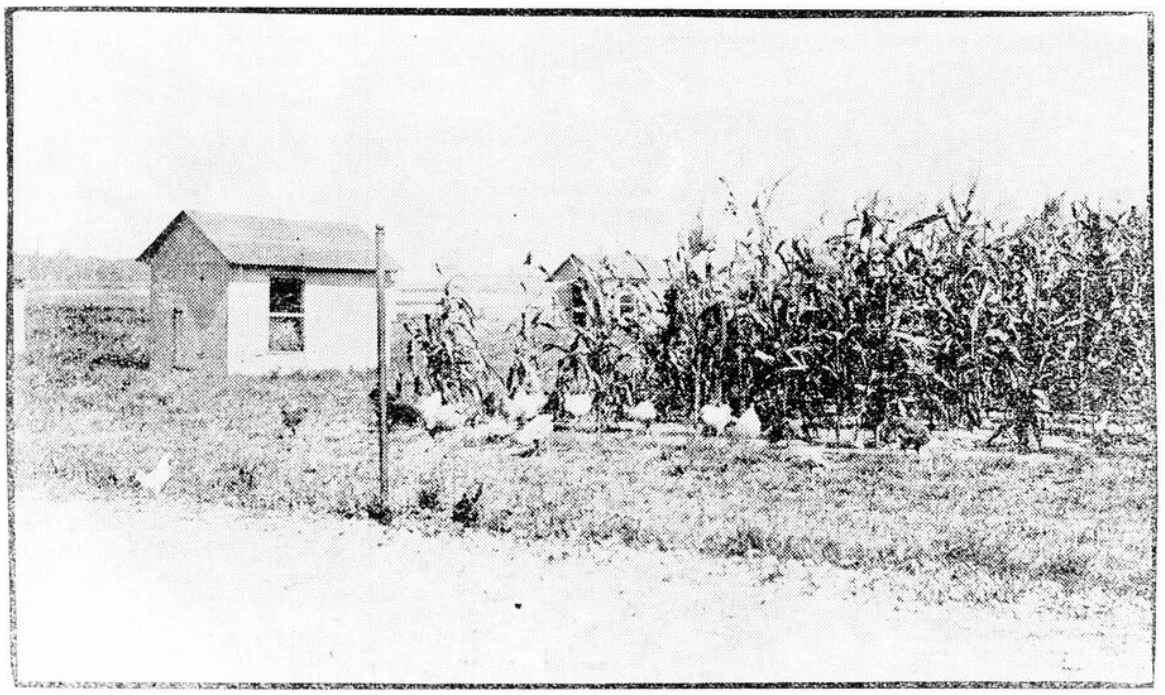
Upon the proper mastication of food depends largely its digestion and assimilation. If, then, the teeth are so affected as to prevent proper mastication, all the after processes are weakened by this defect, and the body does not profit as it should by the food taken.

By great efforts on the part of many earnest people medical examiners and trained nurses have been secured for the schools of most of the large cities in the United States and Canada, and Boston has a Dental Infirmary costing half a million dollars, where children from five to sixteen years, who cannot afford to have dental work done, may be sent to have their teeth cared for. Montreal does much of this work but has no such luxury as a beautiful building for the purpose. We are not so fortunate as to have either medical examination or nurses' supervision in the schools in the country, and so we can only keep sounding the warning to busy mothers to see that the children are trained to use tooth brushes every day and especially before going to sleep at night, and as soon as defects are seen have the attention of a good dentist.

Our children are our country's great asset, and the healthier the children the greater the asset.

The children themselves do not know as we do the value of good teeth, and would not realize it if told many times over, but we are responsible for their welfare and are in duty bound to protect them by our experience. If we fail here we shall deserve their censure in later life, but the faithful mother who protects and guides over the rough places and by persistent effort conserves the best that youth has to maturity, she it is of whom it was once written by a wise man "her children shall rise up and call her blessed".

J. M.



Poultry are good insect destroyers, The illustration shows a colony house placed beside a patch of corn. The poultry are benefited during the hot days of summer by the shade furnished by the corn, and they return the favor by feeding on the insects that trouble the corn.

Before putting brooders, brood coops and colony coops away for the winter give them a good cleaning with hot water and soap. Scrub them inside and out and use two tablespoonfuls of a good commercial creolin in each gallon of wash water. Let them dry thoroughly in the sun before storing away.

Be sure to store away for winter uses a good supply of cabbages, mangel beets, turnips and small potatoes. Waste apples also make good winter food.

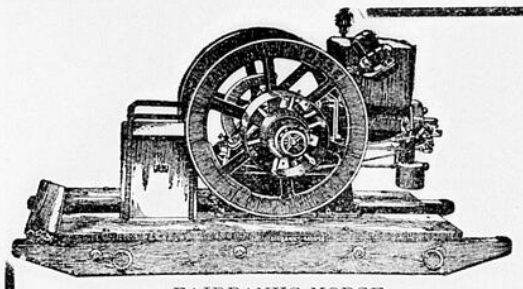
F. T. B.

A BOY'S IDEA OF A DUCK.

A schoolboy who was assigned to prepare an essay on ducks submitted the following: — "The duck is a low, heavy-set bird, composed mostly of meat and feathers. He is a mighty poor singer, having a hoarse voice, caused by getting so many frogs in his throat. He likes the water, and carries a toy balloon in his stomach to keep him from sinking. The duck has only two legs, and they are set so far back on his running gear by nature that they came pretty near missing his body. Some ducks when they get big have curls on their tails and are called drakes. Drakes don't have to set and hatch, but just loaf and go in swimming and eat everything in sight. If I was to be a duck I would rather be a drake."—Spare Moments."

VENTILATION IN COLD WEATHER.

There is a tendency to think of hot air as impure and of cold air as fresh air.— Both ideas may be quite incorrect. Cold air is not necessarily fresh air, and it is of some importance that just now we begin to think of the means of getting plenty



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of fresh air into all parts of our living rooms during the winter months. There are many country houses where windows are never raised, and where the air in some rooms is seldom thoroughly changed. Indeed the windows seem to be nailed down during the cold season.

In the pioneer days there was little need to talk of house ventilation but we have made our modern houses almost air tight and many think very little on this subject but more on the saving of fuel.

Now while it is very necessary to think of the saving of fuel the fuel will do little good if it is saved at the expense of health. As the Irishman says " what's the world to a man, when his wife's a widdy".

If every room full of bad air that was breathed and rebreathed caused an attack of illness, then we would learn to breathe fresh air, but we are so constituted, we have such a hold on life, that many times may we breathe bad air without being actually ill. We fail to see our loss in this respect or have no means of estimating it unless we try both plans, sleeping in a close ill-ventilated room, and sleeping with warm coverings in a room with plenty of fresh air. The difference in our condition in the morning is one way of judging.

Every time we feel dull and stupid, heavy and tired from a badly ventilated sleeping room, we are losing in power and in health just as surely as if the bad air had dealt us a blow that knocked us down, and when we take to our work a tired body we must do less productive labor than if we were feeling fit and ready.

It is not merely a matter of the price of fuel, it is a national affair. This generation is said to be less strong than the last.— It cannot be all charged to cigarettes though the cigarette habit is most pernicious. One of the causes is surely unhygienic living. We have built close houses and have not allowed for ventilation. Fuel has advanced in price, and the excuse for closing the windows is that we can't warm all out of doors. Especially the sleeping rooms should have more consideration by the mothers — Guard well against drafts and clothe the children warmly and let in the fresh air. Only in this way can our bodies be kept strong and resistant to disease.

J. M.

Of General Interest

THE PASSING OF THE PROFESSOR.

Where is the gray-bearded, bespectacled professor of yesterday, with his deliberate step and bent shoulders, his placid dignity and absent-mindedness, his air of studious absorption in things beyond the common ken? He was never young—where he spent the years before he became gray in wisdom is one of the pleasing mysteries of life. He was, we record it to his honor, a scholar and a gentleman: the quiet seclusion of his days may have helped him to that priestly benevolence, that gentle tolerance of the vagaries of youth which we recall in him.

But where is he now? The magic of the years has changed him into an alert, keen-eyed, firm-lipped man, of vigorous physical bearing, whose years may be, in fact, as many, but who seems, if he is forty, to be forty years young.

This new man has at once more and less authority than the other had. Less, in that the mere fact of a man's profession nowadays no longer exempts him from the frank criticism of all around him — he, personally must " make good", his " cloth": the incidentals to his work in life, will not save him as Professor to-day any more than as clergyman. More authority, however, the new professor has, in that the power which his profession gives him over the minds and character of a coming generation is more commonly realized. As people have come to appreciate that power, they have come to demand more of the man who uses it. And his power has in fact become very much greater than it used to be, in these days when education is more and more the natural right of all the people, not the privilege of the leisured few, as the old Greek word "schole", meaning " leisure ", from which school comes — proclaims it.

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But the chief reason for the change in the Professor is the deep-going change in the conception of education, and therefore in the function of the professor. It has been a far cry from Bacon's revolt from the school-men, from his irritation with the learned gentlemen who spent hours discussing how many angels could stand on the point of a needle, while nature's great handwriting lay waiting everywhere to be translated, to James' pragmatism, his demand that all theory shall be tested by its workability. It is a test we apply very generally nowadays — not only to abstract questions of philosophy (and the House of Lords — and the Senate and the Gentleman) but to Latin in the course of the future housemother, to Greek in the course of the future Civil Engineer. Since everybody is to be educated, must not education be something different from what it was in the old days, when only a few were to have it ? What must it be then ? And broadly spoken the answer is : Everybody must have a chance to learn to do what he can do best — Latin and Greek for some still, but by no

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neans for all, and not even for the some to make them masters of the rest, but servants of the whole.

The Professor must still be a scholar, a specialist, an expert in his line, as is indicated by the fact that he is more commonly Doctor than Professor, in recognition of his special training, and that it is coming more and more to be true that the Doctor's Degree is a pre-requisite for the Professor,— almost as much as his M. D., for the physician. But also the Professor of to-day must bridge, or rather, "fill in" the gap between theory and practice. He must know, and his knowledge must be practical — it must stand the test of doing. The plain demand upon him is "Practice what you preach"; if your theory of political science amounts to anything, give us a training that will make us good citizens, that will help us to make government a more efficient machine for justice and right national growth. If you know anything about light and heat and the factors that determine the value of the soil make us understand the forces we move among daily, and of which we are masters or the slaves, in proportion as you train us to control, their common manifestations. If history and art are vital to the thought and joy of the world, teach us not dates and names and vague technicalities, but discover the past to us as we walk blindly upon the dead years. Open up the world of beauty all around us. Put into our hands "the thread of the all-sustaining beauty that runs through all and doth all unite", to guide us through the labyrinth of life.

To be able to do these things, means to be alive to human experience, to be thoroughly in the world; to live, however quietly, yet close to the eternal values of the struggle, first for existence, and then for life and more abundant life. Like Socrates — the Professor must come down into the market place and deal with men, there, for that is where men must learn how to live.

Under the older college professor generations of students passed ict untouched by the fine unworldliness, the serene integrity of his character, not uninstructed by his learned lectures, but somehow left to face a world utterly strange to them. Somewhere in this new world the knowledge that they had acquired, the ideals of honor and right living they had gained, had their place and value, but the first question of most of these students was undoubtedly a bewildered "Where?"; and often it took many hard years of study in the bitter unleisurely school of life to answer that question.

A few straws may indicate the change in the wind. They are good big straws, however, which argue that the wind is blowing hard. The President of a University has recently become the Governor of a State; the Professor of Sociology in a great University is also at the head of organized charity in his city; a professor of chemistry was instrumental in establishing the first great college to train women especially for their work as home-makers; another has induced large manufacturing interests to endow industrial fellowships whereby men may study under the best conditions to add to the world's mastery of material. In a State University of the West a number of the professors hold government positions corresponding with the subjects they teach.— tariff boards, railway commissions, philanthropic foundations, political clubs. More and more we find college professors members and leading spirits of them all. A novelist, a dramatist, a mayor, a governor, a farmer, an inventor, an ambassador, any of these may have stepped into his position from the academic chair.

As now the world looks more and more to theory, to the scientific solution of its problems, so theory answers more and more closely and clearly to the questions put to it. And with that change has come the metamorphosis of the professor, from the narrow though profound scholar and monk-like student and recluse, into the citizen of the world, referring his especial knowledge always to its nook in the manifold structure of civilization, testing it always by its correlations. His students find a world whose doors are already partly opened to them; their standards of social and business ethics, their conceptions of history, of art, their knowledge of natural forces, have all been based broadly upon the actual world around them.

Since the passing of the old professor, the old order, of which he was an invaluable part, has changed, yielding place to a new order in which a different man must serve his turn in these new practical ways in which God is always fulfilling himself. The old order was good in its time and did a work we may not ignore or contemn, but the new order, too, is one of the good "Gold chains by which every way the whole round earth is bound about the feet of God". Plain law, plain truth to make children better able to solve the every day mysteries of life, better able to master themselves and serve others, this is the burden of the new teaching.

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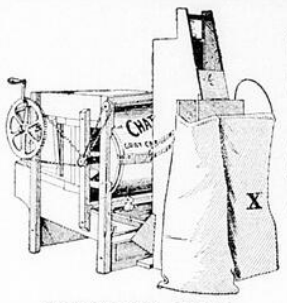

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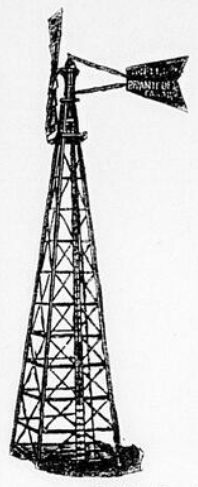

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ANY person who is the sole head of a family, or any male over 18 years old, may homestead a quarter-section of available Dominion land in Manitoba, Saskatchewan or Alberta. The applicant must appear in person at the Dominion Lands Agency or Sub-Agency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

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

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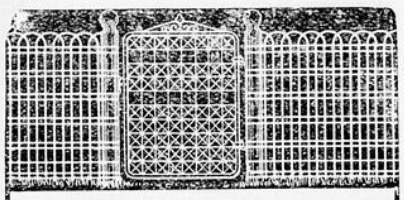

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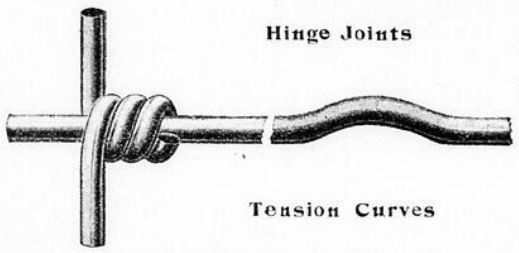

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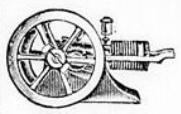

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ings, as branch wires can be run from the main line to the buildings and thus save wire and simplify the construction. Reference to Fig. 4, in which *c*, *e*, etc., represent the buildings to be connected, *m* the main line and *a* and *t* the branch wires, will make this point clear.

POLES.

Poles twenty-two or twenty-five feet long of any good stock, cut when green, should be used. Cedar and chestnut are particularly desirable on account of their lasting qualities. The poles should be reasonably straight and well proportioned. The diameter

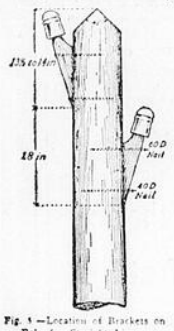

Fig. 4.—Location of Brackets on Pole for Straight Lines.

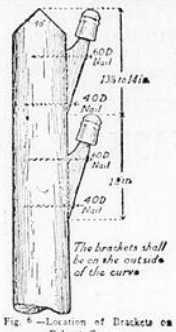

Fig. 6.—Location of Brackets on Pole at Curves.

of the top of the pole should be about 5 or 6 inches. In order to prolong the life of the poles and add to their attractiveness, all the bark should be removed, knots trimmed close and the butt cut off square. The top of the poles should be roofed as shown in Fig. 5.

POLE FITTINGS.

Where only one or two line wires are to be mounted on the poles, oak brackets fitted with glass insulators are fastened to the pole as indicated in Fig. 5 for straight lines, or as shown in Fig. 6 at curves. The brackets should be attached to the poles before the poles are raised.

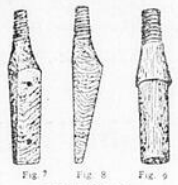

Fig. 7 Fig. 8 Fig. 9

BRACKETS.

Brackets Figs. 7 and 8 are usually made of oak and given two coats of metallic paint and have a thread on the upper end to which is fastened a glass insulator, a type, as used in telephone work, is shown in Fig. 32.

They should be about 18 inches apart. The upper bracket should be 8 inches from the top of the pole

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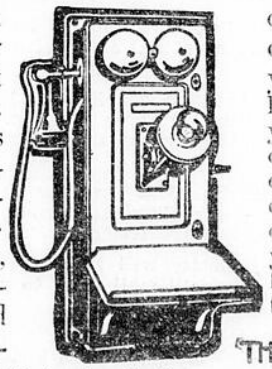

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