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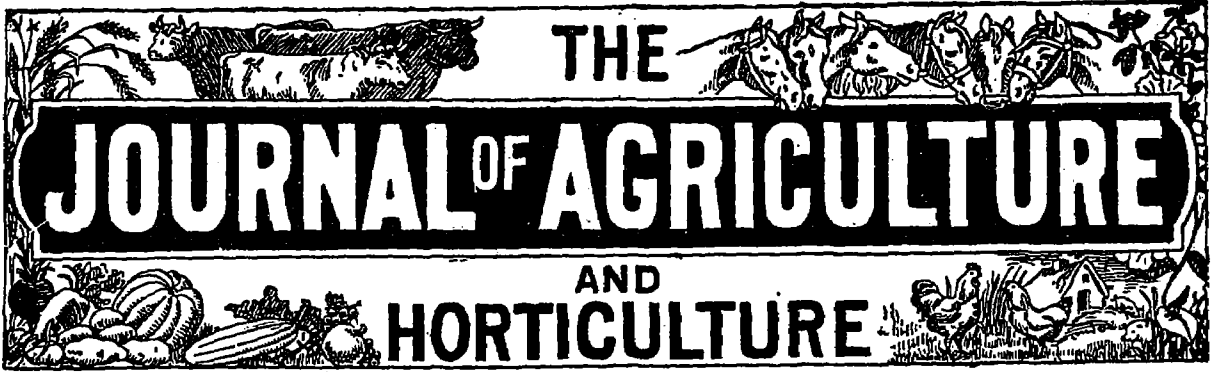
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THE JOURNAL OF AGRICULTURE AND HORTICULTURE

VOL. 4. No. 13

This Journal replaces the former "Journal of Agriculture,"
and is delivered free to all members of Farmers' Clubs.

JAN. 1st, 1901

THE
Journal of Agriculture and Horticulture

THE JOURNAL OF AGRICULTURE AND HORTICULTURE is the official organ of the Council of Agriculture of the Province of Quebec. It is issued Bimonthly and is designed to include not only in name, but in fact, anything concerned with Agriculture and Stock-Raising, Horticulture &c. All matters relating to the reading columns of the Journal must be addressed to Arthur R. Jeanner Fust, Editor of the JOURNAL OF AGRICULTURE AND HORTICULTURE, 4 Lisieux Avenue, Montreal. For RATES of advertisements, etc., address the Publishers.

LA PATRIE PUBLISHING CO.,
27, 79 & 81 St. James St., Montreal.

Subscription: \$1.00 per Annum payable in advance.

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The Farm.

NOTES BY THE WAY.

The "Nineteenth Convention" of the Dairymen's Association of the Province of Quebec will be held, at Three-Rivers, on the 9th and 10th of January, 1901.

"Sheep."—We were pleased to see, by the list of the sheep registered by the Breeders' Association of the Province of Quebec, that the preference for short-wools is evidently growing. Too many Leicesters, of course, but a good number of Shropshires, and we hope before next year to find a good Hampshire-down or two in the list.

Leicesters	365
Shropshires	256
Cotswolds.....	94
Oxfords	23
Lincolns.....	6
Southdowns.....	8

752

The pigs, too, shew a good deal of judgment in their selection, particularly as the fashion has set in so strongly for bacon-hogs. Chester-whites are of course only fit for salt-pork.

Chesters.....	102
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"The Dairy Breeds of Cattle."—Professor Well, of the Wisconsin Experiment Station in a communication to the

"*Breeders' Gazette*," gives the following as the order of excellence of dairy breeds based on herd-records published by American experiment-stations :

As to total annual milk yield : 1st, Holsteins ; Shorthorns second, and so on.

Total annual butter-fat : 1st, Jerseys and Shorthorns, equal ; 2nd, Guernseys, etc.

Cost of food a year : 1st, Guernseys ; 2nd, Shorthorns, etc.

Cost of food required to produce 100 lbs. of milk : 1st, Shorthorns ; 2nd, Guernseys and Ayrshires, equal, etc.

Cost of food to produce 1 lb. of fat : 1st, Guernseys ; 2nd, Shorthorns.

Upon the whole, our pet English dairy-breed does not come out so badly as some of the American papers try to make out. In the above records, the shorthorn holds the first place twice, and second place thrice, and we need not say which is the most valuable when the days of their milk-production are overpast.

We mentioned a few numbers ago that the Experiment-farm at Ottawa was about to import a herd of Dairy-shorthorns ; since that time we have heard nothing more of it. Would Mr. Grisdale be good enough to let us know if any steps have been taken about it ?

"Adulteration."—"Ground" spices have for many years been forbidden entry into our household, and we find by the last report of the chief Analyst at Ottawa, that we were fully justified in our "bar-ring-out."

Complaints having been made by a large wholesale firm in England about the quantity of adulterated cloves that found a market in the Dominion, Lord Strathcona interested himself in the question, and samples of both whole and ground cloves were collected and analysed.

Out of 19 lots of whole cloves, three were found to be deficient in volatile oil ; while out of 22 lots of ground cloves, only seven were found to be genuine. If all ground spices are in the same condition when mixed with our Christmas puddings and

mincepies, we fear that a cook who adheres strictly to the weights and measures of her recipe-book will find the flavour of her dishes below par.

"Practice."—Liebig was the first agricultural chemist to explain what element in bones had the effect of increasing the yield of crops ; but bones were used in agriculture long before Liebig was born. Similarly, as the Editor of "*Hoard*" writes : "Once in a while, theory and practice don't agree, particularly where poor chemistry and physiology come together. Oats and bran have almost exactly the same feeding value according to the analysis, yet feeding trials show that oats are worth 10 per cent more than bran as a fat producer. Why ? Well, who can say ? Not the chemist, with all his test-tubes and chemicals. Not the physiologist, for with all his knowledge of what the cell does, he is as ignorant as the rest of us why the cell does it. We only know that the digestive system of the cow will get 10 per cent more value out of a quantity of oats than out of the same quantity of bran."

"Varieties of oats."—Several new varieties of oats have been under experiment by farmers in Scotland for the Highland Society. The following are the kinds tried in 1898, alongside of the well-known potato-oat, with the yields of each in bushels of 40 lbs.:

The Waverley, 99 bushels ; Tartar-King, 92 1-10 ; Pioneer, 86 1-6 ; Potato, 61 3-10.

In 1899, the yields were :

American Beauty, 44 1-2 bushels ; yellow, 43 ; Abundance, 40 ; Potato, 39 1-5 ; Tartar-King, 39 1-4 ; Pioneer, 36 ; Newmarket, 24. A poor season must 1899 have been for the Scottish oat-crop.

"Worth growing."—We used to grow some pretty bulky crops of mangels in the "forties," in England, but they could hardly compete with that bought by Mr. Hatch of Early, near Reading, Eng., from Mr. T. Chettle. The crop was sold, by

auction, just as it stood, the buyer having to pull and cart the roots at his own expense. The price per acre was £33 0s. 0d., or, in round numbers, \$160.00 ! The kind grown was Sutton's Prizewinner, a yellow globe-mangel. Allowing the price to have been ten shillings a ton as they stood in the fields, the crop could have weighed 66 tons.

"Seed to the acre."—The Royal County, Berkshire, contains some of the best grain-farms in England ; not only that, but the whole county may proudly boast of having some of the most advanced farmers in the world within its limits ; therefore, any practice that is common throughout the county is, to say the least of it, worth attention. The regular correspondent of the "Agricultural Gazette" has the following in its issue of December 1st.:

"There seems to be a great difference in the quantity of seed used in different parts of the United-Kingdom. The usual quantity, in this district, is 2 bushels "drilled," and 2 1-2 sown broadcast. I con- week in October, is equal to 3 bushels in the first week in December."

This is the argument we have been trying to get answered for many years. Of course, the season of seeding is not the same here as in fall-wheat counties, but if any of our French-Canadian friends, who compete for the prizes offered for "the best cultivated farms," would only try the sowing of at least one-half more seed-grain than they usually sow, even at the opening of the season, and increase that quantity by a peck for every week after the 15th of May, they would find that it would pay them. Allowing the arpent to be one-sixth less than the imperial acre, and 3 1-2 bushels of oats to be a fair seed- ing for the latter on well-farmed, i. e., well-manured land, how can 2 bushels of oats be sufficient to seed an arpent of ordi- nary land ?

ENGLISH CROPS.

	1888	1898	
Horse bean.....	30 09	31 07	per acre
Pease	27.23	27 62	per acre

	Tons	Tons	
Potato's.....	5.62	6.26	par acre equal to 224 bushels of 60 bs.

"Rollers."—When living at Compton, some 28 years ago, we never ceased both- ering the farmers about rolling their crops. The late Mr. Kellam, the auctioneer, some years afterwards told me that whereas "there was only one roller in Compton- Centre in your time, there are twenty now!" Perhaps he exaggerated a little, but, at all events the number must have greatly increased. We wish the same thing could be said of the province in general ; there are but few rollers to be met with ; those few are, generally speaking, far too light ; and even if a farmer has a roller, he seldom uses it.

"Mangels."—Try and get your mangels in in good time this coming spring ; they are sown far too late, as a rule. Get the dung out of the yard into the field, and make the horses draw the sleighs on to the mixen to unload, instead of throwing the dung up loose. Remember that a hundred to a hundred and twenty pounds of nitrate of soda will make a marvellous addition to the dressing of dung for this crop. So far from the sea-breezes as Mont- real, we almost think we should try a dose of common salt, say 400 lbs. to the acre. You cannot hoe mangels too deeply, neither can you draw away the earth from them too much. The more naked the mangel and the swede are left, the bigger the root ; and it is the size and weight of the root-crop farmers must look at ; quality is a very fine thing, but bulk is what feeders of cattle and sheep must try for. And, here, we must laud Mr. Zavitz for his out-spokenness :

Mangels.—The Evans Improved Mam- moth Saw-Log gave the best returns. The question as to whether smaller mangels were not richer was asked, and Mr. Zavitz replied that such was undoubtedly the case, but the extra yield and the addition- al food value of the larger beets certainly placed them first in value.

And the following from Prof. Wrightson, is worth reading :

There is nothing astonishing in 40 tons of turnips to the acre, as some appear to think. The season has been a good one for roots in the Northern counties, and it is well known that 50 and 55 tons of turnips per acre can be produced in Scotland. In order to grow such a weight per acre in Southern England, we must have recourse to mangel-wurzel, a plant which is too susceptible of injury from frost to become a favourite down North.

The question of weight per acre of roots is an interesting one. In Stephens's "Book of the Farm" (first edition) instances are recorded of from 40 to 60 tons per acre. There is a recorded case of White Tankard, 79 tons 18 cwt. per acre, raised on Lord Charville's property in Ireland, and published in the "Leinster Express" in 1840. Why 40 tons should be considered sensational it is not easy to see. There is nothing "tremendous," neither is it any "great feat," to produce 40 tons per acre in Ayrshire of turnips. The usual distance between turnip drills or ridges in North Britain is 27 in., although occasionally the drills are raised 30 in. wide. White turnips are left 9 in. apart, and taking 27 in. as the distance from drill to drill, there would be in a regular crop a possible 25,813 turnips per acre. Mr. Stephens constructed a table showing the result in tons per acre for every 1 lb. that an average turnip would weigh. According to calculation, if each turnip weighed 1 lb. the weight per acre would be 11 tons 10 cwt. It would, therefore, only require an average of 3 1-2 lb. per turnip to yield 40 tons per acre. This would only be a small turnip, for they are capable of growing five times as heavy without any difficulty. Mr. Stephens, in commenting upon this arithmetical view of the possible yield of turnips, remarks:—"On comparing the amount of what the crop should be with instances given in the newspapers of what are considered great crops, it will be seen that these, after all, are no more than what they should be; and they are only

the result of what might be expected to be attained by combined skill and care in cultivation."

In Northumberland 20 tons per acre is only a fair crop; but weight per acre rapidly increases with size, so that judges are liable to under-rate rather than over-rate the produce. It was pointed out to me very many years ago that turnips, like spheres, vary in weight according to the cubes of their diameters. If a crop of turnips averaging 4 in. in diameter weighed 20 tons per acre, a crop averaging 5 in. across would weigh as 64 : 125, or 40 tons per acre. The difference of 1 in. might not be very apparent to the eye, but would, as between 4 and 5 in., mean a difference of 20 tons per acre. One more instance might be given to show how enormously a turnip crop increases in weight by a comparatively trifling increase in diameter of the average root. A crop in which the average diameter of the roots is 3 1-4 in. will be one quarter as heavy again as a crop in which the roots are 3 in. in diameter, and yet the difference would scarcely be appreciable to the eye. If one crop weighed 27 tons per acre, the other would weigh 34 tons per acre.

VALUE OF FARMYARD MANURE.

It can safely be asserted that the lack of care still given on too many farms to the preservation of farmyard manure is entirely due to the fact that farmers are not fully aware of its true value, nor of the losses which it sustains by leaching or over-fermenting. Were this better realised, it cannot be doubted that much greater attention would be paid to the keeping of this valuable product.

The value of farmyard manure is generally expressed in money according to the value per pound in chemical fertilizers of the amounts of nitrogen, potash and phosphoric acid which it contains—the three elements which must be restored to the soil—and as the quantity of these elements vary in the manure according to the nature and age of the animal, and the diet

which it receives, as well as the amount and kind of litter which is used, the value of fresh manure—which has not yet suffered any loss from leaching or over fermenting—may vary from \$1.90 to \$3.40, that is to say, were we to buy as chemical fertilisers, as we certainly would have to if we had not manure at our disposal or if we allow the better part of it to go to waste—the quantity of fertilising principles contained in a ton of farmyard manure, we should have to spend that sum.

It has been claimed however, that this valuation is not right, that the constituents of farmyard manure being not as soluble, not as readily assimilable as the same in chemical fertilizers they should not be valued so high. But this rapidity of assimilation, in some cases certainly advantageous, is not obtained without loss, for a good part of the chemical fertilizers, especially of those which furnish nitrogen are leached away from the soil before the plants can get hold of it, owing to their ready solubility; while, with the slow decomposition of farmyard manure the liberation of plant food takes place gradually, according to the needs of the plant, and very little is lost. Furthermore, to this slow decomposition, the manure owes its lasting influence so strikingly illustrated by the Rothamsted experiments, where a plot of land, manured and cropped, annually, for twenty years, and left unmanured, but still cropped, for twenty more years, still gave at the end of that time over 30 bushels of barley per acre.

Farmyard manure is the only complete fertiliser. This does not mean that it contains the right proportions of the different kinds of plant food needed for every crop and every soil, but it has some of all of these, and little is needed to make up for its deficiency. It contains too little nitrogen in proportion to its potash and phosphoric acid, but by clover-growing we can amply supply to the land all the extra nitrogen which it may require. As to the other constituents, the extra quantities to be supplied will vary according to the

system of farming followed, the nature of the land which may partly lack either of these constituents and would be benefited by special fertilizers. An application of 15 tons of manure per acre every four years is considered as liberal manuring. Such amount would supply approximately 180 lbs. of nitrogen, 90 lbs. of phosphoric acid, and 135 lbs. of potash. On the other hand, a four years rotation, consisting of wheat, barley, potatoes, and hay would remove approximately, in addition to the nitrogen, 222 lbs. of potash, and 80 lbs. of phosphoric acid.

But the chief superiority of farmyard manure over chemical fertilizers lies in the fact that it has the power to improve the soil mechanically by imparting to it a large quantity of humus, the presence of which in the soil greatly influences its temperature, the ease, with which it can be tilled and its water holding power. These conditions bring about the liberation of plant food hitherto in an unavailable form. It is also believed further that manure furnishes to the soil a large quantity of bacteria which are beneficial in preparing the plant food needed.

Under all points of view then, farmyard manure is worthy of the greatest care, and we should endeavor by all means possible to prevent its going to waste. The following rules should be carefully observed:

All the liquid manure, which is the richest part, should be saved, if possible by the use of absorbents, as well in the stable as in the manure pile.

The manure pile should be kept thoroughly compact, to prevent excessive fermentation, and protected. Experiments conducted at the Ottawa Experimental Farm have shown that unprotected manure though compacted, showed in three months a loss of value of 64 cts. per ton, while manure protected lost only 24 cts. per ton in the same time.

The manure should be applied to the soil as early as possible in the spring.

C. M.



AUTOMOBILE MOWER.

The following reference to the automobile mower shown by the Deering Harvester Co., of Chicago, at the Paris Exposition, taken from the Exposition edition of the New York "Times," will be found of interest to our readers. This firm made a magnificent display at Paris, and carried off the highest honors. The above journal refers to the early history of the business, and deals specially with the automatic binder and the Marsh harvester, first introduced and manufactured by the Deering people. Of the automobile mower, an illustration of which accompanies this article, it says :

The last important innovation standing to the credit of this great manufacturer is the automobile mower, which has aroused so much interest and enthusiasm at this Exposition. In 1894, convinced that this was fast becoming a horseless age, he began experimenting to find means of applying motors to harvesting machines. He succeeded so well that at this Exposition an automobile mower has been on exhibit in the American Annex, where it has had thousands of admirers. This automobile mower is the regular Deering "Ideal" mower, equipped with roller and ball-bearings, having a gasoline motor of sufficient power mounted thereon to propel it. The driving device is within easy reach of the operator, while the steering device is so arranged that he can drive the machine forwards or backwards, right or left, and turn the corners even more easily than could be done with a team of horses. Not only can this machine be used as a mower, but with the cutter-bar detached it can also be made to do duty as a portable farm engine, to be used for grinding food, pumping water, sawing wood, or for the numerous uses on a farm where power is needed. The imitator is here again at work, but up to this time so hasty have been his attempts that nothing approaching a modern mowing machine has been produced.

"Farming."

Household Matters.

(CONDUCTED BY MRS. JENNER FUST).

RETROSPECT.

A little looking back now and then can do nobody any harm, but on the contrary is apt to make people more and more thankful for the glorious age they live in.

We need a gentle reminder, now and then, lest we forget to make us appreciate what has and is still being done; things which at first appeared the impossible now stand before us as accomplished facts.

We have only to look at the wonders that have been done by expert engineering; how impossible rivers have been bridged over, the power of their beautiful rapids utilised, and made to yield for our use one of the softest and most beautiful lights the heart of man can desire.

Mountains that stood alone, monuments of beautiful dreariness, now echo to the sound of the railway whistle.

One feels lost in admiration of the great minds who conceived and carried out successfully the passage of the railway through the White Mountains.

The starting of which is done by gradually creeping in and round about the smaller mountains, somewhat like the trail of a snake; then, when one is reached too large to go round or through, nothing daunted up its side it creeps, till such a dizzy height is reached, where it takes a slight curve, and gently drops down again where it reaches and lands passengers in one of the many lovely valleys to be found through its route.

In the summer, these valleys are full of visitors; some in search of health, others to wander round and view natural beauty of which there is ever a constant succession of surprises; it is worth something to see a snow storm on Mount Washington, while the sun is shining in the valley below.

Many and wonderful things have been done, and are still doing in this wonderful age of progress. There are great minds

spending their lives in the search for progress in any shape or form. As long as it helps to lighten the burdens of the multitude, it also tends to bring nations together in peace and harmony.

The present century will see greater wonders still, things which appear to us as impossible now. As long as the world lasts the old cry will be heard far and near: EXCELSIOR.

It seems inappropriate to pass over the wonderful stride that has been taken in agriculture this century. Where is the jolly old fashioned smock-frocked farmer of the past? And where is his little more enlightened successor he of the breeches and gaiters? Happy souls who jogged along to market on what we now call cart-horses. Contentment reigned, where the farmer and his family "with a little assistance" did the work on it, their only recreation being a fair at the market town now and then. The going to church once every Sunday morning, contentedly sleeping through one hour of a learned discourse by the rector of the parish.

After a hearty midday dinner, the pipe and beer, with a nap and a few outside duties, finished the day.

Early to bed, up and round the farm in the early dawn, a hearty breakfast and a hard day's work filled up his days.

All these good people have passed away with the ungainly and unprofitable cattle of that time. Cattle with such length of limb good to clear a fence on an emergency.

The farmer who would live by farming now, must be a man who knows what he is about and keep himself well informed in everything that will profit himself or the farm.

The unprofitable ancient must be discarded, and replaced by the modern.

Beautiful cattle are to be got for the price of the long legged cattle; and they will make profit down to their very hoofs. Short of limb and small heads are to be seen everywhere.

In fact, no woman need fear meeting one

of those fearful looking creatures of not more than 20 years ago called a pig, with length of limb resembling a small donkey.

The modern species would not deign to call him cousin.

A CHRISTMAS CAKE.

A rich cake should be made some weeks before it is to be eaten, as it greatly improves with the keeping; especially so when the cake is to be used with almond icing. The cake should be ten days or a fortnight old before it is iced. Here is a receipt for an old-fashioned fruit cake, to be covered first with almondicing, then with a white sugar one. The ingredients are 1-2 lb. butter, 1-2 lb. brown sugar, 1-2 lb. flour, 1-4 lb. raisins, 1 lb. currants, 2 oz. almonds; 2 oz. citron, 2 oz. mixed peel, 1-4 gill brandy, 5 eggs, flavouring of spice, nutmeg, and a little ground ginger. Pass the flour through a sieve with a pinch of salt. Prepare the fruit carefully, then the tin in which it is to be baked, so that all may be in readiness. Cream the butter and sugar together till quite soft, so that it will drop like cream from the spoon. Add the eggs one at a time, beating well, after each is added, add the fruit, flour, etc., gradually, then the brandy. Pour into a tin, and bake from two to two-and-a-half hours, in a hot oven for the first few minutes, then move into a cooler part and bake slowly.

The almond paste gives a delicious flavour through the whole cake.

ALMOND PASTE.

Is made very easily. The cake for which I have just given the receipt will need 6 oz. ground almonds. See that these are freshly ground, as keeping turns them rancid. Three oz. icing sugar, 3 oz. castor sugar, one egg, a little flavouring and colouring. Pass the icing sugar through a sieve; add the castor sugar and the ground almonds; add the almond flavouring, and mix with the egg; knead with the hands till the paste is quite smooth, then it is ready to place on the cake.

GERMAN PASTE.

If not blessed with a good pastry oven, try German paste for your mincepies. Although it has not such an attractive appearance as puff paste, it will keep longer, which is a great advantage, for when you are busy you don't want to be pastry-making every day. The ingredients are 1 lb. of flour, 1-4 lb. butter, 1-4 lb. lard, 2 teaspoonfuls of baking powder, 1 egg, 1-4 pint water, 2 oz. castor sugar.

Preparation and Cooking.—Put the flour into a bowl, rub the butter and lard lightly into it, add the sugar, beat the egg, add the water to it, mix with the flour to a stiff paste, flour your board and rolling pin, roll out the paste once only, grease the patty pans, line them with paste, put a spoonful of the mincemeat in the centre of each patty pan, place the cover on, trim neatly, bake in a quick oven for twenty minutes, when baked sift castor sugar over, and serve either hot or cold. This paste will at least keep three weeks.

RISSOLES IN CURRY SAUCE.

Mince some cold meat; mix it with half as much boiled rice while the latter is still warm. When cold add the yolk of an egg, a few breadcrumbs, pepper, and salt. Flour the hands, and form the mixture into rissoles of equal size. Fry in deep, hot fat, and serve in an entrée dish with curry sauce.

A HINT FOR THE JANUARY CHEAP SALES.

USEFUL PURCHASES AT SALES.

The stormy, unsettled state of the weather for the last few weeks will spoil the sale of quantities of light summer goods; tradesmen will be the sufferers, for they will have to sell off most of the dainty goods left on hand, for an up-to-date draper knows better than to hold things over from one summer to another now that fashions change so quickly. It is, however, an "ill wind which blows no one good," and ladies will be enabled to obtain many bargains. The best bargains I think, will be found in washing materi-

als, such as pique, holland, and drill; then the washing silks. Remnant days should give the mother of a family a chance of laying by oddments for dresses and blouses for her growing girls, and will give her a chance of getting the family sewing forward in the winter and early spring, so that she may be more free to enjoy the bright weather when it comes. Care should be taken to ascertain that the remnants are really the length they are stated to be, for if a remnant proves short it is wasted, as no more can be had. I have known many such cases myself. With careful cutting two and a half yards of 30-inch washing material will make a blouse, and there are always short lengths to be had of lace or embroidery to ornament it. A length of silk of ordinary width will make a blouse slip; but you will need rather more for a bodice, unless you can get some lace to help out. A pretty silk skirt will need six yards of glace silk or brocade if you are content with a gathered frill at the bottom, but more is needed for a kilted frill. Remnants of lace and fine cambric are good investments, for out of them may be fashioned ladies' pinafores and frocks, and the dainty collars which go such a long way to completing a dainty summer dress.

WATER UNFIT TO DRINK.

Where foul smells exist water absorbs them, and it is then not fit for use. Water which has stood all night in an open vessel in a bedroom is unfit for drinking, unless the room be much better ventilated than bedrooms usually are.

Enamelled baths may easily be cleaned by the application of benzine on a small rag. Scour the bath with it first, then wash with hot water and soap.

To remove marks made by hot dishes on a varnished table, pour some paraffin over the spot and rub well with a soft cloth.

BENEVOLENT BRITISH LANDOWNER.

Buckland-on-the-Moor, a secluded village of Devonshire, England, has no public

house, parson, policeman or paupers. The squire owns all the land. The farms are small, but profitable. The farm laborers live in the squire's cottages. When they fall sick the squire pays their wages as usual and when they are too old to work any more they are continued on the pay list and potter about, doing what they please.

THE PRIVILEGES AND RESPONSIBILITIES OF THE FARMER'S WIFE.

The position of a wife in any case is one of privilege and responsibility; whether she be the spouse of the millionaire or of the man who has to depend upon his daily labor for the support of his family. In the former the lady may be of great service to her husband as to the judicious and charitable distribution of his wealth, and in the latter, in helping to augment the slender income, by her wise forethought, industry and economy.

But, to my mind, the opportunities of doing good a farmer's wife enjoys, exceed those of women whose husbands are engaged in other vocations, and, therefore her responsibilities are greater. As farming is essentially a domestic occupation, she can extend her benign influence over all the creatures on the farm, whether members of her own species or of the brute creation, and especially so if her husband, as he should be, is willing to give her an equal partnership and interest in the affairs of the establishment.

There is no compromise of freedom in such an arrangement of the domestic proceedings, because there is no restraint, and the purpose and result of freedom is service; not selfish desire for the advancement of our own individual ends, but that which prompts to action for the good of others.

There are no persons so solitary as those who are thinking so much in regard to themselves that the thought of the interest of others does not enter into their lives; and none so well contented and free from care as those whose chief delight is to min-

ister to the comfort of all God's creatures with whom they comes in contact, as by this means they faithfully fulfil the ends of their being.

Talk about "Woman's rights!" there are no rights a woman possesses so sacred as those which enable her to make home happy, and no condition in life so sweet as that in which "Home is the kingdom and love is the king."

The good farmer's good wife may experience the truth of this in a greater degree than women in different positions in society.

In the first place she has her husband to look up to, not only as her special protector and defender, but the one to whom she may render service by kindly advice, condolence, or encouragement. Some men are despicable enough to give a woman no credit for possessing any knowledge outside of her domestic circle, when the truth is, that many women are more thoughtful and far seeing than men, and are more capable of foretelling the results of certain operations and management.

Many a man has failed because he despised the council of his wife who, in respect of good judgment, was certainly his "better half."

The business of a farm is often a family matter, and there are many points in the breeding, rearing, and feeding of cattle and poultry in which the details are more likely to be understood by the woman than the man.

A farmer's wife has a great privilege, and corresponding responsibility, with regard to the example she can set to the sterner sex in habits of patience, perseverance, and industry.

It occasionally occurs that a man is inclined to be vindictive or impatient, and if the woman is the same, alas for the consequences; we all know the disaster which occurs when two fires meet. Again the man may be a little lazy, thoughtless, negligent, not doing things promptly or with the despatch so necessary in many farm operations; now, if such an one has the good fortune to have a wife of an

opposite disposition in this respect, who will set him a good example in her own department and will gently, but kindly, stir him up to more exertion, he will stand a good chance of being cured of his laziness and inattention, and, in time, matters will be reformed.

Again, supposing a farmer to be of the opposite stamp of character, and is continually working hot or cold, wet or dry, early and late, to make both ends meet, how the toils of the day may be cheered by the thought that at its close, he will be sure to receive the loving greetings of his smiling wife and happy family, and be provided with the creature comforts of a nice, dry, clean change of clothing and a substantial, well cooked meal. How sweet will be the repose of a man thus blessed, and how cheerfully will he resume his duties at the dawning of each succeeding day. To such an one, labour is not slavery; mountains of difficulties become mole-hills, and all because of the sweet influence of her who has cheered and encouraged him in his allotted career. We are all dependent upon each other and happy are they who make this interdependence the rule and guide of their conduct through life. To overlook the little whims and oddities of those with whom we are intimately connected, is the best way to get our own failings and imperfections condoned.

And not only can a farmer's wife contribute to the general prosperity by her moral influence, by her wise and economical care of the household, but by taking an interest in some of its out-door proceedings. I do not mean that she should perform any manual labour, for that I think should be left to the men folk, but that she should take an advising part in the breeding and rearing of live stock; in the cropping of the vegetable-garden, which is a much more valuable and economical adjunct to the farm than many people suppose. Her attention may also be turned, with advantage, to making the homestead attractive by the cultivation of some simple flowers, thus causing the old-home

to be a place to be remembered and loved by those who have to leave its comforts to encounter the buffetings of the distant busy world, and these sacred memories of home may influence them, for good, when assailed by the temptations and allurements of society.

As regards the raising of poultry, the farmer's wife may render good service in adding to the general resources. Poultry raising has now become a science, the incubator has made the hatching of chickens, in large numbers, simple and easy, and it is a well demonstrated fact that hens, well cared for, are more profitable than the dairy.

It appears possible that the charge of the poultry may come to the woman of the house, at least when her health will permit, or family cares do not interfere. There is nothing laborious about the business, only it requires close and regular attention and the strict observance of set rules, by a resident who will do the right thing at the right time. These rules are simple and easily learned and those who have practised poultry management, so far from finding it an irksome task, soon look upon it as a fascinating amusement.

Finally, Sisters, you who are farmer's wives or contemplate becoming such, remember that your lives are, or will be, full of privileges which the city cannot afford. The fresh air of the country, often laden with the sweet perfume of the clover or new mown hay; the beauties of nature; the songs of the birds and the busy hum of the bee; to say nothing of the festive mosquito: the wonders of life in the lower animals, and the way in which they enjoy their little span of it, while contributing to the wants and comforts of mankind; all these are yours to enjoy if you have the happiness to have formed an alliance with a good and true man; and enjoying them, if you faithfully study and act well your parts as the wives of such men, you will be happy, because your position will be primitive and natural, and in so many respects conducive to happiness here and hereafter.

But all I have said will be of no avail if our young farmers do not try to render themselves worthy of such wives as I have tried to describe.

J. E. BOIVIN.

The Garden and Orchard.

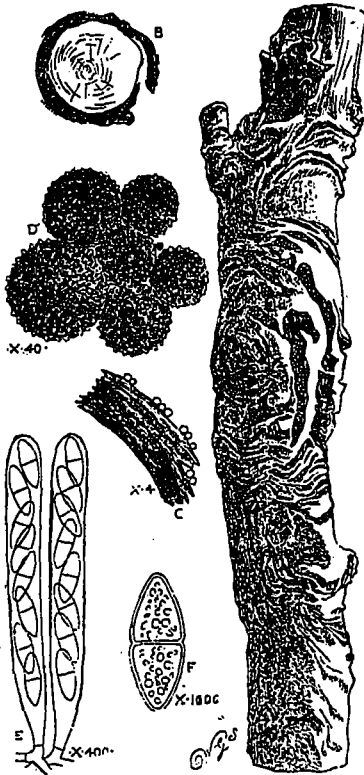
(CONDUCTED BY MR. GEO. MOORE).

FUNGI INJURIOUS TO VEGETATION.

The "Canker Fungus."

(*Nectria ditissima*).

FIG. 1.

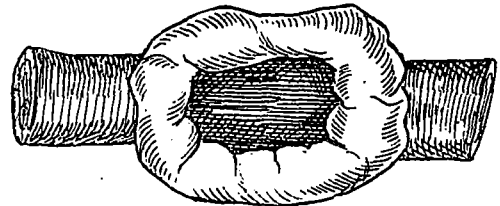


- A. Piece of apple-tree affected by *Nectria ditissima*.
- B. Section of branch with *Nectria* upon it.
- C. Bark, with *Nectria*, X 4.
- D. *Nectria* with crimson perithecia dots, showing orifices from which spores emerge, X 40.
- E. Asci from perithecia, each ascus with 8 spores, X 400.
- F. Spore, X 1,000.

It is customary with fruit-growers to call the various disorders which affect and kill the branches of apple-trees "canker." Frost, hail, improper pruning, and insects

have injurious effects upon apple-trees, but they are quite distinct from those caused by the canker fungus which is far more destructive than frost, hail, bad pruning, unsuitable soil, or too much or too little manure. Like most injurious fungi, it is difficult of detection, except by the most careful observer. Some of the shoots will be found to be dead or dying, and that there are wide cracks or fissures in the bark for some distance round them (fig. 1-a), and sometimes running upwards and downwards on the boughs, which are swollen near the twigs.

FIG-2



Places will be noticed in some cases upon infected trees where the bark is rolled back in raised and distorted forms round the affected branches, leaving the black and decaying wood exposed in the middle of the circular or oval spaces denuded of bark (fig. 2). Above these the branches are dead, or dying; further investigation will demonstrate that there is but little living wood, and that the formation of wood has been for some long period disorganised, as shown by the irregularity of the "annual rings." The fungus on one stem, or bough, may be still living and destroying; on another stem, or bough, it may have died, but the bough, or stem, has been rendered practically useless for fruit bearing. Very large boughs are often found ruined in this way, and occasionally young trees have large canker centres in their main stems which must materially affect their powers of fruit production and their full development.

Young boughs of apple-trees often have the whole of their bark ringed by the fungus, especially near the tips, so that they die, and in this case it is generally held that frost has caused their death. It will

be found that the fungus, as a rule, is located near and round the shoots or twigs, because the cuticle there is tender and liable to receive injuries from frost or hail, making it a convenient "nest" for the spores of the fungus, which commences life as a saprophyte—i.e., a feeder on decayed substances.

The Canker fungus attacks some varieties of apple-trees more than others. Those which yield the best eating apples are most liable to it. Trees with the thinnest and smoothest bark are most liable.

Pear-trees are affected by "*Nectria ditissima*" in the same way as apple-trees.

Plum-trees are also infected by this fungus, and it is also destructive to oak, beech, ash, hazel, alder, maple, and lime trees.

The spore-bearing cases of the fungus appear first as minute red dots (fig. 1 B); from these a thread like substance starts, which penetrates the rind and wood, whose juice tissues are dried up and destroyed. The slow action of these threads in course of time, causes distortions and malformations of the surrounding parts, and death to all branches above the centre of its action (fig. 1 D). After a time, crimson spore-bearing cases, are formed in small groups, they are flask-shaped and distinctly visible to the naked eye. Within these little sacs "asci" are found (fig. 1 E); they have two cells which contain eight spores (fig. 1 F). They germinate quickly in water, and placed upon trees infect them with canker.

Experimenters have succeeded in causing infection by placing these spores on wounded parts of healthy trees.

Prevention and Remedies.

Never use grafts from infected trees or those showing any trace of the fungus.

Examine young trees to see if there are any wounds upon them, with a strong magnifying glass, to discover the little red dots caused by the fungus.

Cut out all infected parts with a sharp knife; cut away and burn all infected branches.

If a tree, in an orchard, is badly cankered, cut it out and burn it to prevent contagion.

A strong solution made with 20 lbs. of sulphate of copper to 100 gallons of water, applied in the late autumn or winter, to the infected parts, repeating the operation two or three times during the winter.

Trees badly infected should be sprayed all over by means of a spray pump.

One pound of sulphate of iron to every gallon of water, applied in the winter, will prevent mossy growths which harbour fungi and insects.

Keep trees free from Aphides which carry the fungus from tree to tree.

There are many diseases wrongly designated as canker. The action of true canker is comparatively slow: it has been ascertained that it does not usually extend more than half an inch in a year; while in other attacks attributed to "canker" the disorder usually spreads with far greater rapidity, and trees are quickly destroyed. One form of affection of this nature is undoubtedly due to bacterial agency, and to the bacillus defined by Professor Burrill in the "*American Naturalist*" as "*Micrococcus (Bacillus) amylovorus*." This microbe is most disastrous in its effects upon apple and pear trees in the United States, and spreads with great rapidity. Pear trees, perhaps, are more liable to this infection than apple trees in the United States, but the liability of the two kinds of trees varies in different States. It attacks chiefly the inner bark and cambium of the body of the tree, as well as its most important branches. Unlike the fungus *Nectria ditissima*, producing the ordinary canker, which establishes itself only in already existing wounds, scars, and cracks upon the bark of trees made by pruning, hail, insects, or by other fungi, the "*Bacillus amylovorus*" descends with the sap in the living bark, through the twigs and branches, to the body of the tree. Trees infected by this microbe are found to be perfectly healthy at their roots and up to the part where the blight has reached, showing that in-

fection comes from the upper part of the tree. It sometimes commences its attack in the blossom, or in the tips of the shoots at the ends of the branches. In the spring it is said to be always first noticed on the blossoms, which turn black as if injured by frost. The microbes stand cold well, and it has been found that the bark of infected trees contains living colonies for a longer period in the winter than in the summer. In spring-time, when the trees are full of sap, the microbes invade new bark and spread rapidly. At this period of the year, too, a viscous, sweetish, brownish yellow substance exuded from parts of the stem and branches attracts bees and other insects, which convey the microbes to the blossoms, and thus disseminate the infection extensively.

In this country apple and pear trees are often seen with the blossoms blackened as if by frost, with the tips of their branches withered or dying, with deep wounds in the bark, and with their skin peeling and cracking in all directions. Frequently no trace of "*Nectria ditissima*" can be found in these cases, and the appearances correspond generally with those occasioned by the "*Bacillus amylovorus*." The treatment which has been found successful in arresting this disease may prove equally successful in this country. It is simple, consisting merely in cutting out and burning every particle of infected wood before the sap begins to rise. The infected centres may, however, be cut away at all times of the year. Experts advise that a careful inspection should be made of all apple and pear trees two or three times during the summer. It takes two or three years for the disease to become a serious epidemic; but the early removal of the first cases will prevent this development, and will, at the same time, save much labor later, as well as many valuable trees.

FUNGI INJURIOUS TO VEGETATION.

The term "*Perithrecium*" is derived from two Greek words, the one meaning around, and the other, a box or case, and is used to describe the box or case enveloping the fructifying parts or spores of certain fungi.

The gooseberry, and especially the large English varieties, is so liable to blight in this climate as to render its cultivation very risky, indeed almost impracticable.

The fungus causes many of the leaves of gooseberry bushes to shrivel and fall off, and having the appearance of being covered with a white powder. Under the microscope it is seen that there is a dense covering of slender whitish threads, but, unlike the potato fungus, these do not live within the tissues of the plant, but merely send down suckers into the cells of the leaves.

Upon these threads, or filaments, summer spores are first formed, which are borne by the wind, or some other means, from plant to plant, and the disorder is spread. Later on, the winter or resting spores are formed to carry the fungus through the winter. These are imperceptible to the naked eye, but they may be seen with a glass late in July and during the autumn, in the form of dark brown bodies upon the "felt-like coating." Upon examination of these bodies with the microscope they are seen to be nearly globular, with cross markings on their surface, and bearing from seven to eight slender, colourless filaments, with ends somewhat fantastically branched, as shown in the Figure. It is supposed that these branched filaments keep the "*perithecia*" in place upon the mycelium on the leaves. The "*perithecia*" contain from four to eight "*asci*," nearly oval cases, in each of which there are four or five spores.

When the leaves fall, the little cases fall with them, and remain upon the ground or upon decaying leaves until the spring, when the "*asci*" burst, and the spores being liberated speedily germinate in favourable conditions of the atmosphere.

The leaves from infected bushes should



be raked from under and round them and burned. The ground round the bushes should be dug or hoed deeply to bury the "perithecia," and when the bushes are cut in the winter, every piece of cutting should be raked up and burnt. Any dead leaves remaining on infected trees should be, as far as possible, picked off and burned.

GOOSEBERRY BLIGHT.

Microsphaeria grossularia.



Perithecium with branching filaments; highly magnified.

Where there is a sign of infection the leaves should be dusted thoroughly above and below with very finely powdered sulphur put carefully on with a knapsack powder-distributor on a still, hot, sunny day.

Sulphide of potassium diluted with water in the proportion of 1 1-2 lbs. of sulphide to 50 gallons of water, and sprayed over and under the leaves in a fine spray, has been found to be efficacious. This dressing should be applied very early when the leaves are small and young, and should be repeated in about sixteen days.

The Bordeaux mixture, as used for potato-disease, may be used with advantage—sprayed on by means of a knapsack sprayer in a very fine spray when the leaves are fully formed. The mixture should be made of 4 lbs. of sulphate of copper and 4 lbs. of lime to 50 gallons of water. If used later in the season, when the foliage is strong and fully developed, 6 lbs. of sulphate of copper and 6 lbs. of lime may be employed with 50 gallons of water. But care must be taken in the use of these applications when the leaves are young, also when the gooseberries are large and intended for early picking.

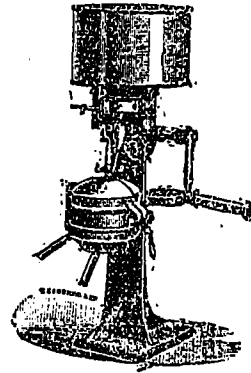
Note.—The word "asci" is also derived

from the Greek for a bladder (1). Asci are small membranous bladders in which the seed like, reproducing particles or spoules of microscopic cryptogamous, (flowerless) plants are contained. The provisions of nature to prevent loss or destruction of these minute particles are very interesting and wonderful.

The Bairy.

THE "MELOTTE" SEPARATOR.

The "Melotte" Separator recently introduced into this country is unique in construction, inasmuch as the turbine or separating bowl hangs loosely from a spindle, instead of being fixed or mounted on top of the spindle, as is usual in many other machines. The bowl is self-balancing and is encased in a cast-iron chamber, thickly enamelled to facilitate cleaning. The gearing is entirely enclosed,



and the arrangements for lubrication prevent waste and dirt, there are few wearing parts, and these are easily and cheaply renewed. The speed of the "Melotte" is claimed to be 30 per cent less than any other Separator, and consequently takes less power to drive and has little or no vibration. The makers state that a dairy-maid can easily work an 85-gallon machine, and that the slower speed, combined with the arrangement of zig-zag discs in the bowl, produces separation with a lesser agitation of the cream globules, so

that the cream is of better consistency and more free from bubbles and lumps than where a higher speed turbine is used. No table is needed for any of the floor, thus saving labour in lifting, the feed vat is near the floor and the inflow of milk is regulated automatically, and all parts are easily accessible for cleaning. It is very efficient in separating, requires little power to drive, durable and simple in construction, and is not too expensive. Already many testimonials are given from users in this country, who speak highly of the machine in practical working. On the Continent it has been awarded many first prizes in working trials in competition with other leading makers. In the judges' report of the R. A. S. E. show, held last year, published in the Society's journal, it is stated concerning the "Melotte" Separator, that:—"The judges were struck with the beauty of the arrangement and the extraordinarily small amount of power it takes to drive it. It separated 15 gallons in 11 1-2 minutes, while the power taken to turn the handle was surprisingly small." Full particulars can be obtained of the makers, the "Melotte" Separator Sales Co., Bristol.

The Poultry-Yard.

(CONDUCTED BY B. J. ANDRES).

SELECTION OF BREEDS AND BREEDING.

A mistake is oftentimes made in selecting fowls of a breed that is not suited for the purposes for which they are to be kept. If egg production is the an-important point, it is a most serious mistake to select a breed of fowls that is not noted for this product. If, on the other hand, meat is the chief object, an expensive mistake will be made if any but the heavy-bodied fowls are chosen. The small, active nervous, egg-producing breeds cannot compete with the larger phlegmatic Asiatics for meat production. Then, too, if the fowls are kept for both eggs and meat production,

some breed of the middle class should be chosen.

These, while they do not attain the great size of the Asiatics are sufficiently large to be reared profitably to supply the table with meat, and at the same time have the tendency for egg production developed sufficiently to produce a goodly number of eggs during the year. The Wyandottes and Plymouth Rocks are good illustrations of this class of fowls. While individuals of these breeds have made excellent records in egg production, the records of large numbers do not compare favorably with the egg production of the Mediterranean fowls. All of the so-called Mediterranean fowls have a great tendency toward egg-production and require only the proper food and care to produce eggs in abundance.

A serious mistake is also made in selecting fowls for breeding purposes and in selecting eggs for hatching. On many farms the custom is to select eggs for hatching during the spring months, when nearly all the fowls are laying. No matter how poor a layer a hen may be, the chances are that most of the eggs will be produced during the spring and summer months. A hen that has laid many eggs during the winter months is quite likely to produce fewer eggs during the spring and early summer months than one that commenced laying on the approach of warm weather. Spring-time is nature's season for egg-production. All fowls that produce any considerable number of eggs during the year are likely to be laying at this time. It is therefore plain that whenever eggs are selected in the springtime from a flock of mixed hens, composed of some good layers and some poor ones, a larger percent of eggs will be obtained from the poor layers than at almost any other season of the year. A serious mistake is therefore made in breeding largely from the unprofitable fowls. Whenever it is possible, fowls that are known for the great number of eggs they have produced during the year should be selected for the breeding pen.

While it may be almost impossible, and

FEEDING.

certainly impracticable. in the majority of cases to keep individual records of egg production, yet a selection may be made that will enable the breeder to improve his flock greatly.

The two things necessary to produce large quantities of eggs with the Mediterranean fowls are :

(1) Proper food and care, and (2) a strong constitution, which will enable the fowls to digest and assimilate a large amount of food ; in other words, fowls so strong physically that they will stand forcing for egg production. In this relation, we may look at the food as a machine. If the machine is so strong that it can be run at its full capacity all the time, much greater profit will be derived than if it can be run at its full capacity only a part of the time.

There is, perhaps, no time in the history of the fowl that will indicate its vigor so well as the moulting period. Fowls that moult in a very short time and hardly laying during this period, as a rule, have strong, vigorous constitutions, and if properly fed give a large yearly record. On the other hand, those that are a long time moulting have not the vigor and strength to digest and assimilate food enough to produce the requisite number of eggs. If it is necessary to select fowls at sometime during the year other than the moulting period, some indication of their egg-producing power is shown in the general conformation. In selecting a hen for egg-production, her form will give some indication of value. A long, deep-bodied fowl is to be chosen rather than one with a short body, whose undroline is not unlike a half circle. A strong, hearty, vigorous fowl usually has a long body, a deep chest, short body, whose underline is not unlike things being equal, the larger bodied fowls of the egg breeds are to be preferred. It is a rule that fowls bred for egg-production are larger bodied than those bred for fancy points. Whenever vigor and constitution form an important part in the selection of fowls for breeding, the size of the fowls is invariably increased.

In feeding for egg production, a valuable lesson may be learned from nature. It will be observed that our domestic fowls that receive the least care and attention, or, in other words, whose conditions approach more nearly the natural conditions, lay most of their eggs in the springtime. It is our duty, then, as feeders, to note the conditions surrounding these fowls at that time. The weather is warm, they have an abundance of green food, more grain, many insects, and plenty of exercise and fresh air. Then, if we are to feed for egg production, we will endeavor to make it springtime all the year round ; not only to provide a warm place for our fowls and give them a proper proportion of green food, grain, and meat, but also to provide pure air and plenty of exercise.

Farmers who keep only a small flock of hens, chiefly to provide eggs for the family, frequently make a mistake in feeding too much corn. It has been clearly proven by experiment that corn should not form a very large proportion of the grain ration for laying hens ; it is too fattening, especially for hens kept in close confinement. Until the past few years, corn has been considered the universal poultry food of America. This no doubt, has been largely brought about by its cheapness and wide distribution. The recent low prices of wheat have led farmers to feed more of this grain than formerly, and with a consequent improvement in the poultry ration.

When comfortable quarters are provided for the fowls, the nutritive ratio of the food should be about 1:4 ; that is, one part of protein or muscle-producing compounds to four parts of carbohydrates or heat and fat-producing compounds. Wheat is to be preferred to corn. Oats make an excellent food, and perhaps come nearer the ideal than most any other single grain, particularly if the hull can be removed.

(1)

(1) Barley, our chief English poultry-food, does not seem to be liked by Canadian fowls. Ed.

Buckwheat, like wheat, has too wide a nutritive ratio if fed alone, and produces a white flesh and light colored yolk if fed in very large quantities. In forcing fowls for egg production, as in forcing animals for large yields of milk, it is found best to make up a ration of many kinds of grain. This invariably give better results than one or two kinds of grain, although the nutritive ratio of the ration may be about the same. It has been found by experiments that the fowls not only relish their ration more when composed of many kinds of grain, but that a somewhat larger percentage of the whole ration is digested than when it is composed of fewer ingredients. It has been clearly proven by experiment that food consumed by the fowls influences the flavor of the eggs; that in extreme cases not only is the flavor of the food imparted to the eggs, but also the odor. This of itself is sufficient reason for always supplying wholesome food for the fowls and seeing to it that none but wholesome food is consumed.

It is conceded by the majority of poultrymen that ground or soft food should form a part of the daily ration. As the digestive organs contain the least amount of food in the morning, it is desirable to feed the soft food at this time, for the reason that it will be digested and assimilated quicker than whole grain. A mixture of equal parts, by weight, of corn and oats ground, added to an equal weight of wheat bran and fine middlings, makes a good morning food if mixed with milk or water, thoroughly wet without being sloppy. If the mixture is inclined to be sticky the proportion of bran should be increased. A little linseed meal will improve the mixture, particularly for hens during the moulting period, or for chickens when they are growing feathers. If prepared meat scrap or animal meal is to be fed it should be mixed with this soft food in proportion of about one pound to 25 hens. It will be necessary to feed this food in troughs to avoid soiling before it is consumed.

The grain ration should consist largely

of whole wheat, some oats, and perhaps a little cracked corn. This should be scattered in the litter which should always cover the floor of the poultry house. It is necessary to have the floor of the poultry house covered with a litter of some kind to insure cleanliness. Straw, chaff, buckwheat hulls, cut cornstalks, all make excellent litters. The object of scattering the grain in this litter is to give the fowls exercise. All breeds of fowls that are noted for egg production are active, nervous, and like to be continually at work. How to keep them busy is a problem not easily solved. Feeding the grain as described will go a long way toward providing exercise. If the fowls are fed three times a day they should not be fed all they can eat at noon. Make them find every kernel. At night, just before going on the perches, they should have all they will eat up clean. At no time should mature fowls be fed more than they can eat. Keep them always active, always on the look out for another kernel of grain.

The Grazier and Breeder.

THE BREEDER'S SOCIETY OF THE PROVINCE OF QUEBEC.

(FROM THE FRENCH)

The General Annual Meeting.

This meeting took place at Sherbrooke, on the 4th of September last, on the Exhibition Grounds. M. J. C. Chapais was in the chair, and Dr. Couture acted as secretary.

About fifty members of the club were J. C. Chapais, J. A. Chicoyne, M.P.P., the present, among whom we observed Messrs. Rev. F. P. Coté, curé of St-Valérien of Shefford, Arsène Denis, Ls. Thouin, Elie Girouard, Jos. Dugas, Frs. Gagnon, Ls. Sylvestre, Z. Garceau, R. D. Cowan, J. Davidson, Geo. Andrews, etc., etc.

The meeting was opened by M. Chapais, who said a few words on the importance of the Society, the numerous services it

was rendering to its members, and the advantages to be derived from it by all breeders of thoroughbred stock.

The minutes of the last meeting were read and adopted.

Dr. Couture then reported that, in conformity with a resolution passed at the last meeting, he put himself into communication with the Department of Agriculture and the provincial Council of Agriculture, as well as with the different exhibition companies, with regard to certain irregularities, committed by some of the agricultural societies, in the application of the law, and concerning some modifications to be introduced into the programmes of the various exhibitions. The Department replied, that the complaint of the Society should be submitted to the Council of Agriculture and asked for the names of those Agricultural Societies that did not act in conformity with law, a demand with which the Secretary did not see fit to comply.

The Three-Rivers' Agricultural Society did not reply to the Secretary's letter. The Sherbrooke and the Ottawa Societies granted everything asked for by this Society, except the giving of the prizes in money instead of in medals and diplomas, to wit :

1. That cattle of 12 months and under (1) shall form two classes, one for animals under 6 months, the other for those from 6 months to twelve months ;
2. That the age of animals shall date from the 1st of August ;
3. That every proprietor exhibiting stock be required to make a solemn declaration that the age of any animal he exhibits is such as it is represented to be, if such a declaration is asked for by one of the other exhibitors in the same class.

The Secretary reported that every year, after the exhibitions, a number of complaints reach him concerning dishonest exhibitors, and that he receives requests from the Secretaries of the exhibitions for information about persons suspected of having won prizes dishonestly.

"It was proposed" by Mr. R. D. Cow-

an, seconded by M. A. Denis, and carried : that MM. N. Garneau, M.P.P., J. C. Chapaïs, and Dr. J. A. Couture form the executive committee of the Society, and that all complaints and requests for information be submitted to them, with full powers to enquire into them and to act as they shall see fit in the premises.

Dr. Couture informed the meeting that the breeders of Canadian cattle were invited in a splendid manner, by the managers of the "Pan-American" (1) Exhibition Company at Buffalo, to send some of their herds to that show. He observed that the breeders of Canadian cattle ought not to miss such an opportunity of making our stock known to the people of the States ; it was greatly to the interest of the country at large that that breed should be well represented at the Buffalo exhibition.

"Proposed" by M. A. Denis, seconded by M. Ls. Thouin, that the committee of management of the section of Canadian cattle be authorised to take all necessary steps to send a couple of herds of that breed to Buffalo : four members to constitute a quorum.

"Proposed" by the Rev. F. P. Côté, seconded by M. Frs. Gagnon, that thanks be voted to Dr. H. S. Perley, Ottawa, for the special prize of \$20.00 that he gave, this year, for the best herd of Canadian cattle (a bull and four females, under (over ?) a year old), exhibited at Ottawa.

"Proposed" by M. Girouard, seconded by M. Sylvestre, that steps be taken to persuade the exhibition companies to allow in future only one ewe, instead of two, to make up the lot in the section of sheep for the herd-prize.

The election of the different committees and officers for the next year was then carried out.

The following general committee of management was then elected unanimously :

President, Mr. Robert Ness ; 1st Vice-President, M. N. Garneau, M.P.P. ; 2nd Vice-President, Mr. Thos. Drysdale ; Secretary, M. le Dr. Couture ; Directors, MM.

J. C. Chapais, Arsène Denis, Jos. Deland, J. H. Lloyd, R. D. Cowan.

The Committees of the different sections for the next twelve months were elected as follows :

“ Canadian horses’ section.”—President, Chapais ; Directors : MM. A. Denis, Rev. F. P. Côté, Ls. Thouin, Theo. Trudel, J. D. Guay, Ls. Sylvestre, Frs. Gagnon, Jos. Dugas. (M. Denis proposer, seconded by M. Elie Girouard).

“ Canadian horses section.”—President, M. Jos. Deland ; Directors : MM. R. Ness, A. Denis, J. B. Deland, Elie Girouard, Z. Garceau, J. D. Guay. (Z. Garceau proposer, seconded by C. Girouard).

“ Swine section.”—President, Mr. J. H. Lloyd ; Directors : Rev. The Trappist Fathers, R. J. McNeil, Michel Bourassa, Ls. Lavallée, Elie Girouard. (A. Denis proposer, seconded by the Rev. F. Côté).

“ Sheep section.”—President, M. R. D. Cowan ; Directors : D. Baxter, A. Denis, Guy Carr, J. Cowan, Chas. Robinson, D. Turenne, R. W. Frank, M. Andrews. (Proposer, M. Andrews, seconded by M. Dugas).

The Secretary was instructed to request the Ottawa exhibition company to arrange, in future, a full class for Canadian horses.

Registered during the last 12 months :

Canadian cattle..... 217 (89 males 128 females)
Jersey-canadian cattle..... 48 (21 males 27 females)

SHEEP.

Leicesters 365
Shropshires..... 256
Cotswolds 94
Oxfords..... 23
Lincoln..... 6
Southdowns 8—752

SWINE

Chesters..... 102
Berkshires..... 105
Yorkshires 190—397
HORSE. 40—40

Total1454

Thanks were voted to the Sherbrooke Exhibition Company.

A few remarks were made by the 1st President and by M. J. A. Chicoyne, M.P.P., and the meeting was dismissed.

(Translated by the Editor).

The Horse.

SWELLED LEGS IN HORSES.

Swelled legs are to be met with among every class of horse, but more particularly among heavy draft animals. Their circulation being naturally slow, there is a tendency to exudation through the walls of the vessels of the serous portion of the blood ; such fluid contains no blood-cells: or coagulable lymph, and only a minute proportion of albumen. It would appear that the circulation is seldom well balanced for a length of time in any horse that does not get exercise ; and the finest bred animal may suffer from swellings if kept in the stable, while coarse legged horses, so much prized for heavy draft, cannot be suffered to have a Sunday’s rest without many of them having “ filled ” legs on Monday morning.

The “ Monday morning disease ” is not simple œdema, which passes off rapidly with exercise, and causes no pain or discomfort at starting. Oedema of the legs is nothing more or less than the filling up of the tissues with fluid as described above : and must not be confused with the inflammatory swelling of mud-fever, or that acutely painful affection described as inflammatory œdema, and known to horse keepers as water farcy and Monday morning leg.

The dropsical swelling of simple œdema, pits upon pressure, and is not hot or painful, and the squeezing of a Monday morn-moteness hinders the returning current, pain and cause the animal to lift his leg so suddenly, and so high, as to nearly lose his balance, and quite disconcert the tyro in his examination of a hind limb thus affected.

Hind limbs are more subject than front ones to all kinds of swellings, for the reason that they are further from the heart, labouring inefficiently to pump the blood stream into them ; while the remoteness hinders the returning current, which has to ascend against gravity, and in many cases against thickenings and im-

perfect valves. Debility, indigestion, or inadequate training for work are among the causes of swelled legs, simple or inflammatory.

It has been said that heavy horses are most subject to both dropsical and inflammatory swellings; but the thoroughbred suffers most acutely. The diuretic ball, and enforced exercise, which may suffice for some hairy legged Prince or Boxer of the farm, will not be found sufficient for the better bred horse.

Besides breed there is a conformation especially prone to œdematous enlargement of the limbs—round legged hairy animals with much loose cellular tissue, such as are to be seen far too often on the farm; which should give place to horses with wide flat knees and cannon bones which viewed from the front look flat. Treatment as has already been hinted, will necessarily vary with the class of animal and nature of the swelling. In simple œdema the first object is to ascertain the cause. We must not be satisfied with the use of diuretic medicines, which will require to be repeated frequently or given in larger doses; for in the matter of diuretics it is notorious that stablemen are much too fond of giving nitre and sulphur in the weekly mash, as if no horse's kidneys could be expected to perform their functions without stimulation by artificial means.

In the young horse but recently taken into work the membranes should be examined, and if found pallid, a ferruginous tonic should be given and cod liver oil: while the teeth should be looked at carefully, and the dung periodically turned over to ascertain if mastication is properly performed by a horse whose allowance of food is adequate to his requirements; a better dietary will of course suggest itself where short commons have been the rule. Iron not only supplies an element wanting in the blood, but appears to constrict the vessels and give to their walls that tonicity so much required: it has, however, a draw-back too often forgotten, that it very quickly acts as an astringent

upon the intestinal canal, although the doses given may be no more than a drachm of sulphate per diem.

The dung then should not be allowed to become hard, small, or dark in colour; and by the admixture of cod liver or linseed oil with the food, the danger of impaction or colic must be removed.

Many intestinal worms die and are passed out when the animal is treated to a course of iron, these being no infrequent cause of the debility, which is locally manifested in œdema of the legs. The same remedies are often indicated in old horses, whose uneven teeth and impaired digestion require attention.

Inflammatory œdema affecting either a hind or front leg with corded line at top of the swelling and extreme tenderness, needs local anodyne remedies and physic. Of these, fomentation with an aqueous preparation of opium, belladonna, and glycerine answer well.

Several warm mashes should precede the physic: good preparation is far better than large doses whenever an aloetic purge is given.

I have suggested above that one of the causes of this disease is the failure on the part of the liver and kidneys to produce those changes in the blood that are a necessity of health. Be this the case or not, experience teaches that the chief remedy lies in calling upon the kidneys, first by aloes, which acts as diuretics as well as purgatives. And it should be added that the best Barbadoes aloes should be used as they have been proved peculiarly suited to the horse.

Exercise, bandaging and clothing of the body, are advised in order to keep the surface circulation active and the skin in full functional activity. It has very often been observed that the skin performs vicarious functions for the kidneys, and uniferous sweats are occasionally the turning point in acute attacks of disease, where the kidneys fail in their function, of separating urea from blood, or what corresponds to urea.

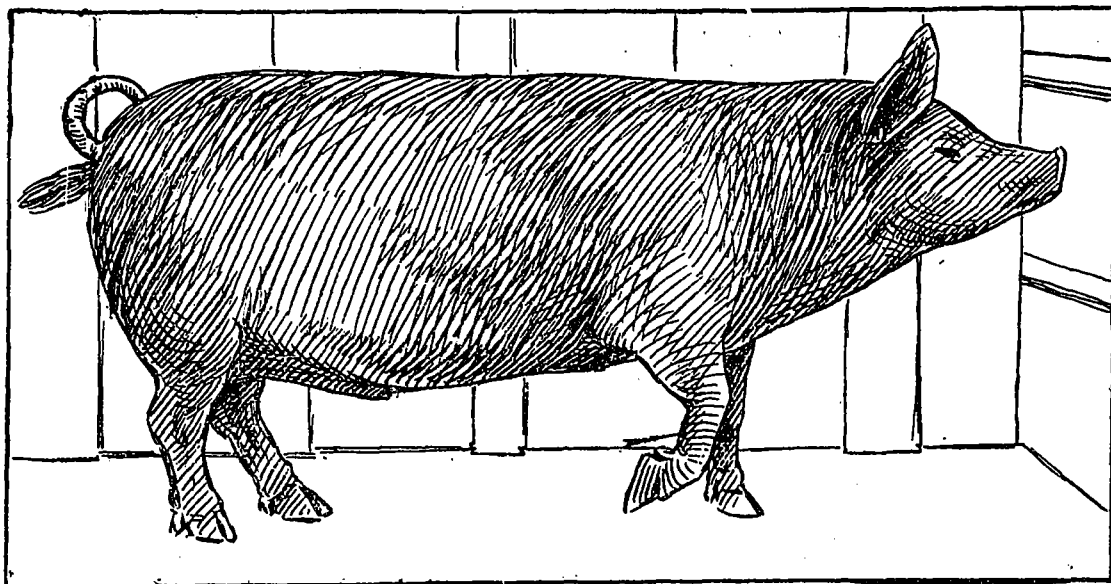
Sudden changes from idleness to work,

and "vice versa" are to be avoided; and the impatient man who gets an invalid of this kind into use again too soon, will probably pay dearly for his haste by a relapse more difficult of cure than the primary attack. Vegetable tonics, such as gentian, and chincona, will materially assist in restoring, the condition lost during an attack of this kind; but time must always be allowed.

W. R. GILBERT.

beef carcass of a Jersey. You see each distinct breed has a special function, and to try to change the natural function, of a distinct breed by feed is expensive, uphill work.

The man that would start a beef herd with a herd of Jerseys, no matter how suitable his feed was for fattening, would show very bad business management; so would a man who started dairying with a herd of Herefords or Polled Angus, not-



A good type of bacon pig.—Tamworth.

Swine

BACON HOGS AND WINTER DAIRYING.

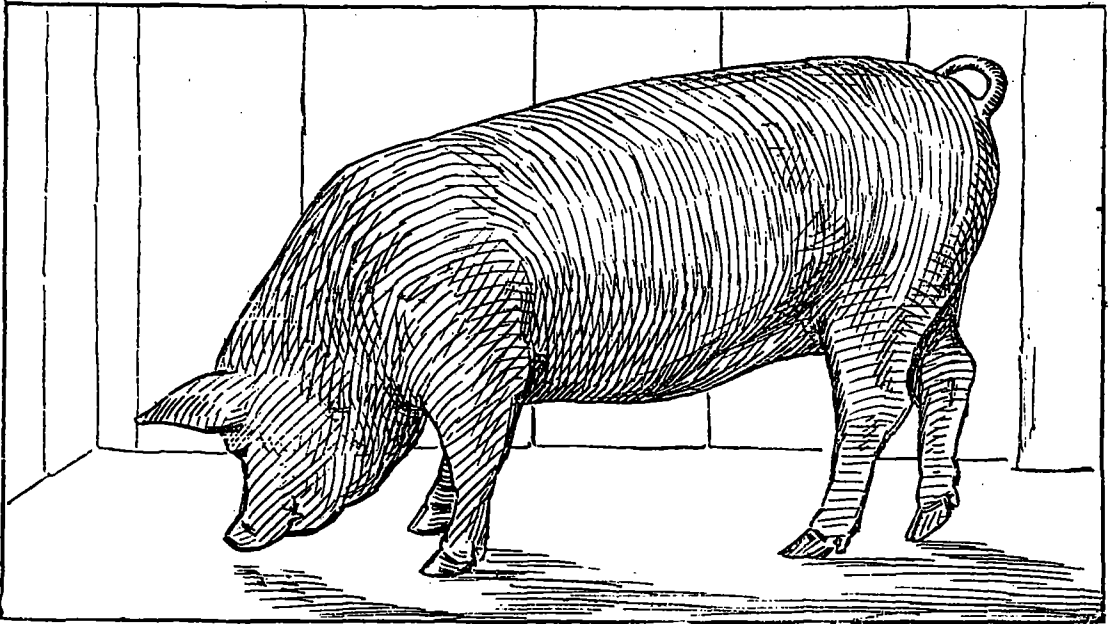
Ed. Hoard's Dairyman:—Dairymen, by reason of the nature of their feed, cannot help but produce bacon hogs. Skim milk being the chief feed of the dairyman, and pigs fed largely on this by-product of the dairy must necessarily be ideal bacon pigs, provided the hogs have been bred, in the first instance, from sires and dams of the bacon type.

Certainly, though you feed a Hereford cow the very best balanced dairy ration, she will not become a good milker or a profitable dairy cow. Neither will the very best fattening ration make an ideal

withstanding the fact that he possessed a silo full of the best ensilage and with plenty of protein food to balance.

But neither would show any worse judgment than the dairyman who endeavors to produce bacon hogs with a herd of Poland Chinas or Duroc Jerseys. The dairyman, of all men, is the man who can profitably produce bacon hogs. His skim milk, whey and buttermilk is the very best feed to grow them on. I care not how much corn he mixes with his milk, provided he has plenty of it.

An objection to keeping only hogs of the bacon type is that the market does not discriminate sufficiently in favor of the bacon hog. True, the Chicago market paid the highest prices for hogs of the bacon type, the past summer, but the dis-



A good type of bacon pig.—Yorkshire.

crimination has not thus far amounted to very much, but this little means a good deal and is probably the entering wedge, as it were, of what the next ten years will bring forth in the evolution of the hog. But while the price is important, it is not everything.

Many people are under an erroneous opinion about the style of hogs most profitable from the feeders' standpoint. I believe it is the general opinion that the "thick fats" are the most profitable feeders, and that the deep sided, rangy hogs are hard feeders. This opinion is on a par with the dairyman's opinion of his most profitable cows—judging from mere observation without using the scales or tester. The fact is, very, very few feeders bring a scale and pencil into requisition in the hog pen and hence entertain very erroneous ideas as to which hog or style of hog is the most profitable feeder.

The short, chunky hog is very deceiving to the feeder. This style of hog grows fat very quickly in the first few months of its life, while the strong boned, rangy hog does not appear to the feeder's eye to grow so fat or look so smooth, but when the chunky hog attains a certain age and

weight he comes to a standstill, while the rangy hog, after he passes 100 to 150 lbs. in weight, begins to forge ahead of his chunky brother and make steady gains.

For the bacon type of hog, then, I claim that the dairyman should breed him, though he has to sell him at the same prices as obtained by the thick fat, three-hundred-pounder, for the reason that he is a more economical feeder. If more proof is wanted on this point let the reader send for the elaborate bulletins on hog feeding experiments conducted for a series of years, by the Guelph station, the Kansas station or the Iowa station.

Now, another very important point in favor of the bacon type is the fact that the weight required for good bacon pigs is 180 to 225 pounds, and this is greatly in the feeder's favor. The fact that the packer requires hogs not much over 200 pounds is a decided advantage to the feeder, for the cost of producing a pound of gain steadily increases as the hog grows heavier. This fact has frequently been demonstrated by the American and Canadian experiment stations.

The following are the results of some fifty hogs, composed of six different breeds

carried on in duplicate, and show the amount of feed required to produce a pound of gain during the different stages of growth.

From 54 pounds to 82 pounds it required 3.10 pounds meal per pound gain. From 82 pounds to 115 pounds it required 3.75 pounds meal per pound gain. From 115 to 148 pounds it required 4.38 pounds meal per pound gain. From 148 to 170 pounds it required 4.55 pounds meal per pound gain, and from 170 to 200 pounds it required 4.85 pounds meal per pound gain. The increased amount of food required to produce a pound of gain, as the hogs increased in weight, is very clearly illustrated in these results and require no further comment.

THE IDEAL BACON HOG

weighs, as before stated, from 180 to 200 to 225 pounds. When split down the back, the fat along the back should be about one and one-half inches in depth, and should be uniform from tail to neck, both at loin and shoulder. The side should be loin and deep, and the belly should be thick, and there should be a large development of lean in proportion to fat. These qualities, indispensable to a Wiltshire side of bacon, are indicated in the live hog, by a light head and jowl, rather light neck of medium length, without arch on top, light shoulders, medium width of back with thickness carried well down to belly, great length and depth of side, medium bone giving plenty of strength without coarseness, and fine hair.

I herewith give two illustrations of the ideal type of bacon hog, the one a Yorkshire and the other a Tamworth, both being both specimens of bacon hogs. There are certainly some good bacon hogs in all breeds, but the large, white Yorkshire and the Tamworth are to bacon hogs as the Holstein and Jersey are in the dairy.

In the following illustration I present a diagram of a side of bacon showing the market value of the different cuts taken from a British authority. It will be seen by a close observance of this diagram that the most valuable cuts are in the side or

middle pieces; this shows the necessity of hardy hogs with great length and depth of body.

It will be observed that the ham is by no means as valuable as many of the loin and side cuts. The shoulder is but a very cheap cut, hence the advice to breed hogs with pronounced lightness in the shoulder.

So much then for the style of hog most profitable for the dairyman to feed. Such a hog may well be called a dairy hog, for the dairyman above all others is the man to grow these kind of hogs.

BACON AND BUTTER.

A very attractive and profitable alliteration is bacon and butter, one being complementary to the other. I need not dilate upon the advantages of winter dairying. Under the old system of farming-winter was a season of comparative "nothing doing" on the farm. Under the new agriculture, what is known as dairy farming, farmers have the most profitable employment in winter. Butter in winter brings a better price than in summer, and feed is more abundant, while the owner and help can devote the greater part of their time to the dairy business.

But the by-product! It is said that Swift and Armour pay the profits from the sale of the by-products of their packing houses. The hair, the feet, the blood, the entrails, etc., are so carefully husbanded that they measure the profits of their business.

Does the average winter dairyman do as much? The skim milk is a valuable by-product that under good management can be made to pay from twenty to forty cents per hundred pounds; and the solution is simple. Feed the sweet separator skim milk to well bred hogs. For winter dairymen two young growing hogs should be factors to each milk cow, or one breeding sow to every four or five cows; or if the herd numbers twenty-five cows, then the number of breeding sows should be six.

These sows on the dairy farm should breed twice a year, and, if the reader has followed the writer in his various articles, he would see that the principal litter of

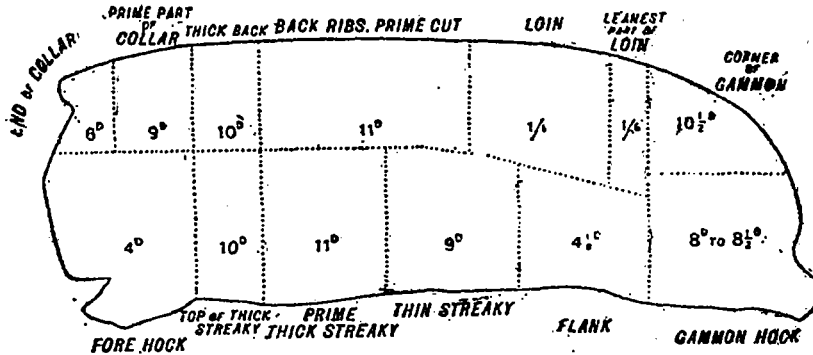


Diagram showing various cuts of a side of bacon and the average prices realized for each during 1898.
Copied from R. S. A. Report for 1898.

Not: The value given in the cut are in English money and should be multiplied by two to obtain an American equivalent.

the year should come in fall months. I gave good reasons for this and need not further discuss on that point. Where cheese is the principal dairy product the separators begin running the first of November, when the pigs may be ready to wean, but where butter is the only product, it is not material in which of the fall months the litters come. Milk, in either case, will be the chief ration. At this age, that is when pigs are under one hundred pounds in weight, the pigs can profitably be given all the milk they will consume.

It is wasteful, however, to feed pigs on skim milk alone; wheat middlings is probably the one best meal food to mix with the skim milk and should be fed to young pigs under one hundred pounds, either in winter or summer, warm. Boiled potatoes are greatly relished by young pigs, mixed with milk and mill feed and, do you know that boiled potatoes and skim milk make a balanced ration for growing hogs? The winter dairyman will understand, from his experience with the cows that hogs will require as warm an apartment as his milk cows, but, unlike the cows, will urgently require plenty of room for exercising.

No effort should be made to force those dairyman's hogs too fast or to put them on the market at six months of age. Better a slower growth, so as to make them ready for market at eight months, or seven months at least, when they should

weigh 200 pounds more or less. In the first two months of a pig's life not much skim milk will be consumed as the pigs feed from the dam so that when two litters a year are obtained from each brood sow, the almost ripe hogs of the previous litter, farrowed six months previous, will consume the larger portion of the milk. The aim being to have the previous litter ready for market when the present litter is weaned.

J. A. M.

Hermanville, P. E. I.

A CAPITAL SUGGESTION.

The United States Secretary of Agriculture, in his last report on the work of his department, shows the important manner in which it differs from others. He says that its appropriations should be regarded as investments, because they add to the wealth of the country by increasing the profits of the farmers as a result of investigations.

As a result of a close study of the foreign markets and improved methods of providing for, and reaching them, the exports to foreign countries during the last four years have exceeded that of the previous four by the enormous sum of \$884,000,000.

There is no reason why Canada should not emulate the United States as regards her agricultural products, and it is a short-sighted economy which would oppose any measure having this end in view.