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THE JOURNAL OF AGRICULTURE AND HORTICULTURE

Vol. 3. No. 14

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

JANUARY 15th, 1900

THE
Journal of Agriculture and Horticulture

Notes by the Way.

THE JOURNAL OF AGRICULTURE AND HORTICULTURE is the official organ of the Council of Agriculture of the Province of Quebec. It is issued bi-monthly 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. Jeaquer Fust, Editor of the JOURNAL OF AGRICULTURE AND HORTICULTURE, 4 Lincoln Avenue, Montreal. For RATES of advertisements, etc., address the Publishers

LA PATRIE PUBLISHING CO.,

77, 79 & 81 St. James St., Montreal

Subscription: \$1.00 per Annum payable in advance

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At p. 325, will be found the commencement of a series of extracts from a very valuable work, by Mr F. J. Lloyd, F. C. S., F. T. C., entitled: "Report on the results of investigations into Cheddar Cheese-making, carried out on behalf of the Bath and West and Southern Counties Societies, and presented to Parliament by command of Her Majesty."

Mr. Lloyd, who enjoys a very high reputation as an agricultural chemist, begins his report with a description of some of the earlier methods of making Cheddar-cheese; he then describes two of the improved modern methods; the work of investigation adopted by him at the 9 travelling dairy-schools under his direction; the instruments, tests, etc., including his "Indicator, used to determine the acidity in place of the "hot-iron" test; and after going over the whole ground of the analysis of soils and grasses met with on certain dairy-farms, together with a full description of the bacteria affecting milk, he comes to the following honest conclusion: (See p. 197).

"It is impossible for me to record these facts without recognising that they are quite opposed to what I had expected; that they throw a new light altogether upon the problems of cheese-making, and open up once again the question as to whether the *universal belief* among cheese-makers, that it is more difficult to make cheeses in some localities than in others, may not have a legitimate foundation. Still, one cannot consider that the opening-up of this question once again is altogether a retrograde step. The object of these investigations has been merely to discover the truth. In the past, because we could not find, either in the chemical analysis of the soil or

in the botanical examination of the pastures, any support for these local suppositions, we were led to doubt their being founded upon fact. And we were justified in doing so, for it must not be forgotten that either to the soil or to the pasture all difficulties were invariably attributed. We ought not to assume, from the results of these few experiments that the matter is conclusively settled either one way or the other."

We passed two years of our life (1839 to 1841) in the immediate neighbourhood of the "Cheddar Valley," and we can heartily support Mr. Lloyd's statement: that "it is the universal belief among cheesemakers, that it is more difficult to make cheeses in some localities than in others, and that the difficulty is due to local and not to climatic causes." We see nothing in the publication of which we are speaking to induce us to alter the opinion we expressed in the last No. but one of the JOURNAL, p. 292, that "red clover and timothy cannot reasonably be expected to turn out such cheese as is produced on the centuries old pastures of the Midland and Western counties of England."

As Mr. Lloyd's publication can be bought, in England, for the trifling sum of 1s 7d, we strongly advise all cheese-makers and cheesery-patrons to buy a copy of this most carefully compiled work.

Sheep carcass-test.—The very useful practice of inspecting the carcasses of some of the prize-sheep at certain exhibitions, was fully carried out at the Ontario provincial show held at London last month. Messrs. Foulds and Yapp were the Judges, and the sheep selected were the first-prize Shropshire, Oxford, Suffolk, together with a Southdown, which was not placed, it being far too fat, and very wasteful in the cutting up.

The Shropshire, a lamb, showed a good proportion of lean to fat, and won the first prize; it was said to be worth 3 cents a pound more than the Southdown.

Mr. Foulds thought that rape had a tendency to make fat, in which statement he, no doubt, was right, and as lean is needed as well as fat, he might have advised farmers to give sheep, when on rape, a few pease mixed with clover-chaff.

Mr. Yapp, told the audience that mutton-carcasses weighing from 60 to 65 pounds fetch the best prices in Great Britain. (He should have said, in London and fashionable watering-places,

for except for such markets, a 9 stone Southdown, or a 10 stone Hampshire would sell quite as well as an 8 stone Southdown—a stone is 8 lbs.) Sheep with black faces sell for 2 to 4 cents a pound more than white-faced sheep.

Composition of soils.—Granitic soils are generally poor in phosphoric acid; so are clays, though, in revenge, they generally contain lots of potash. Ferruginous clays and sands are very poor soils, holding but little lime and phosphoric acid. M. de Wampe says that the soils of the province of Quebec are generally poor in phosphoric acid, wherein he is possibly right; but if "ferruginous sands" are very poor in phosphoric acid, how can we account for the superb crops of swedes grown by M. Séraphin Guèvremont on the Sorel sand which is rich enough in iron, goodness knows?

British cereal crops.—In 1899, England's wheat-crop turned out much better than was expected. The average yield of grain was 32½ bushel, against 34½ in 1898. Scotland's wheat, but little grown there and then only on the best and richest land, yielded, in '99, 34½ bushels, against the enormous crop of '98, 42½ bushels. The average wheat-yield of Britain, for the last 10 years, is:

England	29.76 bushels.
Wales	24.03 "
Scotland	36.94 "

But, what to us is really astonishing is, that the ten years average yield of oats in England is actually higher than that of Scotland; i. e. England 40.84 bushels, Scotland, 36.74! We know that a "struck-bushel" of Scotch oats weighs from 4 to 6 pounds more than an equal bushel of English oats. We never, in the southern or southeastern counties grew oats over 38 pounds a bushel; whereas, we have commonly seen oats in Scotland going from 43 to 46 lbs. Can it be that measure has been the list in all cases in preparing the statement, weight not being considered at all? Hardly likely.

Barley in England, in '98 gave an average of 35½ against 34½ in '99; the same grain in Scotland: 39 in '98, against 34½ in '99.

Care in making estimates.—We see by the Manitoba papers that the men who put forth the

estimates, in advance, of the crop of wheat in that country, in 1899, overjudged the yield by the modest number of 6,000,000 bushels!

A new potato disease.—We remember only too well the advent of the original potato-disease in 1845, and the terror and annoyance it excited in all quarters; but we did hope that Ireland would never again experience such a calamity. However, fore-warned is fore-armed.

THE NEW POTATO DISEASE.

According to the Dublin *Farmers' Gazette*, Professor Johnson's investigations during the past season have shown him that the new disease has obtained a strong foothold, not only along the western coast of Ireland, but also in other parts of the country. It is described as the "yellow blight" or "root rot" disease. Instead of first attacking the foliage, as the common potato disease does, the new disease starts in the underground stem. The first sign of the attack is the appearance of yellow blotches on the leaves, not due to fungoid growth there, but occasioned by the interception of nutriment by the fungus on the stems and roots. At a later stage of the attack the underground portions of the stems and such tubers as have formed upon them are covered with small black bodies which are supposed to contain the rooting spores of the fungus. But the life history of the fungus has not yet been fully ascertained. The only preventive to this disease at present suggested is the destruction of the haulm and root fibres of an affected crop by fire, and the careful avoidance of the use of any tubers from an affected crop for seed.

Calves.—We have often advised breeders of milch-cows to take away the calf from the dam as soon as it is born; in fact, the cow ought never to see its calf, if it can be prevented.

Mr. Valency Fuller takes a different view of the case. He says, in an address published in one of our exchanges: "As soon as the calf is dropped, allow the mother to lick it. If she does not do so of her own accord, that end is often attained by sprinkling salt on its back. Some breeders leave the calf with the cow for one to three days; others take the calf away, but let it suck the cow for about three days. I believe it is desirable to leave

the calf with the cow at least three days, as she will fret less than if the calf is taken away from her at once. At the end of three days, as a rule, all danger of milk fever is past. Again, inflammation is often drawn out of the udder by the calf sucking. Whichever course is adopted, it is important to watch that the calf does not drink too much milk, as it will cause "scouring" in the calf."

What earthly good can the mother gain by licking the calf? In our younger days, we remember the farm-bailiff sprinkling the calf with salt, as soon as it was dropped, that the mother might become thirsty, so as to be induced to drink her "bran-mash" more readily; as if the exhaustion of parturition would not make her feverish enough without any tempting.

As for the calf being left with the cow for at least three days, as Mr Fuller recommends, as a means of making her fret less, our experience, and the opinion of all of our friends who have tried our plan—the Scotch plan, by the bye—is that the longer the calf remains with the cow, the greater will be her annoyance when deprived of its company, the more howling will she make at her lonely condition, and the more reluctant will she be to give down her milk to the milkmaid.

Try this plan: As soon as the cow is observed to be on the point of calving, watch her closely; as soon as the calf is extruded, take it up by both hind and fore legs; place it, in a warm loose-box as far as possible from the cow, on a thick bed of soft straw; cover it up with the same, and leave it alone for some hours. The Scotch generally rub the calf dry, but the friction agglutinates the coat, and the hair will dry quite as well if left alone under plenty of straw. A look should be given to the calf now and then, to see that it has not kicked off the covering.

Why allowing the calf to suck the cow, instead of drawing-off her milk by hand, should "draw-off inflammation from the udder," we cannot see.

At the Show of the Smithfield Club: "Hampshires, were in good muster, the number of pens being seventeen, from the flocks of Messrs. T. F. Buxton, R. W. Hudson, Lord Rothchild, L. H. Baxendale, the Earl of Carnarvon, the Marquis of Winchester, J. Bonham Carter, J. Clarke, W. B. Greenfield, and Alfred Brown. Suffolks give an array they seldom, if ever, did before, there being no fewer than fourteen pens,

the exhibitors being Mr. H. L. B. McCalmont, M.P., the Earl of Ellesmere, J. W. Eagle, T. Goodchild, H. E. Smith, and S. R. Sherwood.

Considering in what force the Shropshires come out at the summer shows, it seems strange that they are so few here, the number of pens of this breed being only eight, but the merit of these is everything to be desired. The exhibitors are Captain Townshend, Mr. G. L. F. Harter, P. L. Mills, Lady de Rothschild, and R. P. Cooper.

The Oxfordshire breed is less numerously represented still, the number of pens being only five, shown by Messrs. H. W. Stilgoe and J. G. Williams and Miss Alice de Rothschild."

Household Matters.

(CONDUCTED BY MRS. JENNER FUST).

ILLUSTRATION.

In the present sketch will be seen another fashionable costume of the day. It is a matter of wonder how any body is to get into it, but they do, and if it is suitable to them, and fits well, it looks well.

On those persons whom it neither suits in mode, or fit, it is simply atrocious.

Everything about it must be tight and smooth, without a wrinkle anywhere, and it will be so if well cut and carefully made.

It is most suitable for tailor-made skirts, which are invariably made of heavy material, as the lighter goods will not keep in shape so easily.

Some skirts are made with a double box-pleat down the back, where the dress fastens; these skirts are very popular, owing to the great freedom they give in walking.

This freedom is given in the cutting out by a gradual curve from above the knee, continuing down to the very bottom where it falls in folds, and thus gives freedom and style to the whole.

The trimming is formed by narrow velvet, or baby ribbon; without this the skirt would be plain, and the waist must be made to correspond.

The waist of this sketch seems rather pretty and might be used to brighten up a plain skirt; the queer black piece can be left out, as it is only suitable to this costume. The waist seems to fasten on the right shoulder and under the arm.

As there is no place for a pocket, the handker-

chief has to be held in the hand or tucked into the belt, hence the great popularity of the little lace affair, everyone priding themselves in the possession of a few of these dainties and when they are made at home they are not very costly, but made of real lace they cost "dollars" in the shops. I hear they go as high as three or four dollars apiece.



HOW TO MAKE A LACE HANDKERCHIEF.

Buy a little square, trimmed muslin handkerchief, about five or six inches square, at a cost of 25 cents.

Sew all round it imitation Valenciennes insertion, about half an inch wide, taking care to turn the corners square and well on the outside.

To this sew a lace to match; this might be a little wider than the insertion; it must be nicely fullered round the corner of the insertion to keep

the square. Care and a little art must be employed to do this well. Measure the little square of muslin, and allow at least two inches for fulling round the corners.

The cost of this little *bijou* will be between 50 and 60 cents, for which you would be asked \$1.00 to \$1.25 at the shops.

I have seen a good number made and given away during the Christmas time, and they have varied in the cost of the material from 60 to 70 cents in imitation lace, and in real lace, with the addition of a quarter of an inch of insertion between that and the lace, and an extra-good little square for the centre, which will cost 40 cents, will soon bring the little *objet de luxe* up to a good price.

It is not to be wondered at that the recipient of one of these little luxuries values such a present, as she knows she could not buy it under 4 or 5 dollars. It is dainty work and such work demands dainty prices.

THE MAKING AND COOKING OF AN OMELET.

Of all ordinary things I presume the omelet is least commonly made well. It should be served immediately. Better wait two minutes for the omelet than have the omelet wait one minute for you. See that an omelet pan is thoroughly clean and free from moisture. Before putting it over the fire throw into it a teaspoonful of salt and with a piece of brown paper rub the pan thoroughly. Turn out the salt and dust of the pan. Place in a frying pan one tablespoonful of good butter and stand on the back part of the stove where it will melt without browning. Break four eggs into a bowl, and with a beater give them twelve vigorous beats; add four teaspoonfuls of cold water, a dash of pepper, and a piece of butter about the size of a walnut. Select a very limber knife; take this with the eggs and the salt to the fire, draw the pan over the fire, and when the butter begins to crackle turn in the eggs. Shake vigorously so that the omelet will slide from side to side. In a moment the egg nearest the heat will be congealed; with the knife lift the crust into an other part of the pan, allowing the soft portion to run underneath. Sprinkle over a dust of salt, and shake the pan again. With the knife lift again, and do this until the omelet is light.

AN ECONOMICAL FISH SOUP.

When fish has been boiled for dinner carefully preserve all the liquor, and, after dinner, return to it all the bones, skin, and trimmings there may be, and simmer for an hour with the addition of more water, if required, to make the quantity up to quite two quarts, then strain carefully as already directed, and set in a cool place. When the soup is required, put the stock into a saucepan with two large onions, cut in quarters, add 4 lbs of sound, mealy potatoes, peeled and thinly sliced, and boil together gently until the vegetables are soft; then pass the whole through a fine wire sieve, pressing the vegetables through with the back of a wooden spoon, and return the purée to the saucepan with a pint of hot milk, a tablespoonful of anchovy essence, a pleasant seasoning of salt and pepper, and two tablespoonfuls of finely chopped parsley, and stir until boiling point has again been reached, after which serve in a hot tureen accompanied by toasted dice.

SCALLOPED OYSTERS.

The contents of a tin of oysters, an ounce of butter, a wineglassful of milk, pepper, and salt; put these ingredients into a saucepan, and thicken with a little flour. When quite hot, butter some scallop-shells, cover them with bread-crumbs, lay in the oysters, etc.; place bread-crumbs on the top, with a few little pieces of butter, brown them in the oven, and serve very hot.

APRICOT CREAM.

Take a tin of preserved apricots, turn out the contents into a saucepan, add two ounces of sugar; let them boil a quarter of an hour, and pass through a sieve. Dissolve seven sheets of best French gelatine in a little milk, whip to a froth a pint of cream, mix the gelatine with the apricot pulp, then quickly work into the cream. Pour the mixture into a mould, and put it on ice to set. When wanted, dip the mould in hot water, and turn out the cream.

PLEASE MAKE A NOTE OF THIS.

Canned provisions should be turned out as soon as possible, and, if kept, put in an earthenware dish and covered over with a plate, always, however, turned out of the original tin. It is highly desirable to strain off and throw away the liquor

from tinned salmon, peas, lobsters, oysters, etc. Tomato juice can be kept without fear of poison. Before using canned lobsters or shrimps it is a good plan to well rinse them in cold water. Never have any mixture made up in the tin, even if used at once. The various packing companies are very careful to have their goods put up as fresh as possible, but unless salted or corned they cannot possibly turn out and keep as long as freshly cooked goods will.

SLEEPLESSNESS.

In these days of over-work and over-excitement the complaints from women concerning an inability to sleep as they used to do are growing very frequent. They are complaints that cannot be over-looked, since without sleep one becomes in danger of idiocy, and every ailment is exaggerated to its last degree by the sufferer. Still, although long-continued loss of sleep is known to produce a depression of all the powers that cannot be too greatly deprecated, yet for a few nights only it can be endured without fatal results. The anxiety that in such cases the loss of sleep occasions, is much more harmful than the loss itself, and it is well to understand that one really can do without a night's sleep, now and then, and receive no real or permanent injury. One of the best sleep producers is considerable bodily fatigue, and a brisk walk or a good stirring about the house before bed time is likely to bring sleep. And so is a slight supper of easily digested food, as that calls the blood from the brain to the stomach, and it is too great activity of the brain, occasioned by the pressure of crowded blood vessels, that is said to keep people awake.

A BAD HABIT.

Many ladies when sewing have a bad habit of biting off the ends of their threads, or moistening the end with their lips before threading their needles. While in general this is a decidedly bad habit, as biting a thread is apt to chip off the enamel from the teeth, and so to render them liable to decay. This is bad enough, but there is another danger, and this time to the health. It is not generally known that silk often contains a large proportion of oxide of lead, which is a poisonous substance. It is said that black silk is more often impregnated with this substance than any other, as much as 18 per cent being used in

the manufacture of it. You will see from this that continual putting of such a substance into the mouth must in time prove very injurious to the system.

TEMPERATURE OF YOUR ROOMS.

The temperature of the room we live in has more to do with health than most people imagine. In England most people keep their rooms far too warm. If we stay some time in a room which is unduly warm, and then suddenly go into a cold one a chill and often a cold is the result. I think a thermometer should hang in the general sitting room, then a glance will show whether the room is too hot or cold. The temperature of a room should never exceed seventy degrees. Bedrooms, in winter especially, should be kept warmer, because more warmth is needed when a person is asleep. Many people now a-days use a gas fire or gas stove in their bedroom, and if proper precaution is taken in getting rid of the gas fumes by means of a chimney, they are exceedingly useful, and the temperature kept more even in case of sickness than it can be with a fire, which needs replenishing. One precaution however, should never be neglected, and that is to keep some utensil with water in it on the top of the stove, in order to take away the unpleasant effect of the dry heat.

A HEALING SALVE.

A healing salve which has been strongly recommended for burns, frost bites and chapped hands or lips may be made as follows: Take equal parts of turpentine, sweet oil, and beeswax; melt the oil and wax together, and when a little cool add the turpentine and stir until cold, which keeps them evenly mixed. Apply by spreading upon thin cloths—linen is the best.

Half a teaspoonful of sugar will nearly always revive a dying fire, and it is always a safe thing to use for this purpose.

COOLING FOOD QUICKLY.

The problem of cooling food without ice has at last been solved. How often this is required every cook knows who has made her custard late and wants to have it cool quickly. The best plan is as follows: Remove the pot containing the

custard, for instance, from the fire and pour the contents into a bowl or pitcher that will hold it. Then wrap a cloth that has been soaked in cold water around the bowl or pitcher, covering all of the outer surface. Stand the vessel in a window through which there is a draught, and the evaporation of the water in the cloth will cool the custard more quickly than if it had been put into the ice-box and melted all the ice. It is surprising how quickly the food to be cooled is reduced in temperature by this method, but it is one so simple and easy that anyone can try it for herself the next time she wishes to cool anything rapidly.

The Grazier and Breeder.

GREAT CHRISTMAS MARKET,

Islington, Dec. 11th.

SUPPLY AT MARKET.

	To-day.	Corresponding date, 1898.
Beasts.....	3,900	3,940
Sheep and lamb...	9,220	10,850
Calves	—	15
Pigs	2	—
Milch cows.....	2	70

ARRIVALS.

Scotland	1,490	Midland and Home Counties	2,235
Ireland	160	Devon	310
Norfolk, Suffolk, and Essex.....	440		

ENGLISH QUOTATIONS PER 8 LBS. (SINKING THE OFFAL)

	First Quality.				Infer. Sec. Quality.			
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	
Beasts...	3 0	4 2	5 2	—	—	—	—	
Sheep...	3 4	5 0	5 10	—	—	—	—	
Calves ..	—	—	—	—	—	—	—	

Milch Cows, per head £16 to £23.

The chief event of the year in connection with the cattle trade has been the holding to-day of the annual Christmas Market, commonly known in the trade as the "Great Day." The numbers exhibited showed but little variation from those of last year. As usual the pick of the market consisted of Scotch beasts, closely vying with these being the Devons. Of neither can it be stated that they were up to last year's quality, that it is to say, taken as a whole, there being, of course, a few consignments showing exceptional quality. Both descriptions, so far as weight was concerned, were more up to the butcher's ideal, not carrying too much fat, and being small of

bone. The predominance of small breeds over unwieldy animals was even more clearly demonstrated than in recent years, thus showing that our breeders and graziers are doing their utmost to suit the requirements of the butcher.

From Scotland the arrivals consisted of 1,490 head, and were chiefly seen on the stands of Messrs. Hicks and Son, Eve and Son, W. Reid, S'ater Cook, and G. Hill, T. Dixon, C. G. Wood, Bound and Son, and Giblett and Son, to these firms being consigned the choicest cattle from the following well known graziers, A. Beddie, senior and junior, Strichen; J. Barrie, Stonehaven; J. Birnie, Peterhead; J. Fowlie, New Maud; J. Harper, Aberdeen; R. Guthrie, Turriff; J. Lyon, Aberdeen; A. McCumbie, Aford; J. Philip, Aford; Kenneth Campbell, W. Wallace, A. and W. McCombie, W. Craddock, J. Shand, Kenneth Smith, G. Wood, of Aberdeen; A. Young, A. Wyness and A. Aitken, both of Aberdeen; J. Rhind, Alec. Strachan, C. Farquharson, J. McKay, and others. Her Majesty the Queen was also an exhibitor.

Turning now to other breeds, we note a great falling off both in number and quality as regards Herefords, in fact we might say there has never been a poorer show seen on this market on a great day, the explanation being that dryness of the season had forced them early on the market, even in an immature condition. Runts (Welsh) showed up well as far as numbers were concerned, but only in a few cases were they really of Christmas quality. These were chiefly seen on the stands of Messrs. Ashton and Son, and Harper and Son. Mr. W. Law was the chief seller of the Devon breed, the remainder of these being sold by country holders. The Irish supply numbered rather more than at last great market day, and included a very good lot from Dublin, most of which were polled beasts.

The following quotations are for the primest of each class per 8 lbs. (sinking the offal):—

	To-day.		Corresponding day last year.	
	s. d.	s. d.	s. d.	s. d.
100 to 105 stone Scotch.....	5 2	—	4 10	—
100 " Devons.....	5 0	—	4 8	—
95 " Herefords..	4 6	—	4 3	—
100 " (1) Runt ...	4 8	—	4 2 to 4 4	—
95 " Norfolks ..	4 10	—	4 4 to 4 6	—
100 " Shorthorns.	4 4	—	4 0	—
110 " "	4 2	—	3 10	—
100 " Irish.....	4 8 to 4 10	—	4 0 to 4 8	—
100 " Fat cows...	4 2	—	3 4 to 3 6	—

(1) Welsh.

Leading pens of sheep per lb. as follows (sinking the offal) :—

	To-day.		Corresponding day last year.	
	s. d.	s. d.	s. d.	s. d.
7½ to 8 stone Downs	5 10	—	5 10	—
8 “ Scotch	5 8	—	5 8 to 5 10	—
9 “ Downs	5 8	—	5 8	—
10 “ Irish	4 10	—	4 8	—
10 “ Downs	5 6	—	5 6	—
10 “ Half-breds	5 4	—	5 2 to 5 4	—
10 “ Ewes	4 2	—	4 0 to 4 2	—
11 “ Hampshires...	—	—	4 10 to 5 0	—
12 “ Lincolns	5 0	—	4 8	—

Metropolitan poultry and game.

Supply short to-day.

	s. d.	s. d.		s. d.	s. d.
Surrey Fowls...	2 6 to 4 0		Rabbits (tame).	1 3 to 1 6	
Large ditto.....	2 6—3 0		do (wild).	0 9—1 0	
Small ditto.....	2 0—2 3		Hares (brown).	3 0—3 3	
Ducks	2 6—3 6		do (white).	1 6—2 0	
Cock turkeys..	7 0—12 0		do (Russian brown)	—	
Hen turkeys...	4 6—6 6		do (white)..	—	
Goslings	5 0—6 6		Eggs.....	18s.0d. per 120	

E. WEATHERLEY, 246, Central Market.

THE SMITHFIELD SHOW.

The great Smithfield show held at London, England, early this month was an exhibition of average numbers and merit. The entries were not as large as last year, which was the centenary meeting of the society, and therefore drew a larger number of both entries and visitors. Besides, the classes for steers over two years and under two and half years had been abolished which lessened the total numbers. The following summary and comments on the show by the London *Live Stock Journal* will be found interesting to Canadian breeders :

“The championship in the cattle classes worthily fell to the Hereford steer bred by Her Majesty the Queen at the Flemish Farm, Windsor, and the victory was most popular and deserved. The reappearance of a Hereford as champion after an interval of fifteen years was very acceptable to the patrons of that variety, and the success of this fine old breed was welcome by all. The incident also affords another proof of the natural benefit arising from the impartial support extended alike to Shorthorns, Herefords, and Devons at Her Majesty's farm at Windsor, these varieties in turn obtaining all the advantages of the skilful management in breeding and feeding that is carried out at the Royal establishment. The cross-bred cattle were also, as usual, in strong

muster, the reserve for the best steer or ox being a cross-bred, as was also the best heifer which was the reserve for the championship. In the carcass competition for cattle, Her Majesty the Queen again received the champion prize, this time with an Aberdeen Angus steer, bred at her Aberfeldie Mains Farm in the north of Scotland. H. R. H. the Prince of Wales's champion prize for sheep fell to specimens of the Suffolk breed, Southdowns from Sandringham being reserved for the honor : while the champion prize for the Longwool breeds went to Blackfaces, the Lincolns being reserved. In the carcass competition for sheep, the Mountain breed also gained the special prize. The Duke of York's Champion Plate for pigs went to cross-breds between the Large White and Berkshire. In alluding to the pigs, we should mention that there does not seem any reason why they should not be weighed and the figures published the same as for cattle and sheep.

“For the first time at any large show in this country the system of single judging was adopted throughout, and the experiment was watched with considerable interest. The result was, on the whole, satisfactory. The work was accomplished most expeditiously, the judging being completed in about two hours less than formerly. In the breed classes the plan worked very well, but it was thought by some that for the large classes of cross bred cattle, with so many varying types, two judges with an umpire might have been retained, and, though the judges in the champion contests for cattle gave popular decisions, it may be that single judging in these is not the system that will always be followed. The success of the plan generally at this show is not unlikely to have considerable influence throughout the country. Time was clearly saved, and there was a uniformity of type, selected for the honors, which is not always observable when two judges, having different tastes and ideals, officiate together.—*Farming.*”

SUBSTITUTES FOR ROOTS.

The partial failure of the root crop this season has entailed considerable loss on the tillage-land farmer, he having provided no substitute. The loss is measured by the proportion of the rent, labour, and manures bestowed on the land, which

is thus rendered abortive. Under the four-course system the frequent repetition of the turnip crop on the same land renders its successful cultivation more uncertain. Hitherto its nutritive value has been over-estimated. Practical opinion is now setting in in favour of the growth of green crops of a less hazardous and more nutritive character. A relay of catch crops suitable to meet the wants of the different seasons is rapidly extending, and, unless some unforeseen coincidence arise, these are likely to become more intensified. We look upon the development of British agriculture in the near future to be in the direction of meat and of milk, for which the country is so eminently adapted, and the improvement of the stock of the farm, to meet our immediate wants, and to contribute to the improvement of the stock of distant countries. To this end the efforts of the farmer must be directed; and, instead of laying down the land to permanent pasture, an extended and more intensive system of cultivation must be adopted in order to produce food for the support of a largely increased number of all kinds of stock. A well-selected mixture of home-grown cereals is more valuable for the production of milk and meat and the growth of young animals than Indian corn, though each is of equal value in the market. There are indications that Indian corn is much too largely used by English stock feeders. I notice in the report of the London Show, and more particularly that of the carcass competition, that the fact is not sufficiently marbled with the lean. This I attribute to the excessive use of maize or Indian corn, whose chief function in the animal economy is as fat or heat and fat producer. In conjunction with other foods, when used in moderate quantities it may be fed with advantage. The feeding value of certain foods is frequently over-estimated. Fine wheat flour and miller's offals are at the present moment of exactly the same value per ton; for calf-rearing a mixture of linseed and wheat meals is the best and cheapest substitute for the natural butter fat contained in the milk when this is abstracted by the separator. Much more attention should be bestowed in compounding a suitable ration for the stock of the farm by which economy of expenditure and efficiency in results may be attained.

GILBERT MURRAY.

STOCK OUT AT GRASS.

(In England).

Young stock and cows are still out day and night, and judging from the report submitted by Professor Wortley Axe, they are better out than in doors. It seems that the dairy herds examined at the instance of the British Dairy Farmers' Association were free from tuberculosis exactly in proportion as the cows were kept out of doors. Those herds which were never housed at all—summer or winter—were alone absolutely free. This is a strong argument in favour of continuing to let cows lie out. Still, we need not hesitate to bring them in if the weather becomes severe. What has been will be, and it is not well to run to any extreme.

All of us who have reached middle age know the strange vagaries of medical opinion, sometimes feeding, sometimes starving, sometimes stimulating, sometimes depleting. It is not wise to allow ourselves to be run away with by any hobby-horse, but it nevertheless is reasonable to keep cattle as much as possible in their natural element—the open air.

We have often been advised to take cattle in after September. The grass is said to be less nutritious, the calves are said to contract husk, the cows get cold in their udders; or, again, the cow, we are advised, should be kept warm, and even have warm water to drink, because she is a milking animal, and is in a delicate state, as all nursing animals are.

We are now told to keep them always in the open air, "het or wet." This also must be considered as bordering on the unreasonable, for no one who understands cows would expose them to the serious blizzards and cutting winds which often prevail during the early months of the year. A compromise between discordant views may be found in the use of yards instead of stalls. I saw a cowshed this morning. It is an old barn converted into a cow-house. I estimated that there are at least 2,000 cubic feet for each cow, and it is amply ventilated. This is as good as a yard, and its spaciousness is due to the adaptation of a lofty and wide barn to another use. No cow-house could have been built of such dimensions. As long as the weather is not too severe cows are better out, and, if possible, always out, except at milking time.



Up to the present time cows have in this neighbourhood received no food but grass, but the time has arrived in which extra food must be given. I see it is stated in the *British Dairy Farmers' Journal* that the cheaper linseed cakes are better than cotton cake. On this point it may, however, be said that cheap cakes are not always good cakes, and that consequently a sound cotton cake at £5 5s. per ton may be better than a cheap linseed cake of questionable character. What can beat 4 or 5 lb. of cotton cake and 4 or 5 lb. of rice meal for a cow in milk? Crushed oats may be substituted for rice meal, and a little hay and mangel may be added to make up the dietary.

STEAMING CHAFF.

This is an unnecessary expense, as cold water thrown over chaff soon warms up the mass and produces just the same effect as steam or hot water, and imparts the same agreeable flavour. Steaming either roots or chaff is unnecessary, although crushed linseed may be boiled to extract mucilage, and this may be thrown over a couch of straw chaff with advantage. Cooking food for cattle is one of the many devices which have been weighed in the balance and found wanting.

CHAFF CUTTING.

Chaff is useful in feeding cows and bullocks in winter. The chaff can be readily mixed with pulped roots, meal, and cake, and the cattle are thus induced to eat more straw. As cattle require a bulky material, straw fills them and allows the richer ingredients, added to the chaff, to be ruminated.

Chaff-cutting and root-pulping or shredding go together. Some practical men will not go to the expense of doing either, but give the roots whole and the straw long. If, however, roots are to be economised and straw is to be used as much as possible for fodder, it will be found that both objects are best secured by chaff-cutting and pulping. If chaff is used it may be moistened with cold water a few hours before it is given, and, as already mentioned, it will heat and emit a pleasant flavour like hay. Meal and cake may be incorporated with it, and the whole served in a manger. This system is generally followed in Southern England, but has never been in high favour in Scotland, because roots are both more abundant and of better quality.—*Eng. Ag. Gazette.*

FOOD IS FUEL.

Some men know things in a sort of dreamy, theoretical way, but they do not know them in a practical way. The other day, in talking with a dairyman of this vicinity, we suggested to him that it would pay him a big return on the investment, if he would batten his stable before winter set in, and so make it warm enough for cows to give milk in. He is a fair farmer, has twenty cows, nearly all of which will be fresh this autumn.

We further said: "It is always well to remember on the feed question that "food is fuel." A cow burns up food to keep her warm, as we burn up coal in a stove."

He looked at us, skeptically, for a moment, and said: "Yes, I've read that, and, may be, there is something in it, but I guess not much. Give a cow all she wants to eat, and she will give milk the same in a barn full of cracks, as in a tight one. I guess that "food is fuel" talk comes from some of your professors, dont it?"

That man was a Yankee farmer, who boasted of his American blood and smartness.

Next to him stood a neighbor, a German, who had been a hired man for years, and is now a prosperous farmer. He spoke up and said: "Vell, if you dink a cow give yoost so much milk in a cold barn as in a warm one, you made a bad humbug of yourself. In Germany, we learn all dot in der schule (school). Vy you not learn someding too?"

Sure enough, we thought, why does not this smart American farmer learn something, when he has a chance? He has put a lock on his understanding, in the shape of a prejudice, to the effect that whatever he sees in a book or paper, or what some professor says about the science of dairying, is not practical, nothing but theory.

Do such men ever stop to consider what is the meaning of the word "practical?" They think it is practical to reject the truth because some "professor" said it. And there was a humble German, who was glad of the chance he had, when a child, to learn this truth that "food is fuel." The Yankee was full of ignorant prejudice, and the German of wise practicality. A look at their farms and their several herds of cows will convince any man which is the wiser dairyman of the two.

Some of these men who are always talking about being so very "practical" have hardly a practical thought about them.—*Hoard.*

CORRESPONDENCE.

The Editor of the AGRICULTURAL JOURNAL.

Dear sir :—

I suppose it will be a piece of presumption on my part, to criticise an experiment made by so noted a man as Professor Robertson of the experimental farm at Ottawa. He states that a field of eight acres, had a good mat of clover turned under. This field had a crop of barley the year previous, and sown with clover seed. Now, I think, and am pretty sure, that this field must have been in a good state of cultivation, or, on the experimental farm, it would not have been sown to barley. One acre of another field which had been in Brome grass for two years, and another acre ploughed had been in pasture. Consequently, both of the two last pieces ploughed, must have been much less fertile. But supposing the whole was equal in fertility, and the barley land no better than the others, was not the extra crop due more to the heat of the soil created by the fermentation of the clover, than to the amount of fertility added to the soil by the small growth of one month of the clover? Had the clover been cut and dried, there could not have been more than half a ton of dry matter. The other experiments are very similar.

With regard to potatoes, a piece of good sod-land turned under, with the same amount of manure as a piece of stubble manured, will give a greater produce and of a better quality.

Land in a good state of cultivation will give a fair crop of clover, but poor soil could not be made to grow a crop of clover of any value; at least, such is my experience. Supposing a crop of clover could not be used to better advantage, such crops would take years to improve a poor soil.

I should prefer letting the clover come to its full growth as being more economical, making it into hay and feeding to cattle or milch cows.

The manure from feeding so much larger an amount of clover will be of more benefit to the farm than turning under so small a growth of clover, as one month's growth will give, besides the extra milk, or beef the matured clover would give.

I remember many years ago, before nitrogen in connection with the growing of clover was thought much of, an experiment was tried on a field of clover. One-half of the clover was allowed to mature and made into hay, the other half was fed off with sheep. The whole was then sown to wheat. The crop on the half that was allowed to mature gave a much better return, than that part of the field that was fed off with the sheep. And here again we have the large amount of extra fodder, to feed in the stables.

Yours truly,

AN EX-FARMER.

NOTE.—The common observation of farmers, in the middle of the *last century*, taught them, that as the growth of the stem and the leaves of the clover plant extended above ground, so did the roots of the same plant extend below ground. If sheep kept the clover down, as they did when hurdled upon a field of it, the after crop of wheat was never so good as when the usual two crops of hay had been taken. The roots of the clover, diving all the deeper into the subsoil, bring more supplies of manure up to the topsoil.—*Ed.*

" WIREWORM WORRIES. "

Sir,

A few months ago I troubled you with some remarks upon "Feasting the Wireworms," over the signature "A Hertfordshire Farmer." To-day I give my name and address in order that I may once more assure the doubtful ones that I have seen many times the dead wireworms by hundreds turned out by the hoe after twelve or sixteen bushels of rape cake had been drilled with the barley or oats. This applies more particularly to the chalk and to a dry season, the thirsty creatures naturally going to the nearest pump!

With regard to Mr. Bell's interesting letter in your issue of to-day, I would only say, here is another proof of the value of the crow's, as the swedes must have perished in any case, in the presence of such an "army," and I hope your correspondent will do all he can to protect the rooks. The explanation as to the "headrig," or "headland," escaping is very simple—the horses in turning made the land so solid that the creatures could not work. In this district the farmers put the heaviest Cambridge press on the young

barley or wheat directly the withering blades prove that an enemy is at work. (1)

Mr. Bell will probably lose his second crop of swedes, but he will do well to try coleseed (rape) or mustard.

WICKHAM INSKIP.

Caldecote, Baldock, August 7th.

The Dairy.

RUNNING THE SEPARATOR.

In many cases the buttermaker's career commences with the skimming station, here it is that many a young man gains an insight into the running and care of the separator, and as his knowledge increases naturally looks forward to the time when he will be able to complete his creamery education and become a maker.

In all creameries the operator of the separator is supposed to, and should, understand his business. He should have thorough training in creameries as a helper and, if possible, in a dairy school, before undertaking to manage a creamery separator on his own responsibility. A new machine should be put up by the manufacturer or his agent, and prove in perfect shape and efficiency before he leaves. Every manufacturer gives detailed instructions as to the care of the separator, and such an instruction book should always be kept at hand. The operator of hand as well as of power-machines, should make himself thoroughly familiar with every detail of their construction.

Fresh and warm from the cow, the milk is in the best condition to be skimmed. If it cannot be had in that condition, it should be aerated and cooled on the farm, so that it arrives at the creamery or dairy at not over 60°. Then, reheat it to 85° or 90°, not under 75°, and not over 95°. This heating is preferably done in some continuous heater, as it is dangerous to heat it in bulk, because milk standing some time at 85° is apt to spoil. While the separator will skim at a lower temperature, either there will be fat left in the skim milk or less milk must be run through the machine in the same time. Of course, the milk must be sweet.

In starting, oil all bearings thoroughly, using

(1) Explanation quite correct. A "Crosskill's clod-crusher is better. Ed.

only the very best oil. Ascertain that everything is in trim order, then start according to instructions which vary for different kinds of machines.

Always start carefully, and where the belt from the intermediate is shifted from loose to fixed pulley, do it slowly and gradually, helping with the hand on the belt to start the bowl. When the bowl appears to be running at full speed without shaking, ascertain if it really does so by means of the speed indicator, which should always be found on any power machine.

Never allow the machine to run faster than permitted by the manufacturer. If you do, it is at your risk and at the risk of the lives of your assistants, so be sure and use the speed indicator often.

See that the feed of new milk is correct and that the proportion of skim-milk to cream is as wanted. Hold a quart measure under the skim-milk spout and a measuring glass under the cream outlet, and, when the quart measure is full, see how much cream you have in the measuring glass, taking the time by your watch. If you have 6 ozs. of cream to 1 quart of skim-milk in 9 seconds, you have taken 6 parts of cream from 38 of new milk, or a little less than one-sixth, or about 16%, and you are running at the rate of about 950 lbs per hour. How large a proportion of cream to take from the new milk depends on the richness of the milk and the consistency of cream required. If you have 4% milk and you wish cream of 28% fat, you will take one part of cream from seven of new milk, or 14%.

Keep the oil-cups filled, and look frequently at all the working parts of the machinery. Well started and regulated, it will run uninterruptedly until all the milk is separated. When the last milk has entered the bowl, pour in sufficient skim-milk to crowd out all the cream left. If the skim-milk is removed from the building while the separator is running, take samples frequently, or if it is all left until after the work is done, take a few average samples to test with the Babcock machine, so as to control the day's work.

Stop the machine cautiously, removing the motive power and letting the bowl come to a stand-still of itself without applying any brake. Remove the skim-milk left in the bowl by a siphon or otherwise, take off the covers, etc., and lift out the bowl.

To clean, first rinse the bowl and other parts which have been in contact with milk in cold,

tepid water, and then scrub them in boiling water, frequently using some solution of sal-soda. Scrub and brush every corner. Rinse in clean boiling water and steam out the tin covers, etc. Wipe with a clean cloth and set the things to dry.

Pump out every pipe that cannot be reached by hand and brush. If possible, avoid the use of rubber-hose to conduct the milk from the vat or heater to the separator, but use open-tin conductors, or short tin-pipes, which can be easily kept clean. Rubber-hose cannot be washed in boiling water or soda, and is a source of contamination. Clean the separator-stand carefully with a cloth and wipe the spindle, etc

Occasionally, clean out the oil-chambers with kerosene oil, and always see to it that no gum is formed and that the oil-grooves and tubes are open.

If the separator shakes or in any way works imperfectly, find the cause without delay and remedy it. If you fail to find the fault, or you cannot remedy it yourself, notify the manufacturer or his agent, and have him attend to it at once.

As the cream leaves the separator, it should at once be cooled to 50° or lower. This insures "body" in the butter, and should not be neglected, at least not unless the cream is thoroughly chilled after it is ripened before churning.

Put the separator together as soon as the parts are dry, so that nothing may be mislaid, and everything will be in readiness for the next day.

A. WESTON PARRY.

January 3rd, 1900.

FROM "CHEDDAR CHEESE-MAKING"

The Cannon System.

Some 20 to 25 years ago, Messrs. Hill Bros., Cheese Factors of Evercreech, after setting out the ten principal points of cheese making, with a few "observations" thereon, had them printed, and circulated them privately. Each copy was marked "This communication is privileged, and for your service only," so that although possessing a copy I must not reveal the contents. Nevertheless, as this private effort has done much to improve the quality of Cheddar Cheese during the past quarter of a century, the fact ought to be recorded. One

of these papers came into the hands of Mr. Henry Cannon, whose wife began to utilise the information, and to improve on the ideas, with the result that she became the same year a Prize-winner.

The system finally adopted, which will be very fully described later on in this report, has since been practised and taught by Mr. Henry Cannon, of Milton Clevedon, Evercreech, and was brought prominently before the public in 1887, when a cheese made by his daughter, Miss E. J. Cannon, took, at Frome, the champion prize, in a class open to the competition of the whole world, for the best Cheddar Cheese. When, in 1890, the Bath and West and Southern Counties Society started a Cheese School in Somerset, it was decided that the Cannon system should be the one taught at the School, and Miss E. J. Cannon was appointed teacher.

The following is a brief account of the Cannon system, sufficient only to enable the subsequent pages to be understood. A complete description will be found on p. 207.

The Evening's Milk is brought into the dairy and strained through fine muslin into the cheese-tub.

In the morning, the evening's milk is skimmed, and the cream placed in the warmer with a portion of the evening's milk. This is heated so that the whole of the milk, morning's and evening's, is brought to the correct temperature for renneting. This temperature is 84° F.

A certain quantity of whey, which has been reserved from the previous day's make, is now heated in the warmer to 84°, and added to the milk to ensure sufficient acidity.

The next operation is to add the necessary quantity of rennet. When the curd has attained a certain degree of firmness, it is "cut" with a breaker. Subsequently the curd is allowed to settle until the whey has risen. When the whey has properly risen, the "breaking" of the curd commences. After breaking, the curd is allowed to settle for five minutes. Sufficient whey is then put aside for the morrow's cheese. The first scald is to 88° F., the second to 94°.

The curd is kept continually stirred in this scald until it has acquired a certain degree of firmness. It is then allowed to settle for 15 minutes, the whey is drawn off through a strainer into the whey leads, (1) and the curd is cut with a knife into

(1) Vats. Ed.

blocks about 6 or 8 inches square, and piled on the bottom of the tub. The piled curd is covered with thin cheese-cloths and wrappers, and left to drain, as a rule, until the whey drops from the tub. The curd is next cut into six or eight blocks, one half taken to the "rack" in the "cooler," broken with the hands into small pieces, and tied up tightly in a cloth. The remaining half is treated in a similar manner, and the two bundles are then placed one on top of the other, and subjected to pressure. The whole is wrapped round with cloths to keep the heat in the curd. The curd is left thus for half an-hour, then taken out of the cloth, and cut with a knife into oblong pieces. These are well mixed together, and again tied up in the cloths. The curd is cut a second time, packed up as before, and subjected to pressure for half-an-hour. The curd is then opened up, broken into lumps, again tied up, and subjected to the same pressure as before for half-an hour.

This operation is repeated until the curd is fit to grind.

Some Effects of Various Systems.

A close investigation of the Cheddar Cheese industry reveals the fact that the methods of manufacturing Cheddar Cheese are as numerous as are the localities in which it is made. The various methods differ not merely slightly, but to a very remarkable degree, so that at first sight it seems quite impossible that practically identical results can be obtained by such divergent means. Yet practically identical they are, that is to say, the result would in all cases be undoubtedly Cheddar Cheese, and no other variety.

Yet there is a difference between the cheeses made on the various systems. Some will ripen more quickly than others made on another system, while a third system may produce a cheese taking still longer to ripen. Thus a rapidly ripening cheese will be ready for the market three months after it is made, others will take six months to ripen, while formerly it was the custom to keep a Cheddar Cheese twelve months before it was considered fit for consumption.

Hence the extreme methods have become known as "rapid" and "slow" ripening systems. In flavour, there is not much variety due to the system of make.

The texture of a Cheddar Cheese should be absolutely uniform and solid. Some methods

tend to produce this result far more certainly than others, the latter leaving a cheese more or less "open," that is, showing occasional spaces in the interior.

While some systems tend to produce a hard cheese, others produce a much softer and mellow curd, which is considered of importance as regards quality.

A Cheddar Cheese, when cut, should be soft and fat, neither hard nor crumbly. It should have both the aroma and flavour of a nut, the so-called "nutty flavour" so much sought after. It should melt in the mouth, producing not only an agreeable flavour, but leaving a most pleasant after-taste. It should taste neither sweet nor acid. If either in smell or in taste or in after-taste there is anything the least unpleasant, such taste or smell is termed a taint.

DOES THE UDDER OF A COW NORMALLY CONTAIN BACTERIA ?

An article by A. R. Ward in the *Journ. Appl. Micros.* for 1898 has perhaps not received the attention that it deserves. From his studies we learn that great variation exists in the bacteria found in the foremilk, and presumably present in the udder. In the foremilk of a cow he found four or five species of bacteria, only one of which was common to the four teats, but "the same species were found to persist in the same teat from day to day." The milk of another cow examined on five occasions covering a period of eight months showed three species, one genus of bacteria—streptococcus—predominating in all of the teats at first and persisting throughout the trial, yet no streptococci were found in the milk of eight other cows in the same cowhouse.

The results are often given of the bacteriological examinations made of the glandular tissue of the apparently healthy udders of six cows, together with the foremilk of these cows just before they were slaughtered. The udders were divided arbitrarily into three parts, namely, the teat and cistern, the middle part above the cistern, and the part above this. From the examination made it was found that the same organism frequently occurred in the foremilk and in each of the three parts of the udder, and that most of the bacteria obtained belonged to one of three micrococci. According to Mr. Ward "the evidence at hand indicates that the teats and the greater portion of

the udder may normally contain bacteria. It also seems highly probable that a few at least of the organisms found in the udder remain there after each milking, becoming the progenitors of the organisms found to be present in the milk when drawn." If this be so, milk as it comes from the cow is not sterile, and the micrococcus which produces lactic acid fermentation and sour milk may possibly not enter the milk after being drawn, but be actually present in the milk while in the udder. If it can be shown that the udders of all cows contain normally such bacteria, then it opens up a new field of inquiry.

R. HEDGER WALLACE.

TURNIPY TASTE IN BUTTER, AND HOW TO AVOID IT.

Before winter dairying began to be so popular we heard much about turnipy taste being imparted to milk and butter, where the roots were given in any quantity; but now that the production of dairy produce is becoming so extensive during the winter months, we naturally hear more of the complaint. We have remedies set forth innumerable, some feasible, others impracticable, and a few positively ridiculous. In the face of these facts, it has often occurred to me if some of the theorists ever fed or milked a cow in their life. It may be that the turnips grown in some localities upon certain soils have a stronger flavour than those grown upon a different soil, and thus impart to the produce of the dairy cow a conspicuous taste, consequently more objectionable. There is one thing we do know—that the turnips grown in Aberdeenshire have a dietetic value far above ordinary roots, in spite of analysis. I may say, before going further, that when I mention turnips

SWEDES ARE INCLUDED.

Where a small quantity of roots are given, say, 20 lb. per day, there is not the likelihood of an undesirable taste developing in the milk. Most of us when lads have munched with apparent relish the *Brassica campestris*, and no doubt this was indulged in for the want of something more palatable; nevertheless, our youthful minds were not long in finding out what part of the root was most agreeable to the taste, so we threw away the top and bottom of the bulb. This is the part, we are told, which imparts the taste we are talking about, so we have been recommended by some

writers to dress the roots accordingly. Just imagine the labour entailed dressing 50 lbs. per day for each cow. Of course it could be done, but no farmer would think of such a thing; the ludicrous suggestion would appeal to him at once. Again we read "turnips should never be given to cows for butter-making unless they are

PULPED TWELVE HOURS BEFORE GIVEN, and exposed to the air." This suggestion is feasible, and where pulping is followed it might be given a trial, but this is of no use to those who follow the simple practice of giving the stock their turnips whole. Young stock are not included here, because they cannot break the roots on account of casting their teeth. The "hot water cure" has been set forth as a remedy, the cows to get two hot drinks a day, and a small portion of boiling water (a cupful to about two gallons) to be added to the milk immediately on arriving from the cowshed, before being separated or set in pans. A common warning is, on no account milk while the cows are eating turnips or immediately afterwards. This can be placed on a par with the old belief, amongst a certain class, that if a baby had an attack of colic an efficient cure was for the mother to take a glass of whisky, and immediately afterwards give the child a suck. I can hardly see where the explanation of the above phenomenon comes in. Certainly a cow cannot be considered a spout, as it were, in one end of which you put turnips and the flavour immediately passes into the milk. Food in the interior of a dairy cow undergoes many changes which scientists do not yet thoroughly grasp, and these changes cannot take place immediately; the whole process of digestion is probably a matter of days. A popular method resorted to is to add

A LITTLE SALTPETRE

either to the milk or cream; as much as will lie on a threepenny piece to be thoroughly mixed in about every two gallons. Scalding the cream by heating it up to 150 deg. Fah. has a tendency to mitigate the evil, and this can be done without a great amount of extra labour. The above remedies set forth are but a few of the many different methods recommended, none of which I have ever had occasion to give a trial. The most efficacious, simple, and easily explained system I have ever seen advocated anywhere is,

ALWAYS FODDER IMMEDIATELY AFTER GIVING ROOTS.

The reason for this is obvious. Ninety per cent of turnips is water, and if cows are allowed to stand for any length of time after being fed on roots before any other diet is given, this slush which fills the first stomach or paunch, is readily passed on through the various processes which nature has given to the animal body for converting food into muscle, fat, milk, etc. Now, if the cattle have the opportunity of eating some dry food, such as straw or hay, immediately after their turnip feed, this readily mixes with the watery food which has just been consumed; the turnipy taste is more equally distributed, consequently neutralised to a certain extent. In this state much of the food in the rumen is brought up again for remastication, consequently the first three stomachs of the cow get doing their proper work before the fourth is reached, where the food is acted upon chemically by means of the gastric juice. The above explanation may be wrong, but I am open to correction. This remedy only applies where the quantity given does not exceed 40 or 50 lb. of roots per day, and when more than this is given the feeding cannot be looked upon as economical. When more than this quantity is given the high percentage of water contained in the roots has a tendency to lower the temperature of the animal.

NOTABLE DAIRY EXHIBIT.

Messrs. R. A. Lister & Co., of Montreal, made an excellent display of high class dairy apparatus at the Ontario Provincial Fat Stock Show, London Ont., December 12th to 15th. In the stockmen's pavilion was shown a No. 4 Melotte Cream Separator at work, driven by a Northey Gasoline Engine, skimming most thoroughly, 1000 lbs of milk per day, obtained during the dairy cow test. It was really a hand machine easily converted into a "power" separator, with a capacity of 700 to 750 lbs per hour. The firm turn out a hand machine of still larger capacity which is capable of handling the milk from 50 cows, and can be worked quite easily by a young man. The special features in the construction of the Melotte, are: firstly, the suspended bowl which is practically an inverted ball bearing in principle, is a marked advance on anything yet produced, doing away with all friction and ensuring ease in running; secondly, all the gearing is cut by machin-

ery and is therefore perfectly accurate, this ensures even running; thirdly, the lubrication is automatic and all parts in motion, run in an oil bath, the waste oil being conveyed to one receptacle where it can be drawn off at leisure and used for other purposes; fourthly, no tin covers are used in the "Melotte," the milk and cream passes over a beautifully enamelled casing which is very easily and quickly cleaned.

Ease of running is one of the most important features in a cream separator, for, if a hand machine is hard to turn, the speed is not kept uniform and bad skimming is the result; the "Melotte" takes 30% less power to work than any other separator.

In the main machinery building, there was shown a full line of Alexandra and Melotte separators, among them being a large power Alexandra, capable of separating 3000 lbs of milk per hour, for factory use; rotary and centrifugal milk pumps, suitable, either for driving by belt or steam turbine; a complete pasteurizing outfit for town milkmen, adapted for either milk or cream, with a capacity of 1000 lbs per hour. The milk or cream is first heated to a temperature of not less than 158 degrees Fahrenheit, and then passed through a circular milk cooler, quickly reducing the temperature to within a degree of the temperature of the cold water used; this process destroys the bacteria germs and makes the milk much more palatable and wholesome, besides improving its keeping qualities. In all the leading towns and cities of Great Britain, this system is being employed by milk dealers who cater for the best trade. The pasteurization of cream is such an important factor in the manufacture of butter, ensuring, as it does, perfect uniformity in flavor, and destroying that salve and insipid taste so commonly found, besides adding to its keeping qualities. Seven eighths of the butter imported from Denmark into Great Britain is made from pasteurized cream and produces 3½c to 6c per pound, more than the best Canadian.

Mr. Austin Lister, son of the head of the firm, is now in charge of the Montreal House, which is the headquarters for Ontario, Quebec and the Maritime Provinces; he has erected and equipped a factory with the most modern plant for the manufacture and repair of the Alexandra and Melotte cream separators, this was done in order to avoid delay in the execution of orders. We are quite sure, users and intending buyers will

appreciate this, as it is most important for factory proprietors or farmers to be able to get repairs done, or new parts supplied quickly, and save a large quantity of milk being thrown on their hands.

The Garden and Orchard.

(CONDUCTED BY MR. GEO. MOORE).

WEEDS.

(Concluded).

It is strange that with all these facts before them it should require legal force to make farmers destroy weeds. In 1220 a statute was enacted to make farmers' root out the corn-marigold. The statute was quaint, short, but strong. "The man is a traitor who poisons the king's land with weeds, and, introduces into them a host of enemies."

Courts were held for the purpose of fining the farmers in whose growing crops three heads, or upwards, of the marigold was found. In many leases the landlord was empowered to cut down weeds at the expense of the tenant if the latter neglected to do so. On the Continent of Europe the law, as to the destruction of weeds and insects, is quite stringent, in some countries.

The prevention of weeds by means which are in the power of every farmer and which ought to be looked upon as holding an important place in the routine work of every farm, is of greater consequence than any prevention by legal authority.

Now, a farmer can take no middle course as regards weeds. He must either be an encourager or a preventer of their ravages, for if he is not, they are, diligent: "they will grow while he is asleep," and in this case the old adage is particularly applicable: "an ounce of prevention is better than a pound of cure."

One effectual measure of prevention is to be very careful that all seed, whether grain or legumes, be quite free from any intermixture of weed seeds, for the smallest quantity may serve to befoul the land and involve years of labor, annoyance and loss; hence, the importance of dealing with seedsmen of known reputation, who will make sure that the seeds they sell are properly and thoroughly cleaned. There is no more

dangerous speculation than to purchase cheap seeds from unknown or irresponsible parties.

Again, seeds which find their way into the land through the dung heap take such stubborn possession of it as to make the plants they produce very difficult to extirpate. It is therefore very necessary to see that no sweepings of stables or barn-floors which are likely to contain living seeds of weeds, find their way on to the manure or compost-heap. Another chief precaution is to be sure that all waste places on the field sides or hedge-rows, or on the road-sides in the neighbourhood, are kept clean of weeds to propagate from, by cutting them before they run to seed. But the most certain and important means of prevention is a steady and judicious system of rotation of crops. If this is strictly observed, weeds may be kept under at little expense, because the root crops will afford an opportunity of destroying all annual and many biennial and perennial weeds, while in an incipient state. This method of annual cropping will answer every purpose of checking the growth of weeds upon all light soils, but upon heavy clays, or when lands have become badly infested with perennial weeds, especially couch grass, a summer fallow is the most radical method of overcoming these formidable enemies. (1)

To destroy weeds it is necessary to bring their seeds within the limits of vegetation. All seeds are furnished with a means of reservation while stored in the ground; and they must be brought into life before their destruction is certain.

Plowing, harrowing and pulverising the ground brings them so near the surface as to admit of their speedy germination; however much seed may be brought from a distance there will always be a supply remaining in the ground. As soon as a crop of weeds begins to grow they can be instantly destroyed, and the ground will be loosened to give the next crop a chance to germinate; they in turn can be easily killed and thus the quantity will be continually lessened. This can be accomplished more readily by the adoption of drill husbandry which enables the cultivator to get among his crops for the purpose of destroying weeds. If all the annual weeds are faithfully destroyed while root-crops are growing, they will not endanger the corn or grass crops, but should any appear in them, it will pay well to have them pulled or hoed, for not only will the grain crop be

(1) Autumn-cleaning of stubbles, if well-done, is the best way. Ed.

improved, but the land will be left clear for the crops which are to follow, so that all the expense of weeding is not chargeable on a single crop.

The perennial weeds are the most difficult to get rid of, because of the extra means they have of self-propagation by roots or *stolons*. Perhaps no plant that grows resists the efforts of the destroyer with such tenacity as couch grass. Every root will make a new plant and the rapidity of its growth is such, that if let alone it would soon usurp the place of all other vegetation. If it has been allowed to get the mastery scarcely any means short of making a summer fallow, and working at it continually until every little bit of root is picked out and destroyed will succeed. This can be effected usually while the land is in preparation for turnips, or part of the pest can be taken out and a crop which will completely overshadow the land planted. Indian corn or tobacco will best answer this purpose for, fortunately, couch grass will perish if debarred from enjoying the bright light of the sun.

Thistles will not abound if the land is properly tilled and left clean after the root crop or fallow, but should they appear in the corn crop they should be watched for and pulled, while the weather is moist, out of the grain-crop, or cut off with the scythe on the grass lands before they have gone to seed. All other perennial weeds should be destroyed in the same manner, if they have been allowed to get a head. But be it remembered that in the destruction of weeds, "a stith in time saves nine" and, while in an embryo state, millions can be destroyed at little expense of time or labor which would cost as much to kill as the crop is worth if permitted to grow to maturity, or partly so. To sum up: to keep the land free from weeds the good cultivator will be alert, and systematic in his work, take time by the forelock, and remember that the growth of a crop, whether of corn, roots, or weeds brooks no delay and must be attended to at the right time, otherwise disastrous results will ensue.

Nothing is more trying to the patience than to drudge at the eradication of weeds when the work has been neglected, and with the consciousness that the drudging might have been avoided if the right means had been taken at the right time.

Nothing bespeaks the slovenly, negligent cultivator so plainly and emphatically as a weedy farm or garden, and nothing proclaims the character so clearly, as a thrifty, well ordered, and

neighbourly member of the community in which he lives, as the farm or garden in which weeds are conspicuous by their absence.

GEO. MOORE.

ROCKERIES.

(Continued).

In our last we gave the descriptions of some of the most suitable plants for the rockery, we now proceed, briefly, to make a few remarks upon its construction.

One of the principle points to be noticed is to give the work an artificial appearance, but to imitate nature as closely as possible. The stones of which the rockery is constructed should not be placed on each other in regular order to look as if they had been built up, but rather as if they had fallen into their places by accident; this is somewhat difficult, and will depend upon the taste and skill of the constructor, but the general idea must be to avoid formality.

The best stones with which to form a rockery are those which come out of the quarry in irregular shapes, and not those which lie flat upon each other horizontally. For, if the latter are used, a rough or rugged aspect cannot be given to the work; unless some of them are placed on end, and then they would be in an unnatural position and would make the rockery look too artificial. In placing the stones, hollows must be left to contain earth for the plants to grow in; these should not be arranged in any order or at regular distances from each other, but as if they occurred by chance.

The whole should be allowed to settle before any plants are put in. In planting, reference must be had to the habit of growth of each plant. Those which are very small should be planted low down, or near the base of the rock work, so that their beauty can be seen, and those of a trailing or hanging habit of growth should be planted near the top. In addition to the plants recommended, some mosses and lichens may be added; in a few years a spontaneous growth will also cover the stones, and then the work will be in its perfection.

The above describes the making of rockeries in imitation of natural formations; but there are some spots in large pleasure grounds where artifi-

cially imitated ruins will add to the picturesque beauty of the place, and in making these it is advisable to take some well known ruin or a portion thereof as a model, constructing it on a smaller scale: it will be much more likely to be architecturally correct than any fanciful structure that we can devise, and correctness as to detail is important because everything that is done in the laying out of a pleasure ground should be artistic-educational, and bear criticism. GEO. MOORE.

CATERPILLARS.

To the Editor of the JOURNAL OF AGRICULTURE:

Dear Sir,—You will think this is rather a queer heading for my letter, but, knowing what we had to come through last season to save the fruit trees, I thought it best to warn those who would like some apples next year to be up and doing.

Had the fruit-growers attended to the nests of caterpillars last winter they would have had much less work last spring and summer. For four or five years at least, the caterpillars had not been very much trouble prior to 1899, but they made up for it last season. In fact, in some localities they devoured all the foliage, leaving the trees as bare as in mid-summer. Now is the time to destroy them; the whole proverb "a stitch in time will save nine" is just as true in connection with caterpillars as anything I know of.

The young eggs are in rings round the smaller branches of the apple-trees. Many say they have not noticed them, but if you wish to see them, go on a hunting expedition the first fine day that there is no snow on the branches and you will easily find them: without the aid of spectacles, too. The best way to destroy them is to cut off the branches where they are clustered in millions, and burn the limbs in the fire, and in that way the greater portion of your labor will be done for next year; otherwise you will find it difficult to keep them under, next May and June. Many were not able to destroy them last year; they were in too close proximity to forests where they had full sway, and of course they let them have their own way and there could be no fruit. Those who took care of their fruit trees and sprayed, got well paid for their trouble. One of my neighbors here got over \$2,300.00 for his apples last fall, a goodly sum in these days for a farmer. In my small plot of one acre, we had one hundred

and ten barrels, ninety-five of these were sold at about an average of \$2.50 per barrel, realising some \$240.00, not so bad from one acre, was it, Mr. Editor? besides putting into the cellar 30 bushels of potatoes, 10 bushels of carrots, and about 35 bushels of turnips and mangels. There were cut 2 good crops of grass, the first crop over a ton, the second crop nearly a ton: but I am digressing. I would advise one and all to be vigilant during the winter and spring, and destroy as many as possible of the young larvæ, and hours now will be as good as days next summer, when you will have lots of other things to do. Spraying with the Bordeaux mixture has a good effect, but will not kill all the vermin. without the addition of Paris-green, and even then, there are times when you cannot spray, i.e.: when the blossoms are out. Still that does not prevent the young caterpillars from hatching out with the heat of old Sol. Some few fruit-growers paid no attention to the law, but sprayed their trees when in blossom. It seems too bad to be revenged on the poor innocent bees—by killing the caterpillars—but some few people are very short-sighted, and do not know the part the bees play in carrying the pollen from blossom to blossom in all kinds of fruit.

I cannot go fully into this subject here, as there would be enough of it to fill an article by itself. But to fruit-growers especially would I recommend them to spare the bees and birds as they are the two best friends they have, the one as I have already stated to carry the pollen, and the birds to destroy millions of insects, which would, in some cases, destroy great crops of the smaller fruits.

Be merciful therefore to your friends and spare them, it is better to lose some fruit by the birds than to kill the birds and have next to no fruit; as the millions of insects soon destroy the small fruits.

Wishing the readers of the JOURNAL a happy and prosperous new year and that these few lines may prove of some advantage in helping them to overcome those pests the tent-caterpillar, I am,

Yours truly,

PETER MACFARLANE.

Chateaugay, 30th Dec. 1899.



CANADA'S FRUIT INTERESTS.

At the annual meeting of the Ontario Fruit Growers, dishonest apple-packing received considerable attention. Prof. Robertson advised the branding of the name of the packer and grower on every barrel of apples shipped out of the country, and the meting out of suitable punishment to parties found guilty of fraudulent packing of apples. In this connection he advocated the adoption of a suitable standard for size and quality of apples shipped.

The branding of the packer's and grower's names on the outside of every barrel of apples shipped is along the line we advocated in last week's issue, and seems to be only feasible method for preventing dishonest packing and tracing up fraudulent packers. As we stated in last issue, the time for definite action has come. It is of no avail to warn or advise these dishonest individuals to desist from their nefarious practices. Only detection and the strong arm of the law will prevent these practices from being carried on, and which are bringing such disgrace and dishonor to the name of Canada. Immediate action is necessary in order to protect the honest packer and the grower who is endeavoring to deal fairly and honorably with the customers. Not all those who packed apples are guilty of dishonesty, but there are some of them who are bringing discredit to the whole lot by their actions, and the sooner they are punished the better for the whole trade.

An important point brought out in the discussion on this subject was that, if inferior fruit is produced, it must find a market somewhere, and will always be a temptation to those not over-scrupulous about their actions to practice dishonesty. The remedy suggested for this was to so improve the quality of the fruit as to reduce to a minimum the percentage of inferior fruit. This could be done by better culture of the orchard, pruning, and grafting, and by adopting systematic spraying. Another remedy suggested was for every fruit-grower, especially the larger ones, to pack his own apples. This is the practice followed in Nova Scotia, where fraudulent packing is almost unknown. The whole question is an important one, and should receive prompt attention from those in a position to deal with it.—*Farming.*

The Poultry-Yard.

(CONDUCTED BY S. J. ANDRES).

POULTRY ITEMS OF INTEREST FOR EVERYBODY.

One of the surest ways of securing good, healthy, vigorous, thrifty fowls is to select and mate good hardy parents.

**

Some kind of grit must be provided for your fowls during the winter months; crushed bone and sea shells are both good. Mica-crystal grit is also good and not expensive.

**

Charcoal fed to poultry produces good results; charred corn is also good; put a few ears into the stove and let them become thoroughly charred, then give them to the fowls.

You will find they will please them and pay you.

**

Do not forget that in feeding your poultry, variety means health, vigor and thrift.

**

It usually costs less to feed and keep the best.

**

Farmers should do more retailing to consumers of poultry and eggs by presenting fowls nicely dressed, and eggs that are strictly fresh, nice looking and clean. A good trade of this kind can be built, and, in nine cases out of ten, a few cents above market price can be obtained.

**

Do not neglect to provide a scratching place or pen for your fowls.

**

Too much corn or other fattening food will not produce a satisfactory supply of eggs.

**

It is necessary during the winter months to feed ground green-bone or meat-scrap, if you desire the best results from your birds in the way of a good egg supply.

**

In order to insure the eggs to be fertile, the hens must have exercise.

It is poor economy to keep scrub-poultry in the farm; or scrub-stock of any kind, for that matter. If you do not want to go to the expense of procuring a pen of thoroughbred fowls, it will certainly pay you to procure a good thoroughbred cock to mate with your common hens and gradually elevate them to a profitable standard.

There is no department of farm-industry that requires more thought and study than the poultry-trade. The farmer who neglects to read and keep well-informed on this branch of the farm-product, is usually the one who insists that hens are a nuisance, and poultry does not pay. Every farmer should take at least one good trustworthy poultry-paper.

THE SELECTION OF BREEDS.

We have breeds for all purposes—summer eggs, winter eggs, broilers, roasters, and general purposes. We have the heavy egg records with the non-sitting breeds, but the bulk of their production is in the spring, summer and early fall. Unless under very favorable circumstances they are but ordinary layers during the winter. Our winter laying birds are of the broody kind, and they give comparatively few eggs during the warm months of the year. Much of their time is taken up on incubating. Thus, we have a class that is better adapted for raising broilers than for roasting purposes. On the other hand, we have breeds than makes better roasters than broilers. Again we have general purpose fowls—reasonably well adapted for all that one could wish for in poultry.

To become more plain, the summer layers are the Leghorns, Minorcas, Andalusians, Spanish, Hamburgs, Polish and Houdans. The winter layers are the Asiatics, (Brahmas, Cochins, and Langshans) and the Americans Plymouth Rocks and Wyandottes. The best for broilers—the Wyandottes or Plymouth Rocks. The best for roasters—the Brahma or Langshans. The best general purpose fowl—the fowl for the farmer—the Plymouth Rock. I prefer the white, because there are no black pin feathers to disfigure the carcass when prepared for market. It is possible that in this choice we may meet with some opposition from the champions of other breeds. But I am sincere in the declaration that I speak from

the real experience I have had with the different breeds named above during the last 25 years.

It is a mistake to keep more than three varieties; two would be better; and one would be better still. Of course, circumstances alter cases. If it is intended to run a general poultry farm—taking all the branches—eggs, broilers and roasters, then it would be best to have not less than two breeds; perhaps better have three. Leghorns, Minorcas or any of the non-sitting breeds for eggs in summer, when the others would be broody. The Wyandottes or Plymouth Rocks for broilers and winter eggs. The Brahmas or Langshans for roasting fowls and winter eggs. The Wyandottes or Plymouth Rocks could also be used as small-sized roasting-fowls. It is always best to have two sizes of roasters as many people prefer a small sized one to a large one. This makes a profitable business the whole yard round combination.

S. J. ANDRES.

And boilers? Do not they boil fowls "on this side"? ED.

FEEDING ANIMAL FOOD.

Be sure that whatever animal food you give poultry to eat is perfectly sweet, otherwise it had better be omitted entirely. A box of dry gravel should be at hand, which the birds will pick from constantly, for they need this to aid in the process of digesting their food precisely as at any other time. No green food is necessary at this time. All you are aiming at is to put additional fat upon the fowls, and to do this in the least possible time, so long as they will eat well, they will continue to increase in weight up to a certain period. Treated in this manner two or three weeks will bring them up to their best. If they become cloyed and lose their appetite at an earlier date, after being thus cooped up, kill them at once. They have reached the most profitable of their existence, and will no longer improve in the desired direction. Every day thereafter is a dead loss; for they cannot be kept fat; once up to the mark, if not killed, they get feverish and waste away again.

The mode thus briefly recommended is economical as well as expeditious, cleanly and convenient.

S. J. ANDRES.

LAKEFIELD FARM,

Bondville, P. Q.

January 3rd, 1900.

To the Editor of the JOURNAL OF AGRICULTURE :

Dear Sir :—

I think it quite possible that all who wish to take part in the rearing and shipping of poultry to Great Britain will be both interested and benefited by our experience here in fattening poultry.

Our greatest difficulty has been the finding of suitable chickens.

If the farmers of Canada wish to take hold of this new industry successfully, they must raise a better class of fowls, and give them better care ; especially is this necessary here in the Eastern Townships, as we are very far behind Ontario in this respect.

In buying chickens for fattening, I did not find one farmer in ten with really suitable chickens.

Most of them had lots of chickens of the small breeds, mongrels, and so forth, which they were quite anxious to sell, as they said they did not care for chicken themselves.

Quite evident why they did not, as any chickens which they had, would, when cooked, be composed mostly of bone and gristle, with a little dry, dark meat. How I should like them to try one of our fattened Plymouth Rock chickens. I think they would change their minds.

When I found a farmer who had good Plymouth Rocks, Wyandotte, or Bramahs, I often found it quite hard to buy them, as the owner would say, with a very suggestive smile. "Oh ! we don't care to sell them. We like chicken, I have a good home market for them."

I think, on the whole, Plymouth Rocks are the better variety, with a preference for the barred.

What few Wyandottes we had were quite equal to the Plymouths, but we did not find them at all plentiful. We also found some very fine chickens of both light and dark Bramahs.

Anyone in selecting one breed cannot do better than to try the Plymouth Rocks, unless their fancy leads them to one of the other breeds mentioned.

The chicks should be well fed from the first, giving them all they will eat up clean. Do not

be afraid of their consuming more than they will bring at the market price, as they cannot do it.

I made a perfectly accurate trial, this year, with 28 Plymouth-Rock chicks, keeping account of all food consumed, from the time they were hatched till they were placed in the coops to be fattened. I found, when weighed that they had had cost in food consumed 4c per lb, and at the market price of 6c per lb, left 2c per lb profit.

This plainly shows that the net profit depends only upon the amount handled.

When we can purchase plenty of the right sort of chickens, we'll care for and fed without stint from the time of hatching till they are placed in the coops, then the fattening of chickens which will satisfy the British market will be made comparatively easy.

Yours truly,

A. P. HILLHOUSE,

(Manager of Bondville Poultry Station).

The Horse.**LAMENESS IN HORSES.**

The following, from a correspondent of the *London Farmer and Stockbreeder*, is worthy of consideration :

Among the causes of lameness are weak conformation of bones, muscles, etc., tissues being too frail to stand the strain ; the fetlock may be too long, causing an extra strain on the tendons ; the hock may be too angular, predisposing the animal to curb, or to straight up and down, predisposing to spavin ; the hoof may show too high a heel, favoring contraction ; or too low a heel, favoring corns, puncture, bruises, inferior shoeing—that is, fitting a shoe while too hot ; having the shoe press upon the sole instead of the walls ; overtaxing muscles, tendons, and ligaments by pulling a heavy load over rough and muddy roads ; constant jerking and blows from the wagon pole and harness—all these are causes of lameness.

How to discover when a horse is lame or where he is lame is not so easy a matter as some may imagine. It is best to observe the animal first standing. If the horse points persistently—that is, places the foot in front of the normal position—the lameness is very apt to be below the fetlock. If the knee is affected it is often kept in a bent condition, while in shoulder and fetlock

lameness the toe generally rests upon the ground. After examining the horse standing, allow him to go in a slow trot to and from the observer, holding the halter strap about a foot and a half from the head. Watch carefully the animal's head and ears while he is trotting toward you. He will attempt to protect the lame leg by throwing the most of his weight on the sound one, and if the lameness is in front will nod his head when the weight is thrown upon the sound one. When the animal trots away from you, if the lameness is behind, he will attempt to protect the lame leg by throwing his weight heavier on the sound one.

Having determined which leg is lame, the next thing is to locate the seat of the lameness. If there is any doubt about whether the animal is using its legs properly, take a sound animal and trot it up and down, and compare its actions with those of the lame one. Shoulder lameness is evident by limited action of the entire shoulder. The animal seems anxious to keep stationary, and in bringing the leg forward does so by an outward swinging motion. The horse that is knee-lame aims to keep the knee as stiff as possible, and in moving the leg forward bring the shoulder muscles into play. The leg is advanced in a dragging manner, the toe is hardly leaving the ground, and the leg is bent as little as possible.

Fetlock lameness is manifested by a short, jerky step, the animal stepping on the toe or often hopping on three legs. Lameness caused by sore or enlarged tendons is similar to shoulder lameness, and is best examined with the animal at rest, as then the swelling, heat or pain is generally detected along the course of these parts.

It is more difficult to diagnose foot lameness. The best thing is to pick up the foot and tap it lightly with a hammer and notice the flinching when the sore spot is touched. If the animal is nervous it will require great care to distinguish between the actual pain and the nervousness.

Hip lameness is known by a peculiar hopping gait. The animal while trotting turns the hock of the lame leg in and stifle out.

Stifle lameness shows itself by the difficulty the animal experiences in elevating this part and bringing it forward, which is usually done in a dragging fashion. The stifled animal either has the lame leg stretched out behind or stands firmly on the sole. In the first case he cannot back, and in the latter he cannot move the lame leg forward.

DAVID HARUM'S REMEDY FOR A BALKY HORSE.

"The next day I hitched the new one to th' dem'crat wagin an' put in a lot of straps an' rope an' started off for the East road agin. He went fust rate till we come to about the place where we had the fust trouble, an' sure enough he balked agin. I leaned over and hit him a smart cut on the off shoulder, but he only humped a little, an' never lifted a foot. I hit him another lick, with the self-same result. Then I got down an' I strapped that animal so 't he couldn't move nothing but his head an' tail, an' got back into the buggy. Wa'al, by'r'n by, it may 'a' ben ten minutes, or it may 'a' ben more or less—it's slow work settin' still behind a balkin' hoss—he was ready to go on his own account, but he couldn't budge. He kind o' looked around, and much as to say. 'What on earth's the matter?' an' then he tried another move, an' then another, but no go. Then I got down an' took the hobbles off an' then climbed back into the buggy, an' says 'Cluck' to him, an' off he stepped as clipper as could be, and we went joggin' along all right mebbe two mile, a' when I slowed up, up he come agin. I give him another clip in the same place on the shoulder, an' got down an' tied him up agin, and the same thing happened as before, on'y it didn't take him quite so long to make up his mind about startin', an' we went some further without a hitch. But I had to go through the pofformance the third time before he got it into his head that if he didn't go when I wanted, he couldn't go when he wanted, an' that didn't suit him; an' when he felt the whip on his shoulder it meant bus'nis."

"Was that the end of his balkin'?" asked Mrs. Bixbee.

"I had to give one more go round," said David, "an' after that I didn't have no more trouble with him. He showed symptoms at times, but a touch of the whip on his shoulder alwus fetched him. I alwus carried them straps, though, till the last two or three times."



Swine.

PRICES FOR BACON HOGS.

Toronto Market unsatisfactory—Drover do better at Buffalo.

To the Editor of FARMING :

I have read several articles at different times in your valuable farming paper on the hog market, giving a great deal of advice to farmers on producing hogs, which I think is not necessary, as the farmers are well up to their business. They were advised that they could not over-stock the English market with Canadian bacon, as it sold so much better than the American. What are the farmers getting now? Why, the past year hogs in Buffalo have been selling higher than in Toronto. Those that are culled in Toronto are in Buffalo only a few cents per cwt. under the best. The fact is, four dollars per cwt. in Buffalo is as good as \$4.50 in Toronto, because of the way they are culled. In Buffalo hogs are always fed and watered in large closed-in buildings, as comfortable as the pen they left at home. How is it in Toronto? Why, they are left in the car freezing all night in winter, and crowding and suffocating each other in summer. It is really cruelty to animals. All other animals are unloaded and fed. Why should hogs not be? Just because the packers will it so. There is just one buyer in Toronto for hogs, and if a drover should feed his hogs it would be the worse for him.

There should be a law that all animals should be fed on arrival at the market. They certainly require it after the unmerciful pounding they get in the car, caused by the air-brakes now used or *misused*. There is no knowing how long the hogs have been on the way. There is another injustice. Some drovers travel 100 to 150 miles, others 10 or 20 miles. Some hogs will be over 30 hours and some three or four hours off feed, but both have to accept the same price, while if they were all fed it would make them equal. As to the remarks on the deterioration of the Canadian hog in your last paper, why, you should not print such stuff.

I have had a long experience in the matter, and say that there has been more improvement in Canadian hogs than any other animals. Think of the grand show of hogs in Toronto last fall.

It could not be beaten in America. I know that farmers feed and attend better than ever before. Many have built splendid pig pens. Years ago, any pen was thought good enough. If Canadian hogs are soft, why all the hogs in Buffalo are so't also; but they fetch more money. Besides, the Americans send three hogs to England to Canada's one.

A farmer said to me a few days ago: "We shall have to say good-bye to the hog, as the average farmer cannot produce them at less than \$4.50 per cwt." Though scientific gentlemen write that they can produce them for \$2.50, it is only on paper. If it could be done for that no other animals would be raised on the farm.

FARMER AND DROVER.

SUPERIOR CANADIAN BACON.

A member of a leading provision firm of London, England, has the following to say of Canadian bacon :

"Your Canadian bacon is, owing to its superior quality, taking a high place in the British market. It is, for instance, being used largely in the west of London and fetches a better price by a about 30 per cent. than the United States product."

Asked as to what he attributed its superiority, he promptly replied: "To better feeding and a better selection of hogs. United States pork is chiefly corn fed, yielding an oilier bacon, while the Canadian product is firm and sweet, and much leaner, owing to its being fed on the coarse grains of the country. What you are going up against is the Danish and Irish bacon, and, as I believe, putting both out of the market. In fact, I think that in from three to five years you will see the Canadian hog-industry vastly increased beyond its present extent.

We in England were somewhat afraid lest the abolition of the duty on corn should lead to the feeding of Canadian hogs on that grain, thus deteriorating its quality. But, fortunately, the farmers of Canada have had sense enough to stick to the native coarse grains. When the Canadian farmer takes to feeding his hogs on corn he will find that the price which Canadian Bacon will fetch in London will be regulated simply by the competition of the American hog product."

