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THE JOURNAL OF AGRICULTURE AND HORTICULTURE

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THE

Journal of Agriculture and Horticulture

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Table of Contents

The Farm.

NOTICE.

List of subscribers to the "Journal of Agriculture."—In order to ensure regularity in the delivery of the "Journal" to subscribers and members of agricultural societies, the Secretaries are requested to forward, as soon as possible, to the Department of Agriculture, at Quebec, lists (carefully written out) of the subscribers, in alphebetical order, in groups according to their divers post-office addresses, and noting the French or English edition of the "Journal" each individual subscriber wishes to receive.

NOTES BY THE WAY.

"Rape."—Prof. Henry, of the Agricultural Station of Wisconsin, among some very sensible advice on the growing of rape, recommends the sowing of that plant among rye, though not among barley or oats :

Seeding with Rye

"If sown with winter rye, harrow the rye field in early spring, and sow about 2 pounds of rape seed per acre, harrowing lightly again after the seed has been sown. Such harrowing will usually be helpful to the rye crop.

Seeding with Oats and Barley.

Rape seed can be sown along with oats or barley, but if this is done the growth of

rape is liable to becomes so rank, especially if the season is a wet one, that the plants will grow as tall as the oats or barley. When this happens trouble occurs at harvest time, owing to the green rape plants being cut and bound in the oat or barley sheaves, causing them to rot under the bands.

It is best then to sow rape seed later than the grain is sown, so that the rape will not grow so rapidly. Eight or nine days after sowing the oats or barley, or when the young grain plants are three or four inches high, run a slant-tooth harrow over the field to loosen the soil. Then seed two or three pounds of rape and harrow lightly again. By seeding in this way the grain crop has so much the start of the rape plants, that the latter are kept small and spindling until after the grain is harvested. After harvest, the rape plants getting the benefits of sun and moisture, begin to grow, and in a good season, the field will soon be covered with green forage, which can be fed off as usual."

Brewers in the States must be easily satisfied with samples of barley if this is the usual practice there, for it must be almost impossible to get an unstained sample with such treatment. No wonder Canadian barley is such a favourite with our neighbours for no such folly is committed here.

"Water in roots."—We have times out of number expressed our opinion, in this periodical, that the water in roots is not to be considered as common water. The following extract from an article by Prof. Wrightson is worthy of attention.

Water in Roots.

"J. B. F." propounds a question as to the use of growing roots when they consist of 90 per cent. of water. All succulent herbage contains a preponderating weight of water—yea, we ourselves are mostly composed of that element. Nature has ordered that water is the most abundant material in vegetable and animal tissues. It is more than probable that water as it exists in luscious vegetables, or even in roots and fresh grass, is nourishing far beyond water as it exists in ponds and wells. The water in roots is cunningly and beautifully incorporated with the cellular matter, and assists mastication and and animals well supplied with roots need not drink. The water in growing tissues is in the form of a saccharine solution or syrup, and is free from all injurious impurities or undue hardness. It is really living water, as it is part of a living organism; and who can say that the water which forms part of a growing animal or plant is not itself alive? It is part of the "protoplasm," and it would be as unreasonable to object to the carbon in a root as to the water in one. It is in fact not water when in the living root, but juice, well fitted to supply nourishment. It is true that the chemist evaporates the water and writes down 90 per cent., but the dried plant has suffered in succulence and flavour when this is done. Whether this water can be compensated for by water from the pond may be a question; but we know, from experience, that sheep are none the better for drinking much water from a pond, whereas the requisite moisture supplied by a judicious allowance of roots never does any harm. It is the water which makes the difference between hay and fresh grass, and we know perfectly well the superiority of the latter for dairy purposes or for grazing. These remarks are penned partly for the benefit of "J. B. F.," who, it is hoped, may see them. It was formerly the custom to decry roots because they contained so much water, but we now know better. Too many roots in cold weather may be, and no doubt are, injurious, but in moderate quantities they are always very useful, and cannot be done without where much stock is kept.

JOHN WRIGHTSON.

Talking of sheep, reminds us that we never remember having seen sheep, whether when on turnips or on pasture, drink water, or any other liquid, in fact, except on the very dry chalk-hills of the South-downs of Sussex, Hants, etc. Ed. J. of A.

BASIC SLAG.

My object is not to draw attention to our ignorance of the action of basic slag. What seems to me of far more importance is that but little trouble is taken regarding the manner in which it is bought. Many buyers take no trouble whatever to have it tested ; to them basic slag is basic slag, and they are not sufficiently educated to know that all is not gold that glitters. Hence there has arisen a very profitable business for the sale, not merely of inferior, but of absolutely sophisticated basic slag. Now and again the Royal Agricultural Society is able to show up some of the attempts made to cheat its members. But the proportion of cases which are ever discovered must be infinitesimal.

Those, and they are the majority of buyers, who do obtain analyses are often satisfied with the percentage of phosphoric acid only, quite regardless of the fineness of division of the slag, while even the most advanced are satisfied to know the percentage of phosphoric acid and of fineness.

Such is the height of our knowledge in Eng,and.

Now let us turn to Germany. The celebrated German chemist Wagner, in making experiments with basic slag, discovered that the produce did not vary according to the percentage of phosphoric acid present in the basic slag. For example, a slag containing only 18.49 per cent of phosphoric acid gave as good a result as one containing 24.29, while in one case a slag containing only 16 per cent phosphoric acid gave · better results than several containing 18, 22, and 24 per cent.

These results led him to the conclusion that the phosphoric acid present in basic slag could not be all alike, that it must evidently be present n different forms. To distinguish these forms, experiments were instituted, and the system finally adopted was to treat the slag with a solution of citric acid and ammonium citrgte. The phosphoric acid, which could be used by the plant, could in this way be distinguished from that which was not utilisable. As the outcome of a series of experiments, the following results were obtained : —

Basic slag No.	Total phosphoric acid	Citrate soluble phosphoric acid	Percentage of phosphate soluble in citrate solution
1....	8·49	8·44	99
2....	16·84	14·17	84
3....	18·04	14·48	80
4....	16·34	11·68	71
10....	19·57	8.67	44
8....	22·78	10·79	37

It is needless to quote further results. These figures gave convincing proof that the estimation of total phosphoric acid, as previously adopted, was inaccurate, and afforded no criterion of the value of the basic slag. In fact, in the last edition of Wolff's "Dungerlehre," the standard work on manures in Germany, the author says, the phosphoric acid insoluble in citrate solution is entirely worthless (So gut wie ganz unwirksam). Wagner's method is now used in Germany.

I would ask, Why is this method not adopted in England ? Why should the English farmer be allowed to pay for phosphoric acid, which is "entirely worthless." Surely some steps might be taken to bring about this desirable reform. It is impossible for one agricultural chemist like myself to adopt the desired change. Naturally many sellers of basic slag will prefer the old system. If the agricultural analysts wha hold appointments under the Fertilisers and Feeding Stuffs Act would only combine they might readily adopt this system, as regards samples taken under the Act. Unfortunately these samples are so few that even then it would be difficult to properly secure the co-operation of the farmers. Hence I have ventured to place the facts before the readers of the "Agricultural Gazette," and trust it may result in some action being taken.

FREDK. J. LLOYD.

Laboratory, Muscovy House, Trinity Square, E.C.

Sir,—Since writing to the "Gazette" some few weeks ago on this substance, certain facts have come to my notice which may prove interesting to your readers.

Judging from private correspondence, it is evident that there are many readers of your valuable paper anxious to know something more about the citrate method of estimating the value of basic slag. Let me therefore describe it. The most recent method adopted by Dr. Paul Wagner is described by him in a brochure, "Die Bewerthung der Thomas Mehle" (The Valuation of Basic Slags), published by Paul Parey, Berlin, 1900. The method is as follows:—Five grammes of the slag are shaken with 500 cubic centimetres of a 2 per cent solution of pure citric acid for half an hour. The mixture is then filtered, and the phosphoric acid determined in the solution. Wagner shows that the phosphoric acid so dissolved is very nearly the same as that which the plant can utilise, and that what is not soluble the plant cannot utilise. I have examined a few samples which have come to me recently from farmers by this method, to determine how much phosphoric acid soluble ,n citric acid solution, that is "available,"- they contained.

The results are as follows:—

Sample from	Total phosphoric acid	Equal to phosphate of lime	Available phosphoric acid	Equal to phosphate of lime	Percentage of total phosphoric acid available
Kent....	24·57	53·63	13·57	29·62	55·2
Somerset	20·22	44·14	12·40	27·06	61·3
Devon...	16 96	37.02	12·72	27·79	75·0

These results show very conclusively that slags vary greatly in the proportion of available phosphates which they contain.

I am informed upon good authority that a certain amount of slag is exported from England, and that the greater portion, if not the whole, o. this exported slag is bought on the basis of the available or citric acid soluble phosphate. This naturally tends to withdraw from the country the better class of slags, and to leave for home consumption all those which are inferior, but which the English farmer is quite content to buy on the certainly erroneous basis of total phosphates.

Another interesting fact has also come to my notice. Artificial basic slag was manufactured and placed upon the market, and all went well with those interested therein until the citrate process was adopted by Wagner. His method of analysis immediately detected the worthlessness of the artificial compound, and so far as the Continent was concerned stopped its sale there. How about England? On this point I have not been able to gain information.

These facts only strengthen my contention, if further evidence were needed, that the district agricultural analysts should combine and move in this matter. The desirability of such co-operation is already felt, and several of our leading analysts have written or spoken to me on the subject, and I am in hopes that all will eventually join in an attempt to benefit the farmer. It was for the farmer's good, and only for his good, that I moved in this matter. To the analyst it is a matter of indifference whether he determine the total phosphoric acid or whether he determine the available phosphoric acid.

As all district analysts when appointed have to be accepted by the Board of Agriculture, and as the Fertilizers Act is carried out by the Board, I wrote to the Secretary to know whether they would initiate this combination of district analysts, with the object of fixing from time to time standard methods for the valuation of substances analysed under the Fertilisers Act, as for example a more satisfactory method for the valuation of basic slag than the one which at present exists in England. The Board replied "that although the movement which it is proposed to initiate is not one in the promotion of which the Board think it desirable that they should officially take part, they are in full sympathy with the view that every possible means should be adopted to secure uniformity in the conclusions at which the

officers in question may arrive in the discharge of their difficult and responsible duties." As the Board of Agriculture would not initiate this movement, I have taken upon myself to do it.

Farmers cannot expect that analysts or behalf if they do nothing to protect themselves. They can if they choose bring about the desired reform by buying slag only on the basis of available phosphoric acid, and I trust I haven given sufficient evidence to show the necessity of their taking this step.

FRED. J. LLOYD.

Laboratory, Muscovy House, Trinity Square, E.C.

GREEN FODDER FOR SUMMER.

To the Editor of the "Journal of Agriculture."

Dear Sir,—The season for putting the cows to pasture will be with us in a jiffy —or in other words, very soon. How many farmers have we that provide something for their cows, should there be a shortage of pasture later on in the season? Not nearly so many as there should be, and I am sorry to admit it. How many farmers can tell in the spring whether they will have an abundance for their cows or not? Still there are many who think they know it all. Some, I will admit, have plenty for their cows during June; yes, as they say, feed up to the eyes; but what about July and early in August, when those pastures have headed out and got ripe. Will the cows eat ripe hay? No, if they can get grass. You will observe the cows will feed where they have kept the pasture short and will not eat the long dry stuff. Farmers would do better to run the mower over the longest parts and cut the grass down, but it must be done early, before the hay has got ripened, or if not you will not have much after grass. If cut early before you commence your haying you will soon see what a nice crop of after-grass you will have.

I have in former seasons advocated the sowing of a piece of land near by the stable or handy to the pasture, to be used in case of any emergency, you will find nine times out of every ten that just such emergencies occur. Will a farmer be using his best intelligence to say: because once he sowed green fodder and had no occasion to use it, that he should condemn the system. He might as well say because he planted potatoes once and they got drowned out with the wet, that he would never plant any more potatoes! Some farmers use arguments of the same sort very often.

I should advise the following method to be adopted: take one arpent of ground for every ten cows you have—if it is in a good state of fertility—and if not, use some manure. As early as possible, sow one-third of your piece of ground with a mixture of oats and vetches; 2 bushels of oats to one of vetches per arpent, is enough for a seeding, then in about a fortnight afterwards, sow the second piece, and the third portion of your plot in about 5 weeks from the first sowing. Now if you have done your work ploughing, sowing and harrowing well, you will be in a position to have green fodder, just when you need it, for the whole season. After you have cut over the first piece your second is ready for you and the third in due time. By the time you have finished it all once, you can commence again and cut the second time (in some very rare seasons. Ed.) Some seasons you will have quite a heavy second cutting, I should advise always cutting your portion for a feed 12 hours in advance of using it, it does not take any more time to do it than just to cut it as you use it, but you will find the cows will eat it with a greater relish than if cut fresh. (1) Never allow your crop to mature or ripen, if you see you will not use all the crop before it matures, cut it for hay, and put it into the barn for winter use. In this way you do not lose any of your crop. If, say, two-thirds of the farmers of Canada that keep dairy cows would put in practice this sowing of green fodder, and feed it proper-

(1) And it will not cause bloat. Ed.

ly, the increase in cash from the factories would be greatly augmented, and it must come soon or they will have to go out of the business. Of course, farmers cannot fix the price of butter and cheese but they can reduce the cost of milk at the farm by keeping good dairy cows and by judicious feeding. The years 1899 and 1900 were fairly prosperous years in the dairy line; the outlook just now is not so favourable; but it may be a blessing in disguise, if it stops or retards the making of fodder cheese somewhat. It is quite a long time to wait to the close of another season, but farmers must hope for the best. Do not get discouraged too soon; make your preparations now before it is too late; milk may be worth $1.00 per 100 lbs. before the season closes.

Yours truly,
PETER MACFARLANE.

April 25th, 1901.

Household Matters.

(CONDUCTED BY MRS JENNET FIRST).

May with its lovely tokens of spring has once more come to us. On hill and in the valley we are greeted with all things lovely; beautiful flowers bestrew our paths; the trees are just ready to put on their coat of green, and things, with the bright sunshine, look bright and cheery. The housekeeper has little time even to look on these things. All her mind being fully taxed as to the best and quickest way of getting through the house-cleaning, so necessary every spring. The sun must be let into every room, when it will very soon show up the dark corners which insect life takes for breeding ground.

The wary housekeeper knows by experience it is in these same dark corners she must work to destroy every vestige of animal life, ere it becomes too numerous for her to battle with.

Spring, with all its beauty, brings many necessary duties which must not be over looked.

At times, the weary house-mother is apt to get tired over her task, though with it she may have had to carry round a sore heart, which these duties have helped her to forget for the time being, time and occupation being the best and only cure for heartache. Happy those who have the former to help the latter. It is a beautiful world we live in, were there not so many thorns to lacerate us in our path through it.

In house cleaning do not forget that Aspinal's enamel is a great assistance in brightening up old furniture. An old wickerwork chair will look almost new after being done over with it, and it is well to bear in mind that three thin coats of enamel is far better than one thick one.

The first coat may be of the common paint, but must be of the same colour. Be quite sure that one coat is thoroughly dry before putting on another, for the great fault of amateurs in painting articles is they will use the paint too thick; this will only dry and fall off in flakes, and makes people say the stuff is no good. Let them try an old chair, or any other old bit of furniture, the right way and they will be well repaid for their trouble. I have seen several chairs done in white, the first coat common white paint, the other two enamel, and they were very nice indeed, especially with a few knots of bright ribbon about them.

This sketch is given to show another equally pretty Toque, as the one I described how to make in a former number of the "Journal."

It being on a head will show exactly how it sits there. It is more becoming to some faces to have the trimming in front; only, one thing is to be remembered, side or front, the trimming covers the join of the same. This Toque will require the usual little strap and band like the other. We will suppose this one to be made of

pale blue gauze, black satin rosettes with black aigrettes, a very pretty combination.

The crown will only need a loose stitch here and there under cover of a fold to keep

it in place. Everything in millinery must look as if it had fallen there ; a pin or two will secure any little defect, if put in carefully and with an eye to effect, and a pretty, stylish head-gear turned out at a very small cost.

LOBSTER CUTLETS.

These dainty morsels can be made either with fresh or tinned lobster of a good brand. The necessary ingredients are : A tin of lobster, 1 oz. of butter, 1 oz. of flour, 1-4 pint of milk, 1 tablespoonful of cream, 1 egg, some parsley for garnishing, and some brown bread crumbs ; by this I mean not crumbs of brown bread, but white bread which has been dried slowly in the oven till a golden brown, then pounded up. Take the lobster out of the tin and chop it rather small. Then melt the butter in a stew pan, mix in the flour, salt and cayenne pepper to taste, add the milk and cook gently until the mixture forms a thick sauce, then add the lobster and the cream, mix thoroughly and turn on to a plate to cool. When cold shape into cutlets, egg and breadcrumb each, and fry them in boiling oil. Garnish with parsley, and serve them in a circle on a dish paper.

AN AMERICAN OMELET.

Make an omelet in the usual way with four whole eggs and the yolks of another two, four tablespoonfuls of milk, one tablespoonful of cornflour, two tablespoonfuls of fine white sugar, a few drops of flavouring, and half a teaspoonful of salt, and when sufficiently cooked, do not hold it in the ordinary manner, but -ust slip it gently and dexterously on to a very hot dish, either silver or fire-proof china, and coat the surface very lightly with some delicate preserve made hot for the purpose. Have ready at the same time the two egg whites left over, which haue been whipped to a firm froth with a pinch of salt and a little of the same flavouring as used for the omelet, and pile this up in rough rocky pieces upon the preserve ; sprinkle entirely over with icing sugar and place the dish in a hot oven for a minute or two, until the surface has acquired a pretty golden tinge, then serve immediately.

ROUGH PUFF PASTRY.

This is a capital paste for pies and tartlets, and is easily and quickly made. Take 1-2 lb. of flour, 3 oz. of lard, 3 oz. of butter, half a teaspoonful of baking powder. Mix the flour and baking powder well, and break the lard and butter into the flour in pieces the size of a walnut. Mix with cold water, then roll out about the length of the pastry board, fold into three and press the edges together. Turn the rough edge to the right-hand side and roll out again, then fold as before ; do this twice more and the pastry will be ready for use.

TO CHOOSE A CARPET.

When choosing a carpet, there are one or two things which it is well to bear in mind. First and foremost is this, that the floor covering should merely be a background for the rest of the furniture and fitments in a room. For a small room it is the greatest mistake to choose a large patterned carpet, however well it may look in a large room. Another point to be observed is this : the colouring should never be

so bright as to kill the upholstery in the room. It is not the fashion nowadays to cover up the whole surface of the floor with carpets, but to use a square and then have the boards polished all round the walls. Whilst this method has much to recommend it, still, it is often the case, especially in older houses, that the boards are uneven and the joints wide, so that, do what we will, the dust gets into the cracks and spoils the good effect of the polishing. In this case, I know of no better plan than to cover the uneven boards, with an oil-cloth or linoleum, which can now be obtained in imitation of any kind of wood. This can be wiped with a damp cloth to remove dust, and be polished afterwards with beeswax and turpentine till it looks as well as the polished boards themselves. The square carpet is economical and healthy as well. The marginal boards or floor-cloths prevents the frequent removal of heavy pieces of furniture, to insure the carpet from dust and moths. The carpet can be turned about to make the wear and tear even, and it can more easily be taken up and put down again after being beaten and cleaned.

THE CARE OF UMBRELLAS.

Take care of your umbrella ; when it is wet be careful never to leave it standing on the point in the ordinary way. The water will only trickle down and spoil the silk and makes the wires rusty. It is just as much a mistake, too, to open it and leave it stretched out to dry, for the silk will then get baggy, and it will be impossible to fold it neatly again. The correct way is to shake or wipe off as much of the water as possible, and then stand the umbrella on its handle to drain.

LAMPS.

In a certain household that I know the lamps are a source of the greatest delight and comfort, for they are always spotlessly clean, and they give a light that could not possibly be better or brighter. The reason for this is that the mistress instead of depending upon any of her several servants to care for the lamps and clean them, herself bestows upon them the necessary attention. When these receive a thorough cleaning—once every six weeks—the reservoirs and burners are boiled in soda and water, and dried before the fire, not on cloths, as these might leave lint. The cloths that are used for the daily trimming and dusting are frequently boiled to remove the oil. The shades are polished and the lamps filled every day. To render lamp chimneys less likely to crack, they should be put in cold water which must be brought to the boiling point, after which they should be allowed to cool slowly without removing from the water. Wash the chimneys in ammonia water, and wipe dry on soft towels that are free from lint, polish with tissue or newspaper.

A lump of sugar saturated in vinegar is said to cure hiccough.

If a carpet is put down over a greasy spot in the floor it is likely to strike up through the carpet in time. If it cannot all be removed by scrubbing with soda or lye, spread a sheet of thick glazed paper over, before laying the carpet.

MISTAKES IN HAIRDRESSING.

Fashion is, in most cases, the first cause of unbecoming hairdressing. Girls as a rule, are always eager to adopt the newest style of "doing the hair," never stopping to consider whether the new way is in any way suited to the style of their faces. One girl, tall and graceful, with a straight nose will wear her hair waved back from the face and coiled in a graceful knot at the back of the head and look charming, another girl seeing how very becoming this style of hair dressing is to her friend, adopts it herself, and the consequences is, her features and the shape of her head being quite unsuited to this classical style of arranging the hair, she has completely spoiled her appearance. No two peoples features or heads are alike, therefore the

height of the fashion should never be followed implicitly, but such modifications of it made as suit individual cases. Hairdressing wants careful consideration if it is to be becoming, just as do other details in dress. Of course, if a girl would follow the fashion without thinking of what suits her, there is nothing more to be said. I think the prevailing mode of dressing the hair, high on the head, looks well with evening dress when all the hair is seen, but in the street under a salior hat, it is most trying to any face. We know the pretty hair is hidden under the hat, but the effect of the hair combed right up at the back is hard and unbecoming. Royal ladies set us a good example in this matter; we do not see them altering their style at every whim of fashion, they have adopted a style which is eminently becoming to them and they stick to it, why cannot we do the same?

FATIGUE PRODUCES DULLARDS.

It is easy to see when any number of children are gathered together that some have much more energy always at their disposal than others. In other words, they are better nourished, which means in this connection that they have more nerve energy that may be employed in either mental or physical work. The important point to be noted here is that some children, from whatever cause, may be in a more or less constant state of fatigue all or most of the time; and since fatigue produces what is called dullness, these unfortunates will be distinguished as dullards and stupids, unless the greatest care be taken in home and school to conserve their nervous energy. If such care is not taken, a chronic condition is established in the nervous system which permits the energy to escape in useless ways; and if this continues long enough, perhaps through the college period, it is doubtful if the individual will ever fully recover, since the nerve cells probably acquire their permanent modes of action by this time.—(Prof. M. V. O'Shea in Appletons' Popular Science Monthly.

THE FAMILY DOCTOR.

Whenever a child is put down to sleep be very particular that his dress is loose in every part; be careful that there are neither strings nor bands to cramp him; let him, then, during repose, be more than ordinarily free and unrestrained.

ADMINISTERING MEDICINE TO CHILDREN.

To administer medicine to young children often requires much skill. If the spoon is between the teeth the child cannot swallow. It is best to open the mouth hold down the tongue, and withdraw the spoon as soon as ,t ,s empty. When the nostrils are squeezed together medicine does not taste so nasty; and the unpleasant flavors of powders, for instance, may be obviated by mixing with jelly or sugar. Many people associate raspberry jam with powders, but raspberry jam is not a good medium, as the seeds irritate the bowels of young children.

CHILDREN WITH COLD FEET.

A very common ailment with children is cold feet. Sometimes when a child is put to bed it is fretful, and cannot sleep. This is too often set down by its nurse, and even by its mother, as naughtiness, and the little one is scolded accordingly. Very often, if instead of scolding the little sufferer, who is sleepy and does not know exactly what is the matter with it, it were taken up and had its feet gently rubbed before the fire until they were quite warm, it would fall quietly asleep. We should remember that cold feet are the beginning of many illnesses.

Rubbing, if gentle and judicious, either with or without the use of oil, is a most valuable assistant to the growth of young infants who show signs of weakness or imperfect nourishment. The child may be rubbed over its entire surface daily with olive oil, and the length of time and efforts used in rubbing may be gradually increas-

ed. The child should be laid on a bed, and one part only exposed at a time. As each part is disposed of, it should be wrapped up at once in woollen fabric. The movements should never be sudden or jerky so as to give pain, and the delicacy of the tissues handled should be considered. The direction of the movements should be from the extremities, beginning with the toes or fingers, towards the trunk; and the effect is to promote the circulation, tions of the body generally.

The Garden and Orchard.

(Conducted by Mr. Geo Moore).

LEGUMES.

The nitrogenous property of certain legumes was known two thousand years ago. Varro, a great Roman writer, who wrote a work on Agriculture in the century before the Christian era, says:

"Certain plants must be sown, not with a view to immediate profit, but to improve the land in years to come; and the plants to be used were Lupins, Beans, Vetches and Pease."

PROVERBS.

One hundred common "cents" make one dollar; a small amount of common "sense," well applied, may make hundreds of dollars.

Ideas awake ideas; a good way to acquire knowledge is to impart to others what we already possess.

Let a man's thinking powers be set in motion, and he will see things to his advantage that the thoughtless would overlook.

Progress results from individual effort.

Prejudice and Ignorance go hand in hand.

To enjoy work we must have an intelligent knowledge of what we are doing.

Men afflicted with ignorance suffer from indifference, superstition, bigotry, and intolerance.

Education is necessary for a farmer now; don't pick out your least intelligent sons to make farmers of them; no profession needs more astuteness or intellect.

If farmers' daughters are taught all that a farmer's wife should know, it will not make her less amiable and lovely, but by increasing her sympathy with the things of nature make her a better wife, let her marry whom she may.

CLEANLINESS.

First, if we want our cattle to enjoy a
(life serene
"T'is of the greatest consequence that
(they should be quite clean,
Their shelters, stables, racks and troughs
(with the forage they contain,
Must all be pure, and sweet and clean,
(their vigour to maintain,
Their sleeping quarters should be clean,
(the alleys and the beds
"E'en hogs do not thrive half so well,
(confined in dirty sheds,
Our fences, fields and pastures, our garden,
(orchard, yard,
Then, if we want our implements to do
(just what we mean,
'Tis of the greatest consequence to keep
(them sharp and clean,
To make them last the longer, and fit them
(to be seen,
Of course we always ought to see that
(harnesses are clean,
And if our barns, our fields, our tools are
(clean, and fair to see,
So should the house, the man, the wife and
(all the children be,
If we follow these suggestions 'tis easy to
(be seen,
That our profits and our consciences will
(be among the clean.

GREAT A'S FOR AGRICULTORISTS.

Acquire knowledge.
Apply it to every day practice.
Advise with your friends.
Adopt well proved methods.
Attend to details.
Abstain from outside speculations.
Advance with caution.
Accumulate manurial materials.
Abet all that is good.
Abjure all that is evil.
Accomplish all you can.
Account for all you spend.
Act with promptness.
Addict yourself to no bad habit.
Arm yourself with honesty.
Adam, alone, and without work, would not have enjoyed Paradise.

THE DIFFERENCE BETWEEN CROSSES AND HYBRIDS.

Those who have not paid much attention to the subject are not aware that there is a great distinction between crosses of varieties of the same species, and hybrids produced by the union of two different species. The crossing of varieties is quite legitimate and useful; it is by this means, assisted by selection and good cultivation, that improved forms of fruit, flowers, and vegetables are obtained, but hybridization is seldom productive of any good results, because it is opposed to one of the laws of nature, namely, that species should remain distinct. The very term "hybrid" expresses this; it is derived from the Latin word "hybrida," allied to the Greek "hybris," which means, literally, a piece of wanton violence, an outrage. Mongrels, whether in plants or animals, are not regarded with much esteem from the very fact that their qualities are deteriorated by the mixture of those of both their parents.

It is true that we have one notable exception in the mule, raised between the horse and the ass, which is a most useful animal, but really the horse and the ass are allied, both belonging to the natural family Equidae. But it is easy to conceive that a hybrid between two distinct species as for instance, a horse and a cow, or a peach and a grape, would be simply a monstrosity, useless and offensive.

Some people entertain queer ideas on this subject, they do not understand the importance of the species being kept entirely distinct, and imagine that they may be mixed promiscuously. Hence, we hear of a variety of impossible creations. Not only is this distinction of species maintained in plants produced from seed, but it goes further, and effects their propagation by budding and grafting. An apple will not grow if budded on an oak, nor a rose on a currant, and so forth.

Artificial and systematic fertilization of varieties is a most interesting and highly beneficial branch of horticulture, but attempting to cross one species with another is a waste of time.

The Dairy.

PROFITABLE FEEDING AND CARE OF DAIRY STOCK.

(Continued).

Careful experiments have proved that cows should be fed a properly balanced ration. Experience has demonstrated that the proportion of digestible protein and carbo-hydrates should be about as one to five and a half, or six. Anybody who is master of the elementary rules of Arithmetic,—Addition, Multiplication, Division and Subtraction—can figure out in a very few minutes the feeding contents and value of the ration being fed to his stock, all that is necessary besides the slight knowledge of Arithmetic, is a list of the average composition of feeding stuffs, compilations of which are published from time to time in "Hoard's Dairyman" and other leading dairy papers; as well as appearing in all the best books on Dairying. The chemist tells the amount of the different elements in the food and tells us what in his opinion a cow ought to produce with it, but the cow must be consulted before the final ver-

diet can be rendered. The food must be palatable to her or she will not eat it. It must be easily digested or she cannot use it. It must be healthful for her or it will make her ill. Now, all cows do not want to be fed alike. Cows that are inclined to put on fat should be fed less of the carbohydrates such as is contained in corn ; and more protein food, like oil-meal, middlings, etc. ; while those that are inclined to milk too much at the expense of flesh should be fed more corn or other carbonaceous food. The feeder should study to give cows as great a variety of food as possible. They love a variety as well as we do, and, if allowed freedom to get a variety, will have it. I have noticed in the dairy press, that many good authorities agree that dairy cows do much better on a variety of feed, than if confined to one or two kinds, no matter how good those foods may be. Green succulent food is better for milk production than the same kind of food cut and dried, no matter how carefully cured. Dairy-farmers should always provide some good soiling crop for time of summer drought, so that cows should never be without good succulent food in summer. In winter they do much better if fed succulent food. As we cannot have grass, or green fodder, we must have plenty of the next thing to it, silage. The cost of producing milk is greatly reduced by means of the silo. It reduces the cost of feed and increases the flow of milk above what can be obtained by feeding all dry feed. The cheapest and best way to provide summer feed to help out dry pastures is by having a summer silo. Succulent food may also be provided for winter by raising roots, but they require more labour than silage does, to provide the same amount of food value.

Regularity in feeding is of great importance. Cows should be fed as nearly as possible at the same time each day, then they will not be worried waiting for their feed. Many good dairymen advocate feeding but twice a day, while others insist that it is better to feed three times. As a rule, dairymen are in the habit of feeding three times a day with coarse fodder, and twice a day with grain, but I fancy this (eating twice or three times a day) is a matter of habit with cows, the same as it is with men.

Perhaps, the most important thing in the care of cows is to see that they are comfortable. They cannot be expected to do well unless they have comfort. Don't let them lie on a bare plank floor, or, worse still, on a bare cement floor. Give them a good, clean, evenly-made up straw bed ; then, they can lie down in comfort, and will lie down and chew the cud most of the time ; standing up only long enough to eat and be milked.

The temperature of the stable should be comfortable, never getting below freezing point. At the same time, the ventilation should be such that the air is ever pure and healthful.

Cows want water at least twice a day, and that at a temperature that suits them, which is surely not ice water, but 20 or 30 degrees above. They should have free access to salt, or it should be given them every day : from one to two ounces a cow.

Never allow cows to suffer from exposure, don't turn them out too soon in the spring on account of feed failing, rather buy more. It is just as unprofitable to let cows stay out in the pasture during a cold October rain.

One day's exposure to such weather will cause the owner serious loss by the shrinking of the milk. If a cow is made to shrink in milk from such causes, it is next to impossible to bring her back to the quantity she would have given if the shrinkage had not occurred. Above all, avoid getting cows excited. Driving cows with a dog is a very expensive business. Excitement of any kind, whether it be from a dog or a boy on horse-back, chasing them ; blows and rough treatment ; loud and angry talk in the stable where they are, will cause the flow of milk to decrease, and it nearly always lessens the amount of fat in the milk they do give. Be gentle and kind to cows always, they will pay you for it in good milk.

They are mothers, and it is their sensitive maternal feelings which must be always considered in order to have them do their best. Milking should be done in such a way as to please the cow, by not causing her pain, and yet get the milk as quickly as possible. Get all the milk, but don't keep on stripping after you have got it. Some persons will go on and tell you just how to do it, how to take hold of the teats, which to milk first, and so on. But I don't believe any rule can be given which will apply to every cow. The milker must find out by practice just how to accomplish the desired object with each cow, and when he has found out the best way, milk her the same way every time.

It is best not to change milkers, but have the same person milk the same cow every time. Milk in the same order every time. The best of cows cannot possibly do their best, when the milkers are constantly changed. When I was daily weighing and sampling the milk from every cow of a herd of over one hundred, I found it was invariably the rule that a new milker resulted in a loss of milk from those cows he milked, and they seldom returned to where they were before he began to milk them.

Generally, it is best to have cows go dry six to eight weeks before calving, but there are some persistent milkers that it is difficult to dry up at the proper time.

To manage a heifer of a highly-organised dairy temperament, when she comes in with her first calf, in such a way as to make her as good a cow as she is capable of being, requires tact and skill of a high order.

The quicker the calf is taken from the heifer the better for all parties concerned. If the calf is allowed to suck several days, the cow becomes much more attached to it, and will mourn more, and be more likely to withhold her milk than if they were separated at first (Good. Ed.) To succeed best the milker must aim, in some measure, to take the place of the calf in the affections of the cow. It requires extreme gentleness and kindness and much petting on the part of the milker to easily accomplish this. Certain it is, no cow that has nervous energy enough to be worth anything for the dairy, will do her best in giving milk if she hates her milker, or stands in fear of him. I believe the business a man is engaged in has a great influence on his character, and a dairyman to be successful has got to be kind and gentle, and restrain his temper. He must not swear, or scold, nor make a great row. He must control himself and be kind, and I contend it makes him a better and a kinder man, and his whole family feels the better for it.

H. WESTON PARRY.

TRYING THE DILUTION SEPARATOR.

When the smooth agent with his glib tongue endeavors to sell you a dilution separator, don't take his say so and the machine, and let him get away with his $5.00 or $10.00, but hunt up a Babcock test and verify his claims as was done in the following case :

Among the exhibits of daily apparatus which we observed at the Toronto Exhibition was what was called "Hunt's Ventilated Cream Separator," which, it was claimed, would take out "all the butter fat" from milk in from 20 minutes to one hour, withou tthe use of ice, reducing the cost of making butter, making churning easier, and leaving a better quality of skim milk for the calves. The apparatus itself was simply a well-made tin can, with a side glass guage at the top and bottom to show the depth of cream, and a hollow tube up the center. Half a doxen cans were exhibited, the diameters of which ranged from about a foot to over 20 inches. The ordinary shotgun can used by dairymen is about 8 inches in diameter. What was called the ventilation feature of the Hunt separator was only a hollow tin tube about 2 1-2 inches in diameter, running up from the bottom through the center of the can, open at the bottom, and with a movable cap for thtt op, the band of which was perforated. We asked the

young man in charge of the cans a number of questions about the process for which so much was claimed, and suggested that he should have an actual test of their cream-raising capabilities made at the dairy department of the show. He courteously replied that we could take a can and try it ourselves, and if it did not do what was claimed we could have it for nothing. We accepted his proposition. He picked out a can and gave us a zloth strainer for the milk and told us to dilute the milk with an equal quantity of water, and to put the latter into the can first, straining the milk into it, which directions we carefully followed out that very afternoon. The herdsman in charge of Messrs. W. W. Ogilvie's herd of Ayrshire cows kindly furnished us with milk taken from the cow for the trial and Mr. R. W. Stratton, an instructor from the staff of the Ontario Agricultural College Dairy School, who was present, doing the testing with the Babcock test in the public exhibition milking trials, consented to test the whole milk and the skim milk after separation for us. The milk (19 lbs.) diluted as directed, was set for one hour so as to give the process full justice. The cream began to rise very soon, and its depth was well defined, as seen through the guage, and what rose seemed to come up in about forty minutes. Being half water, the skim milk looked thin, which might lead one to suppose the separation was good, but appearances are deceitful. Mr. Stratton's test showed that the whole milk was of very good quality, containing 4.7 per cent of butter fat, but the skim milk test, after the full hour had expired showed that no less than 1.2 per cent, or actually about one-fourth of the fat contained in the milk, was not taken out, a very serious loss, and one which no dairy farmer can afford. Good work on the part of any of the standard makes of centrifugal separators will not leave over .1 (one-tenth of one per cent) of butter fat in the milk. The claim that the skim milk (half water) from the dilution can was extra good for calves might be partly accounted for by the large quantity of fat left behind. Since the milk is to be diluted with an equal quantity of water, a dairyman would also require double the can space that he would for the ordinary deep setting, and have double the quantity of "half and half" skim milk to handle. From an agent's price list we notice that these so-called separators are made in seven sizes, quoted, retail, at from $5 (for from one to two cows) up to $10.50, according to capacity, which we look upon as pretty steep prices for tin cans. We did not hold the party in charge of the exhibit to his promise to give us the can, as the weather was too warm to carry it away, and the writer really could not afford to maintain such a costly and wasteful luxury, and would not be heartless enough to give it to anybody else, when they could buy a shotgun can for $1, and do their own diluting, if they imagined there was any virtue in it.

"Farmers' Advocate."

The Poultry-Yard.

THE KIND OF MALES.

Outside of the object of hatching out a lot of chicks, there is no necessity for the use of males at all, as the hens will lay as many eggs without their presence as with them, while the eggs will keep fresh longer than fertile eggs.

If males are used, therefore, they should be the best that can be procured.

As the hatching of broilers is just now in progress, and the time is here for mating the flocks for producing early pullets, a few words on mating will no doubt be of interest. First, never use a male that is related to the hens. Get one from a source that will render such an impossibility. Next, do not use a male that was used last year. Some are at times induced to use a superior male the second year, but males are too plentiful to resort to such birds. The male should be at least ten months old One hatched not later than last April may

be used with the hens in February. With him use hens, not pullets. If the flock consists of pullets, procure a male that will be two years old this spring, but which was not in use last year. If such cannot be obtained, then procure a male that is not less than a year old. The farmers who carefully select their best laying hens from which to raise pullets, and then mate them with scrub males, are legion. To point out how important the male is, we will state that if a Houdan or Dorking male is mated with a flock of mixed hens, every chick will have five toes, thus demonstrating the influence of the sire, as the fifth toe is one peculiarity of the breeds named. Take a dozen eggs of Brahma, Cochin, Plymouth Rock or other breeds, and mate them with a Leghorn; nearly every chick will be of the markings and peculiarities of the Leghorn so strongly as to almost show no trace of the blood of the dams. There is no advantage, then, in selecting choice hens for producing good layers unless a careful selection is also made of the male, and after the hatching season is over he is as useless as he was previously valuable. When pullets are to be hatched, the determination should be to improve on their dams if possible. The use of scrub males or of those that are cross-bred is a backward step. Too much attention cannat be given to the breeding of the chicks, whether for pullets or for market, and the precautions used to secure choice chicks at this season will result in larger profits at the end of the year.

INCUBATORS.

The modern improvement in incubators has made the rearing of fowls solely for egg production quite out of the question unless these machines are used. No experienced poultryman at the present time will undertake to rear fowls in large numbers for the production of eggs and depend on the hens that lay the eggs for incubation. The Mediterranean fowls cannot be depended upon for natural incubation. Artificial incubation must be resorted to if these fowls are to be reared in considerable numbers.

There are many kinds of excellent incubators on the market. As with many kinds of farm machinery, it is impossible to say that one particular kind is better than all others. Then, too, an incubator that would give very satisfactory results with one individual, might prove to be quite inferior in the hands of another person. What is best for one is not necessarily best for another. It is advisable, before investing extensively in any make of incubator, to thoroughly understand the machine. If good results are obtained, then additional machines of the same kind should be purchased. Failures are recorded simply because the individual fails to thoroughly understand the machine he is trying to operate, or, in other words, fails to learn how to operate that particular machine to the best advantage. A successful poultryman must necessarily pay close attention to petty details. Not only is this necessary in caring for little chickens and mature fowls, but also in the case and management of incubators and brooders. The whole business is one of details. While incubators may vary considerably one from another, yet there are certain points to which all must conform. Some of these points are summed up in the following:

(1) They should be well made of well-seasoned lumber. The effort of manufacturers to meet a popular demand for cheap machines has placed on the market incubators that are not only cheaply made, but made of cheap and not thoroughly seasoned material.

(2) The incubator should be easy of operation. All its adjustments should be easily made and so arranged that the more delicate machinery is in plain view of the operator. The machine should be automatic in operation. When supplied with the necessary heat it should control perfectly within certain limits the temperature of the egg chamber. This result is accomplished in various ways. The regulgting force, whatever it may be, should be placed

within the egg chamber so that the regulator may vary as the temperature in the egg chamber varies, irrespective of the changes of temperature of the room in which the incubator is placed. The regulator must be sensitive. The change of temperature which is necessary for the complete working of the regulator ought not to be more than 1 degree, that is, 1 degree above or below the desired temperature. It is better if the range of temperature can be reduced to one-half of 1 degree, thus making a total variation of 1 degree instead of 2 degrees.

It should not be inferred that a much wider variation than this will give excellent results under otherwise favorable conditions, but, other things being equal, those machines which are most nearly automatic are to be preferred.

In addition to the foregoing requisites, a convenient appliance for turning the eggs, positive in its action, should accompany each incubator. This may be an extra tray that is to be placed bottom side up over the tray of eggs and held firmly in this position while both trays are turned, thus completely transferring the eggs from one tray to another without jar. The different machines have very different appliances for accomplishing this result. Excellent results are obtained by the use of many machines now on the market when the operator of these various machines is thoroughly interested. Poultrymen have for a term of years, hatched in incubators over 80 per cent of all eggs put in the machine. It must not be inferred that this is an easy thing to do. A record of this kind is attained only by close observation and good judgment, not only in running the machine, but also in the breeding and care of the fowls to produce fertile eggs.

MANAGING INCUBATORS.

It is now the season when the incubator should be started for those who make broilers raising a specialty. Every season there are beginners who have never had any experience with incubators. To such any hints of a practical nature regarding the proper management of the machines will doubtless prove of considerable assistance. The following hints are well worth noting. If a man is about to start using an incubator for the first time, it will be well for him to look after some of the little things that have so much to do with success or failure in handling these adjuncts to poultry raising.

One of the things that should be looked after carefully is the regulation of the heating apparatus and the record of the same by the thermometers. It is best for a man to practise with the incubator without eggs in it until he is sure that he can control the heat. We believe it is a mistake for any amateur to go ahead at one with eggs in the drawer without knowing whether he can keep the temperature uniform. In looking at the thermometer each time, do so quickly, as a dart of cold air will quickly cool off the air inside the incubator.

Another thing that will be of interest to note will be the relative heat compared with the outside temperature. Some incubators are so carefully and thoroughly built that the outside temperature has little effect on them. There are others, however, that seem to be greatly affected by the general states of the weather.

This is of great moment, as, if found that an incubator responds too quickly to outside influences, it will be necessary to place it in the cellar or same other place where the temperature is about uniform, or at least changes but slowly.

We believe there is less danger of the eggs being injured by too little heat than by too much. We have seen hens leave their nests in the early spring and stay away till it seemed that the eggs must all be chilled, and yet the same hen would bring out a full brood of chicks from the eggs so treated.

As to the thermometer, be sure that it is correct. There will be no gain in saving money on a cheap thermometer and losing it in a whole drawer of eggs. If a cheap

thermometer can be obtained that is reliable, it will be as good as one that is expensive, but see to it that it is in every way reliable, no matter what it costs.

FEEDING AND THE WEATHER.

Good advice and excellent suggestions may be given, but it is only when the time arrives for performing certain essential duties that one understands what is required. Corn is one of the best of foods for winter, yet there are periods during the winter season when the days are quite warm, and the needs of the fowls are fewer. To feed the same quantity of corn irrespective of the changes of the weather may increase the cost of food and lead to disease in the flock. An excellent plan is to lessen the corn as the occasion requires, and increase the proportion of cut clover, adding to the ration of corn when severe cold prevails. No rule can be given to follow, as each individual must understand the needs of his flock, and should have on hand a variety of food, the feeding of which to poultry should be regulated according to existing conditions. By careful observations one will soon have no difficulty in feeding in the proper manner.

The Grazier and Breeder.

DISEASES OF THE EYES.

Inflamed eyes may be met with from various causes at all seasons of the year : but more especially in summer heat and dust is that form of opthalmia to be seen in which the conjunctive is the chief strdcture involved.

The horse's eye would be much more subject to opthalmia but for the admirable contrivance of nature known as the cartilage, which exists in the inner corner, as a concealed or third lid, and sweeps the front surface of the eye clear from flies or dust whenever the globe of the eye is pulled back upon its fatty cushion by the muscles, of which the retractor is the chief. This membranous sweeper is sometimes hacked out by men, whose want of anatonical knowledge has led them to suppose that it is a morbid growth to be extirpated ; and in purchasing a horse it is well to see that no interference of the kind has depreciated his value, by rendering him more prone to inflammatory attacks, which is an occasional sequel.

The advocates of blinkers for the harness horse have a strong point in the protection afforded to the eyes from dust, whether or no there is any truth in the suggestion that a draught is created by their use under certain conditions. Besides atmospheric influences, there are many accidental causes, as hay-seeds when horses are provided with racks over their heads, blows from branches when riding through underwood, injuries from the lash of the whip, and alas ! it must be added wilful blows by bad tempered custodians, who make a horse permanently shy by such treatment.

If wind, dust, an exposure to sun's rays be the cause of conjunctivities, the inflammationwill be diffused over the whole anterior surface probably of both eyes ; while if one only be affected and the area circumscribed, the cause may with more reason be assigned to external injury. This will not be at first seen, because the rapid sympathy of the other structures, and hypersensitive condition preclude a good examination by any but an expert, and he must be provided with cocaine. Where the whip or stick struck the eye, will be seen after the primary inflammation has subsided—an area of opacity like a white summer cloud, with a blue margin, shading off into the transparent and uninjured portion.

Symptoms.—Closing of the eye, a flow of tears, and a special care of the same side of the face, are among the first symptoms to attract attention, and the efforts to discover the cause by manipulation only add to the difficulty, for while his eye was healthy, the horse would permit the lids to

be opened to give a fait view of the surface, he now exerts the retractor muscle to such an extent, that the haw is pushed forward, and abundant tears flow down upon the cheek. To cause a diversion by a rap on the wall or manger, or a slap of the hand on the neck, while apparently engaged in looking in another direction, will so far disarm the animal's fears as to make him yield to the sense of fatigue in the retractor muscle, and allow the eye to open again. If a view satisfies that no foreign body is present, further mechanical interference should be avoided : but if a fly or hay seed, for instance is there, its removal must be accomplished as soon as possible. The head must be secured, and by gentle forefinger, the lids must be parted and the forefinger, the lids must be parted and obstruction removed. It is well to first look under the upper lid, as it more frequently holds the ob,ect which cannot rest on the front or corner, because of the rapid movements of the haw, and if found in the lower lid, it will most likely be in the inner corner. When the location of the foreign body is ascertained, there is no great difficulty in removing it, as a rule : with a soft silk handkerchief the offending material can generally be wiped away from the under surface which should be everted by the finger and thumb of the other hand. The above method may be used in the field or upon emergency ; but at home, it is advisable to drop into the eye a two per cent solution of cocaine, and wait two minutes for its full effect, when, in the great majority of animals, a thorough examination will prove easy.

Blows upon the closed eye may have a more serious result than contact with cornea by the whip in the way above mentioned : blindness from paralysis may follow, and be temporary or permanent.

Those inflammations of the eye which are sympathetic—as from dentition, influenza, or an ordinary cold—are usually less intense, not inducing the same amount of sensibility to the touch, even though, as in genuine pink eye, there is much swelling. Treatment of simple opthalmia is to place the patient under favorable conditions, well ventilated stable, quite free from ammoniacal vapors, so prejudicial to the eyes ; a subdued light ; a reduced diet ; in which green-meat may well form a part ; an aperient dose, unless contra-indicated by the habit of animal concerned ; and frequent warm fomentations, to which some sedative agent, as opium or belladonna, has been added, constitute the chief treatment until the subsidences of the early symptoms, and tolerance of light, again indicate a restoration of equilibrium in the circulation of the parts. There often remains a certain degree of opacity, commonly called a film, to be disposed of. This is not really a film but an infiltration of lymph, between the layers of the cornea in some bad cases, or under the fine expanse of conjunctival membrane which covers that part of the eye. Without any treatment a great deal of this will clear up, beginning at the outer margin, which turns bluish before disappearing ; but with the assistance of sulphate of zinc, nitrate of silver and other stimulants to the absorbents, a still better result may be looked for. A perfectly clear eye should be the reward, if the primary cause were not an injury but a diffused inflammation from one or other of the above named causes.

The diacetate of lead lotion, with opium and glycerine, will probably be the most suitable topical remedy in the early part of an attack of simple opthalmia, and a 4 gr. to the ounce sulphate of zinc, when it is desirable to excite absorption of the effused lymph.

Powdered sugar, glass, and other irritants were formerly blown into the eyes through a quill, under the impression that they scoured off the film from the eye, as they might do from a pewter pot ; but such barbarous methods are wholly unnecessary, and a man who allows such practices on his animals is not blameless.

W. R. GILBERT.

CORRESPONDENCE.

Which breed of milch-cows; Ayrshire or Canadian?

Berthier, March 11th, 1901.

To the Editor of the "Journal d'Agriculture."

Sir,—Since a herd-book for Canadian cattle has been opened, no month ever has passed without our seeing in agricultural and other papers the statement that "the Canadian cow is an excellent milker, her milk is rich, and she is, besides, more easily kept than any others." Let us see if this is quite true.

I should have preferred this subject to have been treated by another pen; many of us farmers must be considerably embarassed in choosing between the two breeds, since it is by no means rare to hear the Lecturers boasting of the superiority of the Canadian to all the other breeds; but I must tell you that I am quite content to write on this matter, as I keep both Ayrshires and Canadians, though if I do keep the latter, it is solely for the pleasure of competing at the exhibitions, without which inducement I should certainly give them up.

In order to prove the great superiority of the Ayrshire, as a milch-cow, over the Canadian, let us take the "Competition of milch-cows" as a test.

Several years ago, the parish of St-Norbert held one of these competitions, when two breeders of Canadians entered the lists to compete for the 1st prize: they got beaten hollow! I cannot exactly quote their yields, but, to the best of my recollection, one gave 35 lbs. of milk, the other 37 lbs., while a half-bred Ayrshire gave 52 lbs. I believe that other cows beat the Canadians, too.

Now, let us take our own competition of 1899. There was a black cow, said to be a Canadian, that came from St-Norbert, whether entered in the herd-book or not I cannot say; at any rate she only gave 35 lbs., that tested no more than 3.5. One of my neighbours had a registered Ayrshire—she is in my herd, now—that gave 54 lbs.; one of my own, just three years old, gave 50 1-4 lbs., testing 4.7, and, as both quantity and quality counted at this competition, of course she took the first prize.

Let us, now, look at the reports of the competitions that have been published up to the present date. If my memory serves me, the best yield of a Canadian cow has been 43 lbs., while dozens of Ayrshires have beaten the record of 50 lbs.

Next, let us take the report of the competition in the county of Laprairie, the last that was published in the "Journal d'Agriculture." You will find therein 8 cows giving above 50 lbs., and 16 above 42 1-2, all of which, according to M. Rémi Tétrault, are more or less crossed with the Ayrshire.

Before me lies the report of the St-Barthélemy's farmers' club, not yet published in the "Journal," but that is to appear shortly, I presume.

Competition held June 20th 1900.

Two cows gave, each.....	60	1-2 lbs.
Two others gave, each.....	60	"
Another.....	58	"
"	57	"
"	48	"
A 3-year-old heifer.....	47	"

I know every one of these cows: they are all crossed with the Ayrshire. Were it not for being tiresome, I could quote many more parallel instances.

M. Théophile Trudel, of St-Prosper, who keeps both breeds, wrote to me, on the 15th February last, as follows:

"I find no difference in the cost of the keeping of Canadians and Ayrshires. I once compared, by test, the fat contents of a Canadian and Ayrshire, and found a trifling superiority in favour of the Canadian, but in quantity of yield the Ayrshire beat her."

And now a word concerning the farm of the College at L'Assomption, whither I go generally six times a year, and sometimes oftener. There, too, they keep herds of both breeds, but much fewer Canadians

than Ayrshires ; at any rate there is no doubt as to the preference given. As far as my observation goes, one breed keeps in as good condition as the other. M. Denis, the herdsman, has often spoken thus of the two breeds : " This one, an Ayrshire, gives 50 lbs. of milk, that one 48 lbs.," and so on ; but when I asked him if such or such a Canadian cow gave a good yield of milk, his invariable reply was : " not bad ; " nothing more. I doubt very much if their best gives over 40 lbs. The Managers of the College do not seem to have a very high opinion of the Canadians, for, last fall, M. Denis told me they wanted to get rid of them ; they had even sold their bull. I should advise them to confine themselves to Ayrshires, for they would get purchasers for ten Ayrshire calves before they sold one Canadian, and at much better prices.

I know several men who breed Canadians and do well with them, either by exhibiting them at the Provincial Shows, or otherwise. To these I say : Keep your cattle, since they pay you ; but to those who wish to improve their herds I would offer this advice : buy a fine, pure-bred Ayrshire bull every three or four years. Surely, any fairly prosperous farmer can afford to lay out twelve or fifteen dollars for a calf ! It does not amount to much outlay annually, but in a few years he will find it pays well.

Last fall I visited Mr. Ogilvie's herd of imported Ayrshires, at Lachine. They are nothing short of perfection. Two cows I saw that were giving 65 lbs. of milk (each ?); the best gave 68 lbs. Out of a herd of 53 head, 30 of which were in milk, there were twelve that were yielding upwards of 50 lbs.

Four years ago, I inspected Mr. R. Reford's herd at Ste-Anne de Bellevue, where I also found a very fine lot of cattle, both as to yield and quality. I mean to see them again in April. Last summer, at the Competition of Agricultural Merit, M. A. Denis, one of the judges, said to me : " This fall, I passed a couple of days at Mr. Reford's ; I saw the cows milked and weighed the milk myself ; yields of 25 to 30 lbs. at a milking were not uncommon, and, in my opinion, it is the finest herd of Ayrshires in the province. There are 84 head, almost all of them imported." In spite of that, at our meeting in January, one of the Directors of our Agricultural Society took upon himself to say : " That herd is only a very midling one." One must be pretty ignorant to talk in that way, or else he biassed by motives of personal interest.

We are often told that Canadians are hardier than other cattle and less costly to keep. To this I reply, not so. Let those who are doubtful on this point, go and visit those who own herds of both breeds, and they will soon be convinced. We are now told that the milk of the Canadian is richer in butter-fat than the milk of the Ayrshire. Well, it may be a trifle richer, but the reason is simple : the Canadian gives less of it.

(Signed) A. MOUSSEAU.

Note.—Some of M. Mousseau's sentences we found rather " mixed " ; but we think the general sense of his letter will be found in this translation. Ed.

The Horse.

AMERICANS AND THE ENGLISH TURF.

It was generally thought that English jockeys could give pointers to all the world in the matter of horse racing. But Tod Sloane went over and showed them a new style, by means of which he beat the best jockeys in England. He sat much further forward than the English riders and it has been found by actual test that a rider so perched, besides being easier on the horse's wind, enables the horse to make from four to seven inches longer stride than if he rode in the good old English style. The result of this is that Yankee jockeys have had a great run of en-

gagements and the English are training their younger jockeys to ride American fashion.

By recent telegraphic advices it appears that the English turfmen were not so ready to accept American methods as was at first thought. The rivalry between the two nations led to a match between a crack English horse, ridden and trained by an Englishman, and an equally well-known American racer, trained and ridden by an American. J. L. Neumann's English horse, Eager, ridden by M. Cannon, was matched against J. A. Drake's American horse, Royal Flush, ridden by L. Rieff, and was run over the Hurst Turf Club's course, on October 27th. The race was for a stake of $2,500, to which had been added by the Hurst Turf Club an historic Ascot cup, valued at $5,000. Eager won in a canter by three lengths. The betting was 7 to 4 on Eager. Each horse carried 126 pounds, i.e., 9 stone.

WEANING THE FOAL.

The weaning of the foal is not so difficult a process as many imagine, if gone about in the right way. The process should be a gradual one, and should begin almost from the time the colt is born. If during the first five or six months of his life the colt is given a little grain, and trained to eat and to remain away from his mother for short periods, when the time for weaning arrives he may be taken away altogether, and not feel the separation to any appreciable extent. There should always be a transition stage leading up to the weaning time, and a preparation of the colt for the separation. Unless this is done it will be found a somewhat difficult matter to wean the foal, and keep up his condition of flesh and heart.

The too general practice with most horse raisers is to shut the colt away from his mother some fine day, and leave him to make the best of the feed thrown to him, and to do the best he can without the maternal care and milk. Such a plan always results in positive injury to the foal, who loses flesh rapidly, and by she time he has been thoroughly weaned is so reduced in condition as to require extra care in order to pull through the winter. Besides, such a plan is really cruel. The better way is to make the weaning process a gradual one, and so accustom the foal to eat and be tied up for short periods, that when the time for separation from his mother arrives it can be made without any loss of flesh or injury to the colt. The great trouble at weaning time is the empty stomach. If the foal is changed abruptly from his mother's milk to feeding on grain alone, he is sure to have an empty stomach, unless trained to eat grain, etc., beforehand. Some breeders advise adding cow's milk to the feed at weaning time, while others strongly oppose it. It would hardly be necessary if the colt is thoroughly prepared beforehand for weaning.

Swine

CARE OF THE SOW AND LITTER.

By T. B. Hart.

The following paper was read by Mr. Hart at a recent meeting of the Illinois swine breeders :—

Upon visiting several of the most prominent herds of the country, whose proprietors have become noted for their skill and good judgment, the writer has observed that each and all of them have achieved their success by practically the same route : First by confining their breeding operations to good blood and careful management ; and, second, by associating sound business principles with their breeding and feeding operations. The writer has observed, too, that the breeders whose names go down in history as the founders and improvers of the breeds are not the men to be carried away by fads and fan-

cies ; neither do they rely wholly on the high prices of their animals to establish their popularity. The superiority of their animals must be proven. We would conclude, then, that for the successful handling of the sow and litter from farrowing time to six months of age, it is absolutely necessary that certain provisions be made prior to that eventful period. It is of greatest consequence that the sow be fed in a manner to put her in the best possible condition, before farrowing in order to maintain the health and vigor of the sow and litter, after farrowing. The feed before farrowing should be about the same as after, except with old sows it should not be so liberal.

FACTORS TO SUCCESS.

The most important factors to be considered are shelter, proper feed, cleanliness and exercise, good blood, pure water and proper matings. Good shelter is necessary for obvious reasons ; not necessarily expensive buildings, but the shelter must be warm and dry ; cold drafts must positively be avoided, as pigs and young hogs are, perhaps, more susceptible to colds and pneumonia than any other animals. Cold drafts will produce these afflictions sooner than you know, and when the pigs once contract the disease, they are only a little way from the grave.

AT FARROWING TIME.

The shelter having been provided and taking for granted that the sow is in good strong condition, neither poor nor laden with fat, it is now necessary to look after the new arrivals and get them properly started on the road to market and crowd them along.

THE FEED.

It is conceded by experienced breeders that for the first three days of the pig's life its dam should be fed very moderately on thin slop. Heavy feeding at this stage will produce a greater flow of milk than the little fellows can consume, leaving the surplus to curd in the udder, which in turn will prove disastrous to the life of the pig. The feeding of sour swill while the pigs are young will also produce evil results, usually causing dysentery, and when this trouble once assumes an aggravated form, it is most sure to claim some of the best of the litter as shining marks. It is probable that more pigs are lost by improper feeding of the dam during the first week of the pig's life than from any other cause. About a week will be required to bring the sow up to full feed, and then rush the whole family along till weaning time.

WHEN TO WEAN.

It has been our practice to allow the pigs to run and feed with their dams till about ten weeks old, (1) at which age they will practically have weaned themselves. At this period a separate pen should be provided, in which to slop and feed the shoats, " leaving the old sow to weep and waif on the outside." A couple of ears of corn would be good for the old sow, but if it is intended to keep her over for another litter, her principal feed should be grass.

KEEP PENS CLEAN.

It has been my practice to clean out the sleeping apartments at least once a week, and oftener if the bedding becomes damp or soiled. Damp bedding is about as dangerous to the thrift of the pig as cold drafts. The hogs will eat considerable quantities of charcoal, which will serve as a good appetizer and conditioner of the digestive tract.

AND THEN.

A good fill of slop once a day made of shorts and bran, with a little oil cake added, a liberal feed of corn night and morning on a board floor or clean dry ground, access to pure water and the range of a good pasture for variety.

" N.-W. Farmer."

(1) From 7 to 8 weeks old is long enough. Ed.

SOME NOTES ON MY CHESTER WHITE HOGS

By R. H. Harding, Thorndale.

My pigs were a little over 8 months old. They were allowed a small run of pasture during the summer, their principal food besides being skim milk and a little mixed chop, composed of oats, peas, goose wheat, and flax, but principally oats, occasionally a little corn chop or shorts. They were fed comparatively cheaply until about three weeks before the show, when the meal was increased and they were given nearly all they would eat. They were home-bred from a Canadian-bred sire and dam. They dressed 80 per cent and 82 per cent respectively. The latter, I believe, was the highest percentage dressed in the show. We hear a good deal said against the Chester White as a bacon hog, which is in some instances quite correct, but the same thing is noticeable in all other breeds, yet I believe with careful selection and proper feeding (this, I think, rhould be done in a grass plot during the summer, instead of keeping them enclosed in pens), they can be made an ideal packer's hog and be produced at a profit—profit being what the producer is aiming for, but what I am sorry to say he does not always get.

(Mr. Harding is mistaken as to his pigs giving the highest percentage of dressed pork in the show, as one of Mr. Andrew Elliott's Tamworth grades dressed 85 per cent. Ed.)

"Farming."

THE TRUE EMANCIPATION OF THE NEGRO.

Throwing off the shackles of slavery, which made a man a mere chattel, with no power to exercise his own will, but which placed him at the disposal of his owner, was a grand and glorious outcome of the civil war of the United States, but even then the negro was only partly made free; he was still suffering from the slavery of ignorance and incapacity engendered by generations of abject servility and dependence.

There are many at the present day who look upon the negroes as an inferior race, but this inferiority, if it exists, is more the result of the ill treatment they have received at the hands of their white persecutors than of any physical or mental incapability.

Fortunately for us in Canada we have had no such problem to solve as that which has confronted our neighbours across the line, with regard to the coloured people, but we have a class of our white population who would not be the worse for the establishment of an institution similar to the one inaugurated and carried on by one of the most remarkable gentlemen of colour that ever lived, Mr. Booker T. Washington, President of the Turkegee Normal and Industrial Institute, Turkegee Alabama.

As agricultural training is an important feature of the Institute, I mention to it as likely to be interesting to our readers.

The Turkegee Institute was started about twenty years ago in a very humble manner but has grown into one of great importance, not only to the state of Alabama but to the cause of the coloured race. land which is owned by the Institution, 700 acres of which are under cultivation. The objects of the promoter is to educate young men and women in the industrial arts in such a manner as to enable them to make a living and to impress upon them the dignity of labour and self reliance.

The girls are taught domestic employment and to help intelligently in The Dairy, Bee yard, Poultry house and the garden. Mr. Washington has written a series of articles in the "New York Outlook" which is to be published in book form, which should be read by all interested in philanthropic efforts.

Such institutions as the one mentioned to are needed in every land as much for the white as for the coloured race. Oh, that some Moses, like Mr. Booker Washington, would arise in this Canada of ours who

would lead our young men and women into the pleasant paths of industry, sober forethought and consequent prosperity and contentment, by instituting and maintaining industrial training schools on the same lines as the one which is doing so much good at Turkegee.

THE THOROUGHBRED HORSE.

The Canadian Horse Show opens on Wednesday of this week, and the prospects are that it will excel any previous effort of the management. An interesting and valuable feature of the show will be the competition for the Governor-General's special prizes. Full particulars regarding this were given last week. His Excellency is very anxious to promote the breeding of a better class of horses in Canada, and his views on the subject are most valuable. In a number of letters from His Excellency's secretary to the management of the Show, dealing with the awarding of the prizes, some information of a practical nature is given that is worth reproducing. The following are a few of the extracts :

" His Excellency's purpose is to encourage breeders to go in for a well-bred active horse with plenty of bone and substance, not too big, and especially suitable for hunting or cavalry purposes.

" His Excellency considers that a very large increase in the demand for horses suitable for riding is likely to afford great openings for the Canadian horse market in the future, and thinks it is of immense importance that some encouragement should be given to horse-breeders to develop such a class of well-bred horses.

" Provided the thoroughbred competitor has the necessary bone and substance, he will, in my opinion, invariably prove better than the half-bred. We particularly want to encourage well-bred stock, and what has always been proved in campaigning is the superiority of thoroughbred blood, or, to speak more correctly, Arab blood. The Boer ponies, for instance, and the South African horses generally, have the Arab strain. In my opinion some of the best Indian ponies on the prairies have obtained a strain of eastern blood somehow, and I think it would be a great mistake to prohibit purely thoroughbred stock from the competition. Of course thoroughbred stock are very apt to be light of bone, and to possess faults which half-bred stock do not, but it must rest entirely with the judges to decide as to these faults, and to eliminate weedy thoroughbreds unsuited for the objects aimed at ; on the other hand, if they find a thoroughbred competitor with the necessary qualifications I shall be very glad to see him placed first.

" There would appear to be an impression in some quarters that a possible entry of racing stock into the competition may defeat its object. This is an objection which has often arisen in connection with competitions of a similar nature, and is one which is somewhat difficult to deal with, but to do so by the exclusion of the thoroughbred is, in his Excellency's opinion, radically wrong. Besides other objections to such a course, it is very likely to cut out stock raised from some thoroughbred mare in the possession of a small farmer who has obtained her as a cast-off from some racing stable. Many such cast-offs have proved most valuable dams of large families of hunting stock. Attempts have frequently been made to deal with the difficulty by limiting the competition to stock in the possession of small breeders and owners farming a certain small stated acreage, but this has proved possible of evasion and is not entirely satisfactory. In His Excellency's opinion, the best safeguard for the objects of the competition rests in owners of large stables realizing that though by the letter of the conditions they are not forbidden to compete, yet that the object of the prize given is particularly for the encouragement of small breeders. At the same time His Excellency considers that the country districts generally should be very grateful for the existence of racing stables in their localities, in view of the public good they are likely to do in the horse breeding interest by the importation of valuable stock, by rendering available the services of good stallions and by the opportunity they frequently afford to farmers to obtain mares which may be useless for racing, but which may be very valuable for breeding purposes."

" The Farming World."