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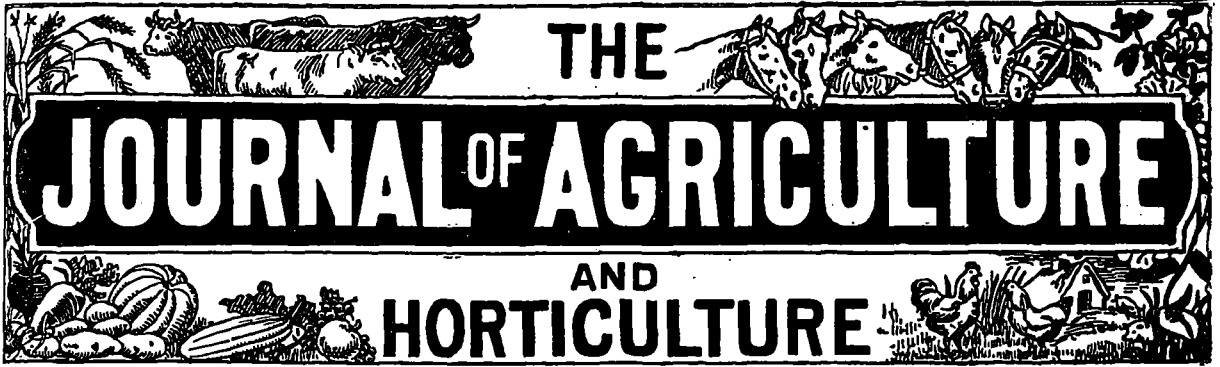
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**VOL. 4. No. 19**

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

**APRIL 1st, 1901**

**THE  
Journal of Agriculture and Horticulture**

**The Farm.**

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 etc. All matters relating to the reading columns of the Journal must be addressed to Arthur R. Jéanet 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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"Milk."—We have just received, from Mr. Macfarlane, the Official Analyst for the Dominion, the seventy-first bulletin of the Laboratory of the Inland Revenue Department.

The report deals with milk, 131 samples of which, from Nova-Scotia, New-Brunswick, Quebec, Ontario, and Manitoba, have been analysed in the laboratory, and, upon the whole, their purity and richness in constituents, together with the total absence of chemical preservatives, reflect credit on their producers.

The milk from the five towns in our own province, Three-Rivers, Sherbrooke, Magog, Lévis, and St-Hyacinthe, comes out very well; that from Three-Rivers shows of butter-fat no sample under 3.60 per cent; while 4 per cent, 4.60 per cent, etc., are quite common. Two samples from this town shows the large percentages of 14.10 and 14.22 of total solids, while all are labelled "Genuine" and free from preservatives, such as borax, formaldehyde, etc.

One sample from Sherbrooke, is noted as having been watered. It was low in butter-fat and other solids, only containing 7.68 per cent of the latter; the remaining samples were all genuine, fair representatives of pure milk, and utterly free from preservatives.

Best of all was the milk from St-Hyacinthe; all the samples are marked genu-

ine, free from preservatives, and the quality was so good that we cannot resist the pleasure of giving their analyses, as far as regards the principal features, in full :

Butter-fat.	Other solids.	Total solids.
5.11	8.41	14.34
4.70	8.77	14.09
4.42	7.93	13.15
3.98	8.35	12.99
5.12	8.26	14.21
4.70	8.65	13.99
5.06	8.21	14.00
5.01	8.01	13.62
4.23	8.21	13.24
4.07	8.33	13.05
4.70	7.71	13.18
4.48	7.25	12.54
4.90	8.50	14.19
4.71	8.27	13.66
4.67	8.21	13.59

"Free-Martins."—A Holstein cow belonging to Matthew Gunson, at 362 Lansdowne avenue, Westmount, presented her owner last Monday with a pair of calves, a bull and a heifer, almost exactly alike in color and markings. These calves are of fair size, being larger than many of the "bobs" which are sold for veal at the East End abattoir. Twin calves are rather of rare occurrence, and seldom of opposite sexes. In such cases the heifer calf is called a Free Martin, and, if raised to maturity, will not breed.—"Witness."

We have bred one lot of twin calves, and, as one was a bull and the other a cow-calf, we did not keep the latter for breeding, as the odds are that the "free-martin" is barren. Still, we have known instances in which in twins, heifer and bull, the heifer has proved fertile; so, if they are the progeny of anything very rare in the cow line, we should be mightily inclined to try the heifer two or three times before fattening her for the butcher.

#### ABOUT CROWS.

(To the Editor of the "Witness.")

Sir,—In your issue of to-day I notice the following under the heading "Preparing for spring": "Another sign of spring

follows the arrival of the first crow on Mount Royal, etc." May I inform you that I have seen a number of these birds on Mount Royal all winter, they having lived, no doubt, on garbage, etc.; in fact, there is a field back in the Lachine woods where farmers place dead cattle and horses, and the cows congregate there by the hundreds, residing in the vicinity the whole winter season. These birds are practically scavengers. I do not think the crow is a harbinger of spring.

W. J. BROWN.

Westmount, March 13, 1901.

We remember, some years ago,—fortunately, we have just found the reference—remarking in the "Journal" (v. p. 55, April, 1889) that "crows do winter in the Island of Montreal." We have had them in the bush, on the crest of the hill, behind the new station at Lachine, all the winter." And a few days afterwards we were told, by a highly instructed ornithologist, that crows never wintered here, but that they left for the South at the arrival of the first severe cold; returned hither, some of them, when a break occurred and a mild wind blew; went back again on the occurrence of cold, and so went backwards and forwards according to the changes of the thermometer and anemometer. All which our ornithological friend most devoutly believed!

Besides our own unbiassed conviction that crows "do" stay hereabouts all the winter, our amiable friends, the police, on beats in the Western part of the city, are good enough to be on the look-out for us in the early mornings and at sunset; they all, without exception, agree with our own view of this question. What needs there then any further question.

"Artificial fertilisation."—This process was known to the ancients; the palm was the most valuable object of culture in the plains of the Euphrates, and was honoured as a sacred tree. It is inferred, from statuary, and hieroglyphics, that have been discovered, that the process of artificially

fertilizing was regarded as a divine art, akin to the genial winds of summer, which scatter the male blossoms over the female, and thus make them fruitful.

GEO. MOORE.

Mr. Moore uses the word fertilisation, to express the process by which the "pollen" of a plant renders the "ovule" fertile, and this is the only legitimate meaning of the word in botany. It cannot be right to employ the phrase "to fertilise a field" as equivalent to "to manure a field," as the writers in our American papers so often do.

"Potatoes" are pretty high-priced in England just now. British Queens are worth, in our money, \$24.00 a gross ton; Up-to-dates, sell as high as \$26.00, in the Borough and Stratford (London suburbs) markets, while in the more central market of Covent Garden, they sell freely for \$28.00, a price we have not observed for many a long year. Here they are worth \$11.25!

"Mutton" sells well in England these days. Sixty-four pound Scotch and Down sheep fetch \$1.44 a stone of 8 lbs., sinking the offal. Big 96 lb. Lincolns sell for \$1.27.

"Scotch-beasts" at the Islington (London) market, are worth six cents a stone less than they were a twelve month ago—\$1.07 a stone. Fat cows are worth \$0.79.

No demand for "pigs," best small breeds sell for \$1.07 a stone.

Note.—Please observe that all animals at the London markets are sold "by the hand," as it is called. The offal is the skin, head, fat, etc.

"Milk-cows" are dear in London. Best cows fetch as high as \$112.00 a head. These are not Jerseys, but big honest "dairy-shorthorns."

"Grain-prices."—Somehow or other, wheat sticks at or about 28s. a quarter in London (84 cents a bushel):

GRAIN TRADE STATISTICS.

QUANTITIES SOLD AND AVERAGES.

For the week ended March 2nd, 1901.

	Quantities Sold.		Averages.	
	Qrs.	Averages.	Qrs.	Averages.
Wheat.....	68,224	28s. 11d.		
Barley.....	52,600½	26s. 0d.		
Oats.....	21,858½	17s. 9d.		

QUANTITIES SOLD AND COMPARATIVE AVERAGES.

For the week ended March 2nd, 1901. and corresponding week in the four preceding years.

Year.	WHEAT.		BARLEY.		OATS.	
	Qrs.	s. d.	Qrs.	s. d.	Qrs.	s. d.
1897...	47,981½	28 3	33,147½	23 0	14,093	16 3
1898...	52,833½	35 10	44,953½	22 0	17,259½	17 11
1899...	78,143½	25 8	58,718½	26 7	23,534½	17 0
1900...	68,153½	26 4	51,727½	24 6	18,949½	16 10
1901...	68,224	25 11	52,600½	25 0	21,858½	17 9

—P. G. Craigie, Board of Agriculture, March 2nd, 1901.

LONDON AVERAGES

For the week ended February 26th, 1901.

	Quantities Sold.		Averages.	
	Qrs.	Averages.	Qrs.	Averages.
Wheat.....	1,389½	26s. 8d.		
Barley.....	100½	23s. 9d.		
Oats.....	1,513	18s. 4d.		

—R. Henry Rew, Inspector of Corn Returns.

FLUCTUATIONS IN THE AVERAGE PRICE OF WHEAT.

PRICE.	Jan. 19.	Jan. 26.	Feb. 2.	Feb. 9.	Feb. 16.	Feb. 23.	Mar. 2.
26s 11d...							
26s 10d...							
26s 8d...							
26s 7d...							
26s 4d...							
26s 3d...							
25s 11d...							

"Feeding fat into milk."—Here we are again on the old much disputed question: Can milk be made richer in butter-fat by certain foods? The writer of the subjoined article clearly thinks that it can, as do most practical dairymen. In spite of the extra dose of parsnips, the cows showed that they needed the cake to do their best:

FOOD INFLUENCING QUALITY OF CREAM.

From time to time letters or articles appear in the "Agricultural Gazette" and elsewhere on the question of feed influencing the quality of cream, which are of great interest to dairy farmers, and I think possibly some of your readers may be interested in my experience. A few weeks ago I ran out of decorticated cotton cake, and owing to the dock strike was for about a fortnight without any. During

that time my man gave extra parsnips to make up for the loss of cake.

The following figures, taken from my butter return, tell their own tale :

1901.—Week ending.	Quarts of cream.	Lbs. of butter.
January 17th .....	126 .....	118·7
“ 24th .....	120 .....	119·6
“ 31st .....	115 } No cake. {	105·9
February 7th .....	114 } .....	102·13
“ 14th .....	117 } .....	113·14
“ 21st .....	117 } .....	117·1

Crawley Down, Sussex. C.

“Basic Slag.”—Mr. Parlour, the writer of the annexed letter, is a well-known English farmer. His warning is worthy of attention.

“In many parts of the country basic slag is exceedingly popular. At the same time its action, to say the least of it, is very erratic. I have never myself been able to accept the theory that “it does not suit some soils,” and Mr. Lloyd’s article offers a probable explanation of its occasional want of success. If, as some of the German chemists assert, the phosphoric acid it contains is “entirely worthless” unless it is soluble in a citrate solution, and some samples contain a large percentage of phosphoric acid that is not soluble in a citrate solution, how is it that hitherto we have known nothing about it? As a manure, basic slag has been on the market long enough for some chemist to have discovered this and made it public.

Now that the subject has been ventilated, it is to be trusted that the theory advanced will be thoroughly tested to find out whether or not it is tenable. And if it turns out to be correct, the form of guarantee given with purchases of basic slag should be speedily altered. Under any circumstances thanks are due to Mr. Lloyd for his article.

WILLIAM PARLOUR.  
“Ag. Gazette.”

“Tobacco.”—Another trial of tobacco-growing in Ireland was carried out last year (1900). Of course, tobacco can be grown in that lovely, fertile island, but judging from the experimental crops grown

in Southern England, by Mr. Faunce de Laune and others, we fear that the prospects of profit to the growers in Ireland of that blessed plant are not brilliant.

“Red-clover.”—Prof. Shutt is reported, in the “Star,” as having advised, at the Cowansville meeting, that red-clover should be sown every fourth year. Professor Wrightson, Principal of the Downton (Eng.) College of Agriculture, says, in his last weekly article in the “Agricultural Gazette” :

“Red-clover should not be sown too often—about once in eight years. On strong soils it is the best of all the clovers, when not sown too frequently.”

The late Sir John B. Lawes held the same opinion, and the large farmers of the Eastern counties of England, whose fathers suffered enormous losses from the failure of the clover-crop, have not forgotten that costly lesson.

“White-clover.”—Why does white clover spring up spontaneously in places where it never was sown? Because some food that it requires to support life has, either expressly or accidentally, been supplied to the land on which it appears. Scatter a dressing of basic slag, or any other phosphatic manure on a piece of land, previously devoid of the plant, and you will soon see the effects of the application. Of course, either the seed or the roots of the white-clover were really pre-existent in the soil, and all they needed to start into life was the food you exhibited.

The “London Shire-horse” show.—A most successful exhibition. At the sale, held after the show, Fuchsia, a 5-year-old bay mare, sold for \$3,000.00, and the second prize “gelding” fetched the marvellous price of \$500.00! (1)

“Clover-hay” in London is very high; the best lots sell for 102s. a gross ton,

(1) The German botanist, from whom the flower derives its name, was *Fuchs*. Ed.

equal to about \$22.00 per 2,000 lbs. Meadow-hay of superior quality is worth within \$1.20 cents as much as the best clover-hay, a most unusual thing, as the difference is generally about a pound a ton in favour of clover.

**COMPETITION OF AGRICULTURAL MERIT.**

Glad to see that our good friend, Mr. Boden, Mr. Reford's Manager, led the field in the above competition; at least as far as the silver-medal goes. Next time round,

COMPETITORS FOR THE GOLD-MEDAL.

No.	NAMES	RESIDENCE	Marks.
1	W. W. Ogilvie.....	Rapides de Lachine	98.45
2	John Nesbitt.....	Petite Côte, H.....	91.50
3	J. A. Chauret.....	Ste-Gen. viève, J-C	89.25
4	Damien Pilon.....	St Benoit, D.-M.....	87.25
5	Séminai St Thérèse	Ste-Thérèse.....	85.75
6	Ovide Valiquette...	Terrebonne.....	85.50

he will doubtless make a good fight for the gold-medal.

**ON SOWING CERTAIN FORAGE-CROP SEEDS.**

Sainfoin.—When possible it is always advisable to drill sainfoin seed rather than to broadcast it, because the seeds are thus sown at a uniform depth, and their germination is consequently much more regular. When dry weather follows broadcasting it frequently happens that a large proportion of the seed is not covered sufficiently thickly with soil, and that the pod remains too hard for the seedling to pierce it. This is really the reason why milled seed is preferable to the seed in the husk or pod. The process of milling or removing the shells is an exceedingly difficult one, so that milled seed is not always obtainable. Sainfoin is usually sown alone, as it does not do well in conjunction with other forage crops. The soil must be tolerably clean and well prepared if good results are to be obtained. Autumn sowing is by no means safe, the best time being from the end of March until the beginning of May. English farmers gener-

COMPETITION OF AGRICULTURAL MERIT.

COMPETITORS FOR THE SILVER MEDAL.

No.	New	Former	NAMES.	RESIDENCE.	Marks given.	H. G. M SILVER-MEDAL.	G. M. BRONZE-MEDAL.	M DIPLOMA
1	1	.....	Robt. Reford.....	Ste-Anne de Bellevue...	98 10	1	.....	.....
2	1	.....	Benj Bertrand.....	St-Hermas D. M.....	85.25	1	.....	.....
3	.....	1	Horm. Hotte.....	St-Martin, L.....	85.15	1	.....	.....
4	1	.....	J. O. Levac.....	Pontchâteau, S.....	85.15	1	.....	.....
5	1	.....	Nap. Huot.....	St-Canut, D. M.....	85.05	1	.....	.....
6	1	.....	Adolp. Ouimette.....	St-Frs. de Sales L.....	83.00	.....	1	.....
7	1	.....	A'ph. Angrignon.....	St-Benoit, D. M.....	77.15	.....	1	.....
8	1	.....	Mathias Ménard.....	Ste-Marguerite, T.....	76.30	.....	1	.....
9	.....	1	Walter Smith.....	St-Jérusalem.....	75.85	.....	1	.....
10	1	.....	Jos. Maille.....	Ste-Marguerite, T.....	75.35	.....	1	.....
11	1	.....	Lamb. Beauchamp.....	ibid.	75.00	.....	1	.....
12	1	.....	Peter Scheffer.....	ibid.	72.00	.....	.....	1
13	1	.....	Ovide Charrette.....	ibid.	71.90	.....	.....	1
14	1	.....	Raoul Charrette.....	ibid.	71.10	.....	.....	1
15	1	.....	Orphyr Lalonde.....	Rigaud, V.....	69.65	.....	.....	1
16	1	.....	Jos Brisebois.....	Ste-Marguerite, T.....	68.70	.....	.....	1
17	1	.....	John Pearce.....	ibid.	67.25	.....	.....	1
18	1	.....	Emery Laforest.....	ibid.	53.05	.....	.....	.....
	16	2				5	6	6

ally sow with a protective crop, but in our opinion it is economical to sow without a cereal, or at most with one that will be cut in a green state for fodder, as the young sainfoin plants are easily crowded and shaded out of existence in the case of a heavy protective crop, especially when the corn is laid by bad weather, as will sometimes happen. Stabler states that sainfoin and lucerne, when sown with red clover, are said to prevent the outbreak of dodder, but we should not care to trust to this assertion, and neither do we think that sainfoin is suitable for mixing with any other fodder plant whatever.

Lucerne.—On the proper preparation of the soil largely depends the success of sowings of lucerne. To ensure good crops the soil must be clean, friable, and deeply tilled. For this reason lucerne is usually sown after a root crop, which leaves the ground in very good condition under ordinary circumstances. When the roots are off the ground the subsoil plough is thoroughly used if available. In default some farmers make a practice of turning up the land in furrows and then passing the plough along the bottom of the furrows to stir the subsoil as deeply as possible. Unless proper preparation is carried out it is really useless to sow the seed if the ground be inclined to be at all close or stiff. A deep and permeable subsoil is an absolute essential. Towards the end of April and in the early part of May is the best time to get seed in. Earlier sowing may result in loss from a late frost, while later sowings are already exposed to some risks from insect and drought injury. Just at the time specified the weather is usually mild, and the soil still contains an ample supply of water to ensure rapid germination and growth. We have known sowings made so late as the early part of September do well in warm localities in the South of England, but we should hesitate to recommend such late seeding, as the young plants might be destroyed in winter. Weeds are the great enemy of lucerne, for they soon eliminate it from land infested with them. Hence has arisen the

custom of sowing in drills, so as to permit of weeding when necessary. In dry times a protective crop is probably beneficial, but under ordinary circumstances it is as well to sow lucerne without any cereal, since it makes quick growth, and soon covers the surface of the land with herbage. Very thinly sown summer barley or wheat is the protective crop probably best suited to the lucerne, and we would lay special emphasis on the necessity of thin sowing, for a heavy seeding would do as much harm to the lucerne plant as would a heavy crop of weeds. It sometimes occurs that the plant is permanently injured by anxiety for the protective crop to be a good one, though the lucerne ought to be regarded as considerably the more important of the two if one has to be in any degree sacrificed. The seed can, of course be broadcast if preferred, and on stiff or heavy soils it is merely rolled in with a ribbed roller, while on lighter land it is first covered with a stroke of a light harrow. Pure sowings are better than mixtures, as, no matter what plant be sown with lucerne, it is apt to injure the growth of lucerne by crowding and cramping it.

Alsike Clover.—This clover is not adapted for sowing alone for the reason that better results are obtained when it is mixed with other plants. It is particularly adapted for sowing on heavy lands, and is well suited for seeding with timothy and red clover, the former of which thrives best in stiffish soils. If sown alone alsike would become laid in the ordinary course of events, so that the grass is a necessity to prevent injury. It may be mentioned that the prejudice felt against this useful clover in some districts is quite unfounded, the diseases of stock which have been attributed to it being traced by Werner to the presence of *trifolium elegans*.



### CANADIAN FARM PRODUCTS IN BRITAIN.

Prof. R. L. Drummond, who occupies the chair of dairying science in the West of Scotland Agricultural College at Glasgow, officiated as a judge at the recent annual show of the British Dairy Farmers' Association at Agricultural Hall, Islington. Prof. Drummond is a Canadian by birth. He spent several years in the dairying business in New York State. He compares the methods of American and British dairymen, with distinct discredit to the former, and claims that unless the Americans "get a move on them" they will be completely defeated in the contest for international business.

"Canadian dairymen," said Prof. Drummond, "are beating their competitors because of their keener devotion to scientific methods and to the art of securing trade. Canada has a wide-awake dairy commissioner. He is a Scotchman named James Robertson. He makes frequent trips to Great Britain and carefully notes what is taking the public eye in the line of butter and cheese. He discovers that a certain fashion or cast of butter-cake is popular and immediately instructs Canadian dairymen accordingly. He finds that cheese packed in a certain way sells readily and hastens to impart that information for the benefit of his constituents. This system of keeping in touch with British tastes cuts a big figure annually in the matter of Canada's dairy exports.

"Nor does the Canadian government's interest in Canadian dairying and agriculture stop here. It goes to the extent of providing a well-organized cold-storage and transportation system by means of which fresh meats, poultry, eggs, dairy products, fruit and other perishable articles may be shipped from Canada to Great Britain without the slightest damage. I have recently eaten peaches in this country that were as fresh and sweet as if they had just been plucked, and yet they were grown on the other side of the Atlantic. Last year sample shipments of Canadian

grapes were sent to Great Britain. So good did they prove that a large consignment has been shipped this year. This means that hereafter the Canadian vineyards will vie with those of Spain in the best market of the world.

"I cannot compliment the vigor of the department of agriculture at Washington. It does not strive aggressively to raise American agriculture to a high standard of advancement. This is due, I presume, to the fact that American farmers, and therefore those who represent their interests, have not yet felt the pinch of severe competition. When the agriculturist of the United States knows the true value of an acre of ground—knows it as the English farmer has been compelled to find it out—he will look back upon his present unscientific and wasteful methods with amazement. He ought to get three times as much out of his land as he does. His difficulty is that he does not know what constituents he is taking out of the ground and consequently cannot understand how to replace them. His acres lose more or less steadily in productiveness, often passing into comparative sterility.

"Canadian farmers are not thus negligent. By some happy chance they have been stirred up. Their awakening, however, has taken place within the last ten years. They have been aroused principally by the government. They are building agricultural schools and attempting to take a broad survey of their calling and its possibilities. The influence of the new movement reaches to Manitoba and the Northwest Territories of the Dominion. It is going to cause the wild lands of Canada to be populated and to blossom into a rich field for the Canadian manufacturer and merchant. If America's farmers were wise they would study and travel and diffuse their knowledge. The fact that a farmer's acres are broad should not cause him to be slothful. On the contrary, it should encourage him to give time and money to the education and elevation of the class to which he belongs."

The foregoing little sermon is well worth



special note, none the less because it is gratifying to Canadian ears. And Prof. Drummond's remarks are not overdone. Canadian farmers' sales to Great Britain have increased since Confederation, thirty-three years ago, from four and a half million dollars to seventy millions. Fifty million dollars of the increase has been in the last ten years; thirty millions' increase has been in the last five. Such a growth in so short a time would be impossible without beating somebody else out of the British market to a considerable extent.

Since Confederation our farmers' sales to the United States have decreased from fifteen millions to five millions, although their population has doubled. Where is our best market?

"Ottawa Journal."

#### LUCERNE.

For the benefit of his brother farmers we might give Mr. Arkell's experience with lucerne, in the growing of which he has been very successful, only having lost it through frost one winter. He has found that it has given a large quantity of hay on which his sheep do wonderfully well, but last summer, for the first time in several years, he lost several from bloating on lucerne pasture. So we see it is necessary to use considerable caution in turning flocks out on it.

#### SPRAYING.

The demonstration of spraying for the destruction of charlock under the auspices of the Bedfordshire Chamber of Agriculture was carried out under the direction of Mr. G. F. Strawson, of London (the inventor of the apparatus), and Mr. H. Trustram Eve, of Bedford (Secretary of the Chamber), on the Grange Park, Limbury, occupied by Mr. B. Hartop. There was a large attendance of farmers and others, thus showing the need for such a machine and the interest taken in Mr. Strawson's experiments. The method of charlock destruction demonstrated was

that of spraying the crops with a solution of sulphate of copper by means of Mr. Strawson's implements, some of the land having been previously sprayed. The demonstrations were very successful, the two machines shown working excellently. The evenness and fineness of the spray and smoothness of working left little to be desired. Mr. Strawson and Mr. Eve explained the operations. Mr. Davis (of Pirton) spoke highly of the effect of the charlock sprayer used on his farm. Last year, he said, he used 40 or 50 gallons to the acre, which was enough to quite kill the charlock. It was done on oats and did not hurt them; indeed, they were much better where sprayed than where not sprayed. Mr. H. Cumberland moved a vote of thanks to Mr. Strawson. He had been, he said, very sceptical as to whether charlock could be destroyed in this manner, but after the evidence they had had on those plots it was evident there was something in it. He was satisfied there was much good to be derived from the process. Charlock, however, was not so plentiful this year as usual, and therefore they could not have so complete a demonstration as they wanted to give. Mr. Strawson, in response, said he thought if the sprayers were taken up they would prove of enormous benefit to agriculture. In some places where they had been used thousands of acres had received enormous immediate benefit, and this year the area sprayed was largely increased because of the beneficial experience of last year. Votes of thanks to Mr. Hartop and Mr. Eve were also accorded. Mr. Eve, in reply, said this invention had come at a time when it was much needed, there being a great scarcity of labour, so much of which was required for the old method of hoeing to get rid of the charlock.

#### BURNING WEEDS.

I have referred to weed burning, and the question is sometimes asked if the proceeding is scientific. It is not making the

most of weedy herbage, it is true, but no more rapid way exists of getting rid of such rubbish. It is quick and efficient, and the ashes are no doubt useful manure for root crops. The weak point in burning weeds is the dissipation of organic nitrogen, which is inseparable from the process. As for the carbon, it is of comparatively little importance, and can soon be again collected from the atmosphere by growing turnips or rape. The loss of nitrogen due to burning is a fact to be reckoned with, and probably it would be a better plan to cart off weeds and convert them into compost heaps for future use. After all it resolves itself into a question of labour, for in a busy season horses can badly be spared to carry couch off land. Burning is then resorted to, and the ashes are spread or saved for drilling. There ought to be no weeds and no ashes, and happy is the farmer who can boast, as I heard one do a few days ago, that he found it difficult to raise enough ashes on his farm to supply his drill. We are not all so lucky. Each rotation as it comes round finds some foul spot which requires couching and burning. It is to some extent in the nature of a rotation in which clover finds a place, for there is but little opportunity for cleaning between the cultivation of the root crops. Barley is quickly drilled upon the root fold, and clover holds the position until the field is ploughed up for wheat. During this more than three years' interval couch roots must spread, so that a wheat stubble is almost naturally foul. If this undesirable relapse can be avoided, I should be glad to know how. It may be possible on strong land, but hardly upon light soils subjected to catch cropping, where couch runs freely.

### **SOME NOXIOUS WEEDS.**

In order to get rid of our noxious weeds, cultivation should not only be practised in the fall but also in the spring. Fall cultivation is a sovereign remedy chiefly against the annuals (and couch-grass. Ed.), those

weeds which complete their growth and ripen their seeds in the course of one season, such as mustard; but in the fight against perennials, and especially against the Canada thistle, which adorns so many of our fields, it is not sufficient. The Canada thistle stores in its long bulbous root the food gathered by its leaves from the atmosphere to provide for the growth of another shoot the next year, or the same year, should the first be destroyed. The shoots will continue to appear as long as there is food left in the root. Therefore, the only successful way to fight Canadian thistles is to stimulate the growth of shoots from the roots and cutting off these shoots before they have acquired the power to assimilate food in the atmosphere. This operation should be repeated until the store of food contained in the root is completely exhausted. Time does not permit one to attain this aim in the fall. Hence the Canada thistle may be injured but not killed by fall-cultivation.

It has long been a prevailing idea that the Canada thistle should be cut when in full bloom, before the seeds are formed, in order to insure its destruction. It was asserted that one cutting at that time would suffice; that the rain water getting into the hollow stalks would cause the rotting of the roots. In practice, however, this method has proved a complete failure, and that for the very simple reason that the thistle has, at the time of full bloom, already stored food enough in its root to provide for another, if not for several other vigorous growths. The best method, put in practice and recommended by the most successful farmers of Ontario, is as follows: Begin cutting the thistles as early as possible in the spring with a broad-share cultivator. For every shoot that has been cut it is probable that several will spring from the root. When these have reached a height of three inches, or about two weeks after, and as soon as the first few leaves are appearing, they should again be cut off, about two inches below the surface. This operation should be repeated until the root has no longer the power to give out

any more shoots, that is to say, when its store of nutriment is completely exhausted. The plant is then, once for all, killed. When the thistles have already been weakened by fall cultivation, it will require but little time in the spring to destroy them completely.

Another weed also, upon the destruction of which there is a great diversity of opinion, is the Bind-weed, or Morning-glory, (*Convolvulus Arvensis*). All agree, however, in saying that it is one of the most troublesome, if not the most troublesome, of all our weeds. It has been stated that it can be killed by a succession of root-crops, well cared for; but, according to the best practical farmers, it can only be destroyed by a bare summer-fallow, keeping the broad-share cultivator running every six or seven days during the greater part of the summer. If this work is carefully carried out, the bind weed may have disappeared by the month of August, when rape can be sown for a fall pasture. Bind-weed cannot be destroyed in a root-crop for the reason that its stem entwined around other plants is often unnoticed by the most careful hoer. There is also little chance of smothering it, for it will grow through the thickest covering of manure, or will get ahead of any supposed smothering crop. Summer-cultivation is the only successful remedy.

C. M.

### POPULAR TEACHING.

In reading each succeeding issue of the "Journal of Agriculture," I wonder more and more why its pages are not made more use of by farmers, and those interested in Agriculture, for the purpose of asking questions in regard to things upon which guidance might be useful. These questions would not of necessity be answered by anyone of the staff of the paper but rather by readers who by personal experience could speak with the authority of that experience. Is it that the farmers never meet with a case with which they cannot cope, or is it that they do not care to ventilate

their woes, or difficulties? One can hardly pick up an English agricultural paper, without finding a question, asked in one issue, and answered three or four deep in the following one.

Now the question arises "Who at a crisis, will prove to be an effective, because an acceptable teacher?"

Let us suppose a person whose affairs can be seen to be in bad shape. He feels sure that all that is wanted to put things right is a little more information, and he proceeds to try and get this; and he speedily finds that he is confronted with the difficulty that, whilst he acknowledges, and even passionately asserts, that he wants a guide, and wants him badly, the one provided, "sticks in his throat," and he will not adopt him at any price.

This phenomenon is common in general experience.

The number of those who desire to be led and to be taught is enormous, but each member prescribes the kind of channel through which this teaching is to come. A book is the most common desideratum; for these seekers after information hold the almost universal conviction that a professional adviser "knows too much" to be of much use. Of course, there is no doubt but that this is a mistaken idea, as a rule.

But in regard to the wants and whims of those who wish to be "coached" about farming, it seems to be true that this distrust of the professional and advanced adviser is in the main quite right. Those who affect to have mastered the subject of Agriculture so as "to be able to teach it in all its branches, practical and scientific," and if there is any third epithet even more comprehensive, it would certainly be claimed by them and superadded to their advertisement, are looked on as being too addicted to "manifesting their power" to deserve confidence in any immediate necessity.

What is required is a living teacher—a good plain kind of a chap, with no nonsense about him. Therefore, if the farmers were to state their puzzlements in the body of the "Journal," they would have pro-

pounded, ways out of their dilemma, by some, "not too professional." The great point is that the adviser should advise out of his own actual experience, and that this experience should be fairly recent.

Take as an example, a man writes and asks some one to tell him, what he knew about draining cold clay land with tiles. He had fixed upon tile drainage, and even on the size of the tiles, but he wanted to hear from some one else, who had recently used the same sized tile, at what depth they were most effective, and what the cost ought to be. Next issue, up crops a correspondent who has been through it all and gives exactly the information required. I take the liberty of saying that this is the true method of popularizing useful knowledge upon farm operations. It is really far better to get a recent opinion upon the very branch to be dealt with, from someone just engaged upon it; instead of accepting the position of a student to master some complete treatise, or to sit as a bucket at the feet of some distinguished professor, to be pumped into.

Take another instance a man requires information as to the merits of ensilage. He wants some folk, who have succeeded where he has failed, to notice his confession of failure, and to indicate what link, in their judgment, had been omitted. In reply he gets two or three replies, in which perhaps there are no novelties, nothing perhaps but what has appeared in the columns of the paper before; yet there is real value in such imperfect teaching, it has the great merit of being genuine, opportune, and sympathetic; and that farmer is most likely to succeed, who learns to divide the real from the seeming to be, and to recognize the enormous importance of opportunity, and sympathy with his neighbours. It is one of the many charms which agriculture has always had, that men are rarely rivals.

Of course, the very essence of these letters, whether of enquiry or reply, is conciseness; and this quality—which is a virtue in most places, is a necessity in

columns of such a paper as the "Journal of Agriculture."

One cannot help holding the strongest opinion of the importance of the agricultural paper—as a means of technical education—with its prompt replies, as distinct from the manual or treatise. Of the first of these, nine-tenths find their way into their predestined resting place—the waste paper basket,—for they are encumbered with much that is not (and never will be) wanted whilst they are destitute of suitability to the wants of their readers.

The work of the popular teacher is like that of the monitor in an elementary school. It is quite different from the work of the scholar, who lives for his subject, and, if needs be dies for it also, without the expectation of, or even the wish for, popular recognition. But it is a fact that even the very imperfect popular teacher is more of a pressing want to the landed industry than is the scholar, but this popular teacher will only be found in the ranks of the landed classes themselves, and will probably manifest himself in the form of a newspaper letter-writer.

W. R. GILBERT.

## Household Matters.

(CONDUCTED BY MRS. JENNER FUST).

Easter always brings out new costumes, and this year will undoubtedly bring out more colouring than usual, as many people who have gone into mourning will take advantage of the festival and season to change for a little brightness after the sombre black. Those who make their dresses at home will be glad to avail themselves of the new and sensible walking, skirt which is made with 7 gores, front, and three gores on either side, the latter two put together and forming the back seam.

These numerous gores make a smooth and even fit over the hips, finished with one box pleat at the back, which, if well made, will sit so well, that the fastening

will not be seen. One hook and eye must be put on half way in the opening, otherwise it might open in stooping, much to the confusion of the wearer.

The fashionable dress goods just now are in a hairy material, which looks well, but great care is needed in cutting out, so as to be certain these same hairy particles shall turn downwards. The only way to do this is to pass the hand over the surface before starting, then, after placing the paper pattern and cutting from the top downwards all will be well.

The skirt has no other trimming but many, very many rows of stitching: 10 rows 1-3 of an inch apart do well. A very thin layer of wadding, the depth of the stitching, is used between the lining and material, instead of canvas. It gives a better effect to the stitching and keeps the skirt in good form, with no danger of creasing, as canvas often does.

The skirt should be about 6 inches from the ground. I have seen a skirt made after these rules during the last week, it took 3 yards 48 inches of goods, 60 inches wide, took the dressmaker two days to make it, and as it was made in the house, of course, there was quite a bit left over, which gave me an idea how this could easily be used in making a toque to wear with the skirt, or may be for a young member of the family. I must not forget the still fashionable little Eton jacket to be worn during the early spring time, and a nice dainty neck-tie of almost anything. Net is the most sensible as it will stand all weathers, can be washed and be made to look well every time. Two ties can be made out of one yard and 3-4 of net cut length ways in two, as it does not need the full width for a tie.

It must be long enough to give twice round the neck, and tie in front with a good big bow.

The two big bows of net seem to frame the face and are very becoming to most people, particularly if the net is cream coloured, and in washing it will always retain its colour by dipping it in rather weak tea.

### HOW TO MAKE A TOQUE.

I will try to explain clearly how to make a very simple toque, if a bit of the skirt is left over sufficient to make the crown, which is a large round, lined if the goods are thin, but if cloth or velvet be used, no lining is necessary.

A strong bit of buckram, about two inches deep, makes the foundation, on which top and bottom are sewn wires the bottom stretched the tiniest bite to make it sit firmly on the head, join firmly before sewing on the wire, bind the lower part with a small band of velvet to prevent slipping, now gather up the crown and sew firmly on the outside of upper wire bringing a good fulness just where the band is joined, as it is here where it needs extra fulness to stand up well. Now, begin from this same join to lay on folds of velvet carefully all round the band, stretch a little to keep the folds in; it may need a tacking now and then to do this, go the round and join to the other end, but do not let it lap over to make it stand up high. A good large bow of ribbon, or velvet, will be needed to hide the join and this forms the trimming of the toque with the addition of a quill behind the bow.

I need not say the velvet must be always cut on the cross and the ending where the bow goes must be well pushed up, or a bit of the buckram might be put inside to make it do so and the bow tacked well to it. Let there be a tendency to curving upwards, even in the folds of the velvet band, and the bow will hide any join. This toque is so very simple to make that it is well worth the trouble. It falls over the right side and the bow a little in advance over the left ear, a buckle or fancy pin will also help to make it more stylish.

### THE COLD MUTTON.

There are so many agreeable ways of serving mutton the second time that it need not be eaten cold persistently for economy's sake. For instance, try Mutton Scallop. If the meat was tender, cut it in thin slices; if not, it will be better to chop it fine. Season palatably with salt

and pepper. Put a layer in a buttered pan, then one of canned tomatoes, continuing until the pan is full, the top layer being of tomatoes. Bake in the oven for half an hour. Serve very hot with baked potatoes.

#### EGGS FONDU.

Beat six eggs until light; add cayenne pepper and salt, and three tablespoonfuls of grated cheese; put one ounce of butter in a frying-pan, and when hot stir in the eggs, and stir until cooked. They must be taken off the fire while still soft, for the cooking continues a few seconds after being dished, and if hardened in the least they are spoiled.

#### STEAMED EGGS.

Butter a deep pie-dish, and break into it carefully as many eggs as required. Sprinkle them with salt, pepper, and little bits of butter; place the dish in a steamer over boiling water till the eggs are cooked.

#### BROWNEG EGGS.

Allow two ounces of butter to every five eggs. Break them into a buttered dish, season with salt, and either pepper or nutmeg as preferred. Melt the butter in a frying pan, and as soon as it is quite hot pour it over the eggs. Shake the dish that the butter may run among the eggs, and set it in the oven for them to set. Brown the surface with a salamander, and serve at once in the dish, garnished with parsley or slices of lemon.

#### CLAM SOUP.

Take 25 round clams or quahogs, opened raw and chopped fine. Add 3 quarts of water and boil them 20 minutes; then add 1 pint of milk, 1 small onion chopped fine, a piece of butter and thicken a little with cracker, flour or pieces of toast cut into dice.

#### SEVIGNE SOUP.

Cut some carrots and a small onion into small thin pieces and cook them in salted

water. When done add them to 3 pints boiling hot stock made of chicken and free from grease. Then beat up together the strained yolks of 4 eggs and 1 1-2 gills of cream; stir into them a little of the soup, then quickly stir in the rest of the soup off the fire and serve.

#### A NICE APPLE PIE.

Line your dish with paste; then cut your apples into eights and fill the dish; cover lightly with a top crust, bake. When it is baked and while hot remove the upper crust and put in ginger, nutmeg and a little butter; stir this together and spread evenly into the pie, then replace the top crust.

#### A FEW HINTS.

##### TO MAKE A SHOE COMFORTABLE.

A shoe that is uncomfortable from pinching may sometimes be eased by laying a cloth, dipped in hot water, across the place where it pinches, changing as it grows cooler for a number of times. It causes the leather to shape itself to the foot. Of course this remedy is not unfailing, as there may be something radically wrong with the shoe, or the foot may be altogether too large for it.

One of the simplest means of cleaning silver that has become badly blackened by gas or time is to mix a teaspoonful of ammonia with a cup of water, and use a little of this liquid to form a paste with whitening. Polish the article to be cleansed with the paste, using a soft chamois to apply it and another to dry it.

Broken china may be mended with the following cement: Dissolve a little gum arabic in water so that it is rather thick; put enough plaster of Paris into this to make a thick paste. Cement the pieces of china together, and in half an hour they cannot be broken in the same place. Hot water seems to make it firmer.

Wherever a gas fire is used, a pan of water should be stood in front of same to prevent the air becoming dry and impure.

A damp cloth to take up the dust and flue is much to be preferred to a brush or broom, as it saves so much dust.

Take care of pieces of newspaper, tissue paper, etc., they are most useful in the household.

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### CARROTS.

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The vegetable which deserves much more attention on account of its wholesomeness is the much neglected and often-despised carrot. Food experts, however, now agree that carrots constitute a valuable food, and it is to be hoped that they will more often be seen on the ordinary table. Carrots are obtainable almost the year round, and the mistake made by most persons is that of supposing that as soon as they grow somewhat large they are no longer fit for any purpose except to flavor soups. The trouble is not with the carrot, but with the cooking of it, and that is common to cooking of almost all vegetables grown under the ground, they are not cooked enough. Old carrots, moreover, require to be boiled in two waters, keeping plenty of it on them all the time. Then when carefully drained, they may be chopped into smaller pieces and well seasoned with butter, salt and pepper, or the regulation white sauce may be added to them with good effect.

A savory and appetizing flavor may be imparted to carrots by first frying them in butter until they are slightly brown, and then adding some sugar (1) and cooking a little longer. Enough water to boil them is then poured over them and they are then cooked until tender.

If, however, the family taste is too fast-

(1) *Sweet* carrots are sweet enough without sugar. Ed.

idious for stewed carrots, carrot croquettes may be made after a New York cooking-school recipe. A dozen small croquettes can be made from four large carrots. They should be boiled until tender, drained and rubbed through a sieve. Add one cupful of well-cooked thick white sauce (using for it two heaping tablespoonfuls of flour), mix, season highly, and when cold and firm, mould and finish as for other croquettes.

When small, young carrots are obtainable, they are delicious cooked with green peas, either fresh or canned. The carrot should be boiled, scraped and cut into thin circles and then into strips. They should then be mixed with the boiled or heated peas and a cupful of well-seasoned white sauce added to the whole.

When the flavor of carrots is really agreeable to the family, purée of carrots will find a welcome place among the cream soups which now form part of the daily menu in many households.

"Christian Advocate."

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### FONDUE.

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To make a fondue chop or grate one pound of soft cheese. Put it into a saucepan; add half a teaspoonful of salt and a dash of red pepper. Beat the yolks of three eggs with half a cupful of milk or cream; add these to the cheese, stirring constantly over the fire until the cheese is melted. Pour over toasted crackers or toasted bread. Serve on hot plates as soon as it is cooked.

Note! The Oxford cook, in Cuthbert Bede's first story of University life, gives a much simpler recipe:

"How do I make a fondoo?" replied the cook; "I just takes some butter, eggs and cream; I puts them into a fondoo-pan and I fondoo's 'em. Ed.



## The Garden and Orchard.

(CONDUCTED BY MR. GEO. MOORE).

### LECTURE ON FORESTRY.

(Reported by Geo. Moore).

Dr. William Saunders, of the Experimental Farm, Ottawa, delivered a most instructive and interesting lecture on this subject before the teachers of Montreal, in the High School Hall of that city, on Friday evening, the 15th of March, which was well attended.

In the course of his remarks, Dr. Saunders pointed out the great importance of the forests from what ever aspect the question may be viewed. First, as sanitary agents, he explained how vegetation absorbs those gases of which the air is composed, which are inimical to animal life, and gives out those which are, not only favourable, but necessary to its existence. The atmospheric conditions resulting from the growth of trees were touched upon; how their roots and the moss which covers them, act like a sponge, absorbing, and retaining surplus water, and preventing its sudden escape to the sea, thus keeping up the balance of moisture, and preventing the disastrous draughts which are frequent in treeless regions.

Dr. Saunders also mentioned the use of trees as wind-breaks and shelters on prairies, and showed, by the use of some beautiful photographic lantern-slides, how the farms and homesteads of the North-West were improved in comfort and fertility by the planting of trees, which had the effect of preventing the disastrous action of storms, and in some localities, of shifting sands, which smoothes the crops, thus making successful agriculture possible, and changing monotonous, and almost interminable stretches of flat, treeless wastes, into comfortable dwelling places, and fertile farms with their orchards and gardens. Trees, he said, in effect, are beneficial

in a hygienic, agricultural, and economical sense, therefore the conservation of existing forests and the planting of trees should be encouraged.

Every occupier of land should study what it is fit for, and crop it accordingly; in places which were not suitable for other crops, trees might be encouraged, or planted with great advantage. The government too would do well to set apart a certain amount of reserve land for the special purpose of raising timber, from which, under a good management, most profitable crops could be taken after comparatively short intervals of time.

When one crop has been cut, left to itself nature will supply another in a much less time than might be supposed; where conifers, such as spruce, etc., have been cut, the next crop will be deciduous trees, such as birch, poplar, and maple, and, out of these, timber, large enough for fence rails and other light purposes, can be taken at intervals of 6 or 7 years.

In planting evergreens it has been found that a distance of 5 feet apart or even 10 by 5, is better than closer.

The lecturer looked upon fire as the greatest enemy to forest conservation, because, not only did it destroy the existing growth, but the seeds which would produce a subsequent one, and thus we could not look for any return from fire-stricken forest lands for a period of 50 to 75 years.

Forestry-schools and Institutes have been established in the United States, and Dr. B. Ferneau, of the Cornell University of New York, had done much to exemplify their usefulness, some also had been inaugurated in Canada, but the necessity for a further advance in this direction, on the part of the executives, both federal, provincial, and municipal, and the cooperation of individuals, was strongly urged; still more attention should be given by all to this important matter, and every means taken to prevent the devastation caused by fire, because the preservation and perpetuation of the forest constituted one of the greatest means of sustaining the health, wealth, and prosperity of the Dominion.

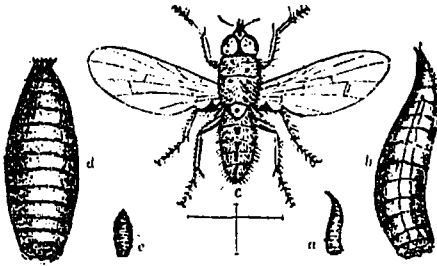


It is a pity that Dr. Saunders's able lecture could not have been heard by a greater number of proprietors of land, because it was to them, especially to those who live in the back settlements, and in the vicinity of the forests, that his advice and instruction would be of paramount importance.

### INSECTS INJURIOUS TO VEGETATION.

(Continued).

THE ONION FLY. (*Phorbia cepetorum* Meade).



*a* and *b*, Larva, natural size and magnified; *c* and *d* Pupa, natural size and magnified; *e*, Fly magnified; lines showing wing expanse and length of body.

The Onion Fly causes serious injuries to the onion crop in some seasons. It is also a source of great trouble to the onion growers in the United States, and in continental countries. Frequently, in market-gardens, and market-garden farms, where onions are extensively cultivated, large percentages of the plants are quite spoiled by the attacks of this fly. In cottage-gardens and allotments the whole of the plants on the small onion beds of the cultivators are often ruined by successive generations of this insect.

The first indications of the infestation are shown by the longest or first leaves of the onion plants becoming yellow, and afterwards whitish; if these are pulled they come easily away from the stem, and gradually the other leaves become yellow and decay. The bulb will be found to be small and badly shaped, with yellowish maggots within its folds, feeding upon it, and eventually causing it to become rotten and useless.

In other cases, the outer, or lower leaves of the plants are seen to be lying on the ground, still green; while the leaves remaining upright and green feel soft and flabby.

If infested plants are examined it will be generally noticed that in the case of very young plants they are nearly eaten through, just above the swelling bulbs, by the maggots, or larvae, of the fly. In older plants with large bulbs maggots of all ages and sizes will be found within the bulbs.

Onion plants that become yellow and show signs of drooping, should be examined for maggots just below the surface of the ground.

The male and female flies differ slightly. The male is dark gray in colour; the legs are black; the female closely resembles the male but the abdomen is darker, and the eyes wider apart.

From six to eight eggs are laid upon an onion plant, upon the leaves and generally just above the ground. The eggs which are white, long, and oval can be easily seen without a glass.

Maggots come from the eggs in from five to seven days, according to the temperature and other conditions, and make burrows down into the root, or bulb, between the sheathing of the leaves. They feed upon the contents of the cylindrical root, which can hardly yet be styled a bulb, and move on to other plants. Later on, when the bulbs are larger, they are occupied by many maggots, which feed on them, and cause them to become rotten. Sometimes the bulbs will be seen to be swarming with maggots, and the earth around them also infested. The maggot continues feeding upon the onion-roots for from 13 to 15 days, when it changes into the "pupa" form and is covered with an oval brown pupa case, from this the fly appears in about another 15 days. It is only while in the maggot form that any injury is done. There are several generations of this insect during the summer, especially when the spring is forward and the autumn late.

**Methods of prevention and remedies.**

Spraying onion plants with offensive compositions is a good way of preventing infestation. Paraffin emulsion is as good a compound as any for this purpose. It maybe made by thoroughly mixing 3 pints of paraffin and 1-2 lb. of soft soap with one gallon of boiling water. Mixing may be done by passing the composition through a hand pump once or twice; 6 gallons of water should be added to dilute it sufficiently, so as not to burn the onion leaves. When the onion leaves are young and very tender 7 or 8 gallons should be added. It may be applied on small plots of onions with a Knapsack machine. The spray should be dense and in the form of mist. This operation should be performed early in the season, when the onion plants have established their leaves.

Spraying must be repeated, probably twice or thrice, especially if heavy showers fall after the process.

When onion plants in a field or garden are noticed to droop and wither, all such plants should be taken up and burned, or deeply buried. They must be taken up by means of the little three pronged fork used in market-gardens, or some other handy tool, so that every particle of bulb and leaf is removed.

Wherever it is possible, onions should not be grown again, for at least one season, on land where this crop has been infested, as the pupae remain in the ground during the winter. All pieces of bulbs should be got off infested land, as pupae occasionally remain in the bulbs. If it is necessary to take two successive crops of onions on infested land, the ground should be dug very deeply, two spits deep, and well limed, or gas-limed.

Kainit, broadcasted on land cropped with onions, at the rate of 5 cwt. per acre, has been found to be of great use. The action of kainit, as a preventive of some kinds of insect attack in larval form, has been often noticed, though it is rather difficult to define the form or nature of its action. In the case of the onion maggots it would appear that kainit prevents

their progress from one onion to another, either by the shape of its crystals or by its pungent odour. It is not the stimulus that it gives to plants which makes them grow away from the maggots, as kainit is not a forcing manure. Kainit, if used for this purpose, should be finely powdered and, after it has been broadcasted on the land, should be very lightly hoed in. Nitrate of soda, applied at the rate of 1 1-2 to 2 cwt. per acre should be put on infested land in order to stimulate the plants, and make them grow away from the enemy. A mixture of lime and soot, 1 bushel of soot to 2 bushels of lime, dusted over the infected plants, has also been found to be efficacious.

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## The Dairy.

### A GLIMPSE OF THE DAIRY INDUSTRY IN WILTSHIRE.

It is evident, from the reports of the last few years of the progress of the Dairy Industry in England, that before long the increased production of fine dairy produce in that country, will assume large proportions. The manner in which all the latest ideas are being accepted and put into every day practice by the dairy farmers, augurs well for the quality of product which will be placed on the market.

My brother-in-law, writing from West Tytherton, Wilts, England, says: "We have many such butter factories as you seem to have, but the factory our milk goes to is the "Anglo-Swiss Butter and Condensed Milk Co."

It is a very large affair and they take almost all the milk for a radius of eight miles.

Sending to a factory of this sort we are bound to supply a certain quantity of milk summer and winter. They bind us to supply not less than two-thirds, on any day, of the highest quantity supplied on any day during the year. This is not very easy to do, as you know, we cannot always be sure of bringing our cows into use just when we want them. The prices we

are getting this year (1900) I will give you :

April, May, June	4	(\$1.03) per 100 lbs.
July, Aug., Sept.	3	(\$1.07) per 100 lbs.
October, Sept.	2	(\$1.24) per 100 lbs.
Nov., February	2	(\$1.44) per 100 lbs.
Dec., January	2	(\$1.63) per 100 lbs.

All we have to do to the milk is to cool it down to 56 deg. F., directly it is milked, and deliver it once a day at a temperature not exceeding 60 deg. F.

He goes on to describe his system of farming which certainly seems simplicity itself, perhaps rather too much so, as it does not seem possible that under the circumstances the soil is yielding to its full extent. However his plan may be most suitable under the local conditions. He says: we consider that milk selling is better than cheese or butter making at the present prices. A good many farmers round here have to feed their cows very highly with artificial stuffs in order to produce the required quantity of milk, but having tried it for several years, I have now given it up as I find it ruins the cows' constitutions. Cows are never better in health than when feeding on their natural food, grass, and so I use all the power I have to bring the cows into use when under ordinary circumstances we are most likely to be short of milk, and I find this plan far better than forcing the cows. On this farm I have no ploughed land at all, consequently no roots, but those farmers who have, and grow a lot of mangel wurzel feed their cows very largely on them during the winter, mixing the pulped mangels with straw or hay chaff. This means a lot of labour, a thing which we really cannot get now. Our greatest trouble now is to get the milking done. The men will not milk if they can possibly avoid it, and the very first milking machine that turns out to be satisfactory, I mean to have, whatever it costs.

We add every year to our labour saving machinery, we have swath-turners, hay-tedders, hay-loaders, elevators and numerous other things. I often say I wish I could do without a man at all, life would then be a pleasure; whereas now, it is nothing but a worry. This last summer

was very dry and it did not take us long to get the hay in; but keeping two self-binders to let out on hire, we were soon busy again after the hay was in. We had a very large crop of apples this year, consequently prices are not sufficient to cover expenses of picking and packing, so we are making them into cider. A friend of mine gave me two orchards to clear off all the apples; altogether, I expect we shall have nearly 900 gallons of cider, this the workmen drink, and it saves having to buy beer. Farming on a large scale in England is a thing of the past, very few farmers bring their sons up to the business. (1)

The larger farms are being cut up into small holdings, which are eagerly snatched up by the better class of working men who have saved a few pounds, and, doing all the work themselves, I think they manage to make it pay."

This account, gives one a glimpse of one kind of farming in England, which is not often met with, and is a little suggestive of dairy-ranching on a small scale. What fills me with envy however, is the matter of fact way which my friend mentions the regulations which are enforced at the factory to which he takes his milk.

It is next to impossible to advise our Quebec farmers, how to keep their milk, and as for dictating to them, what quantity must be delivered throughout the year, such an innovation with them is undreamt of. I cannot see how butter and cheese factories differ very materially from any other kind of factory, where the raw material of finest quality can alone be turned into the finest product.

The 900 gallons of cider for the workmen will perhaps surprise some people in this country, where we have no such institution as "beer," but it is hard to get work out of labourers in England unless there is a supply of the beverage available. Cider moreover, is by no means so acceptable as beer, and must be supplied more generously. (1)

(1) Both. Ed.

(1) But in certain countries, cider is the general drink. Ed.

I have seen the threshers stop work at ten o'clock in the morning, until beer was supplied. This, however, is only one of many annoyances with which employers of farm labour in England have to contend, for in many of the rural districts, as my friend says, it is now impossible to get farm labourers at all, of any description.

H. WESTON PARRY.

March 15th, 1901.

Note by the Editor.—In Essex, and other eastern counties, ploughmen used, in 1850, to stop for 20 minutes, at 10 a.m., for beer and bread. The beer was very "small" indeed. This was called "Bever-time," evidently from the Latin "bibere," to drink: cf. French "breuvage," and Italian "bevere." A very interesting article, Mr. Parry. Thanks!

### SHIPPING DAIRY PRODUCTS.

We are pleased to note that Mr. J. A. Ruddick, who arrived from New Zealand last month to take up work on the Dairy Commissioner's staff at Ottawa, has been detailed for special service in connection with the shipping of butter and cheese to Great Britain. This does not mean that he is to superintend the shipping of dairy products, but what is much better, is to examine shipments as they pass through Montreal with a view to studying the characteristic defects in the produce from different sections, and the weak spots in the methods of transportation and preparation of shipments. In addition to this inspection, competent parties have been engaged to make similar examination of our dairy products when they land in England, with a view to obtaining information as to the effect the passage across the water has on the quality. The information gathered from these sources will be used afterwards to remedy any defects that may exist in the methods of transportation and in the quality of the product. Mr. Ruddick will also act in Montreal as official referee in disputes that may arise

between buyers and sellers respecting the quality of butter and cheese.

This work of inspection is being begun at a very opportune time. Of late complaints have been very numerous as to the deterioration of our dairy products while in transit to the consumer in Great Britain. There is no room for lax methods on this score. If the factories turn out a fine quality of cheese and butter, every effort should be made to preserve this high quality until the goods are in the hands of the consumer. This cannot be done unless shipping arrangements are perfectly made and all transportation facilities are of the highest order. We understand that there are no complaints as to deterioration in the quality of New Zealand cheese while being transported to the Old Land. Canada is much nearer to the market than New Zealand is and if our transportation and shipping methods are not what they should be there is something radically wrong somewhere. Therefore a thorough looking into of the transportation problem cannot come too soon.

Generally speaking, these complaints are of bad boxing and overheated cheese. Mr. Ruddick points out that if cheese is cured, during the summer months, at a temperature of not over 65 deg., and the steamship companies comply with the request for better ventilation on board the vessels, complaints regarding overheated cheese should no longer be heard. New Zealand cheese is not distinguished by the month at all, for the reason that an even temperature is maintained during curing and shipping.

The complaints as to improper boxing of cheese are also of a serious nature. In some districts there has been a gradual deterioration in the quality of the boxes used. Box manufacturers claim that they cannot produce a first-class box at the prices they get for them. On the other hand the maker, who in most cases supplies the boxes, claims that he is not getting a sufficiently high price for making to enable him to pay a good price for a first-class box. So this difficulty may be

traced right back to the patrons themselves who are the greatest losers from any deterioration in the quality of the product when on the road to the consumer. The price of making has been reduced so much of late years that the maker in order to come out even at the close of the season has been compelled to buy the cheapest kind of supplies. A little increase in the price of making, which patrons could very well afford to make, would enable the maker to do better work, turn out a much better quality of product and put it up in better shape for market.

In addition to complaints about inferior boxes that are too light and not properly nailed, a great many cheeses are not properly boxed. In this the maker is entirely to blame as he, as a rule, does the boxing of the cheese and getting them ready for shipment. Complaints in this particular are chiefly that the boxes are too high for the cheese or the cheese too high for the box. Every maker should make his cheese of a size that will fit for the boxes ordered as snugly as possible. In every case where a box is too high it should be pared down to the level of the cheese and the cover tacked on securely. A good plan is to have the cheese made so that it will be from 1-8 to 1-4 inch above the rim of the box. In New Zealand square boxes are used which are firmer and more secure than the round box but it would perhaps occasion too great a revolution in cheese-factory machinery and equipment to introduce it here. Generally speaking, there are more complaints as to broken and inferior boxes on the cheese coming from western Ontario than from any other section of the Dominion.

“Farming.”

## The Poultry-Yard.

### THE CAPITAL AND MANAGEMENT.

Too limited an amount of capital will usually lead to failure, because too much is attempted with it. If the poultry house in a cold climate must be complete, it is a

waste of funds to build a cheaper one, yet there are many who economize on the poultry house in trying to make one dollar do the work of two, the consequence being that during the winter, in storms, and when damp weather appears, the house is unfit for the purpose desired.

When building a poultry-house, always consider the climate. If the winters are long and cold, the house should be plastered, if only one coating is applied. No doubt the suggestion will be received as one which causes expense, but it is better to expend the money in that manner, in the first place than to lose more than the amount by sickness in the flock or the hens failing to lay at a time when eggs are the highest. It is also doubtful if even the most experienced poultry-men can go into the poultry business on a large scale as a business and make a profit the first season, as only the preparatory steps can be taken in a year. It takes time to get the right kind of hens, for they must be hatched and raised, and they will cost something while they are growing. The greatest temptation is to try to keep twenty hens in a house that will accommodate only ten, and yet ten hens, properly managed, with plenty of room, will produce more eggs on less food than will twenty that are crowded together. During the winter season, when the snow keeps the hens indoors, they should have plenty of room on the floor, as they will require the greatest possible space for exercise. On the roost in winter they may sit side by side in a somewhat close position, but when they come off the roost then is the time they need the room.

A proper beginning in business is important, and to raise the hens means that they shall be hatched from selected stock, and that as no birds will be brought on the farm from outside, there will be no contagious diseases. Every dollar put into the poultry business and used in a manner to get better results in the future than immediately should bring in a profit, but to hurry at the start and attempt to make the capital go too far will lead to mistakes and disappointment.

### PERCHES.

Perches should be not more than 2 1-2 feet from the floor, and should all be of the same height. Many fowls prefer to perch as far as possible above the ground, in order, without doubt, to be more secure from their natural enemies; but when fowls are protected artificially from skunks, minks, foxes, etc., a low perch is just as safe and a great deal better for the heavy-bodied fowls. It must be borne in mind that the distance given at which perches should be placed from the floor applies to all breeds of fowls. It is true that some of the Mediterranean fowls would not in any way be injured in flying to and from the perches, but some of the heavy breeds would find it almost impossible to reach high perches and would sustain positive injuries in alighting on the floor from any considerable elevation. Convenient walks or ladders can be constructed which will enable the large fowls to approach the perches without great effort, but there are always times when even the most clumsy fowls will attempt to fly from the perch to the floor and come down with a heavy thud, which is often injurious. And furthermore, ladders or stairs for the easy ascent of fowls are more or less of a nuisance in the poultry house. The ideal interior arrangement of the house is to have everything that is needed in as simple a form as possible and not to complicate the arrangement by any unnecessary apparatus. The fewer and simpler the interior arrangements the easier the house can be kept clean, and the greater the floor space available for the fowls.

There is no reason why all perches should not be placed near the floor. Movable perches are to be preferred. A 2 by 3 scantling set edgewise, with the upper corners rounded, answers every purpose and makes a satisfactory perch. The perches should be firm and not tip or rock. The form of the scantling makes it easy to secure them firmly and still have them removable.

Underneath, the perches should always be

placed a smooth platform to catch the droppings. This is necessary for two reasons: the droppings are valuable for fertilizing purposes and ought not to be mixed with the litter on the floor; then, too, if the droppings are kept separate and in a convenient place to remove, it is much easier to keep the house clean than when they are allowed to become more or less scattered by the tramping and scratching of fowls. The distance of the platform from the perch will be governed somewhat by the means employed for removing the droppings. If a broad iron shovel with a tolerably straight handle is used, the space between the platform and perches need not be more than 6 inches. The droppings should be removed every day.

### THE EARLY BROODS.

The early broods of chicks should be kept warm; that is more essential than food. In addition to grain, such as rolled oats, cracked corn, screenings, etc., little chicks should have meat. The cheap portions of beef, liver, blood or any refuse parts may be used. An excellent mess is to boil a pound of chopped lean beef or liver until cooked to pieces. Then thicken the broth, while boiling, with a mixture of equal parts of buckwheat, cornmeal and middlings, adding salt to season. Let it cook until it is the consistency of stiff dough, and feed it warm once a day, giving the chicks as much as they will eat at one time.

### Swine

#### BEST RATIONS FOR SWINE.

W. A. Henry, *director Wis. Exper. Sta.*

The successful hog feeder must keep in his mind a good many scientific as well as practical facts if he is to make the most out of his business. In regard to feeding stuffs, he should clearly distinguish at all times what nutrients the various articles

furnish and what his animals require. He early learns in studying the subject that such feeds as skimmilk, buttermilk, middlings or ship stuff, gluten feed, peas and oats are all rich in protein, which goes to build up the muscles or the red meat of the body, and also rich in ash, which builds up the bony framework. Grasses and clovers used for pasture purposes also assist swine in building up their bodies. Corn is par excellence a carbohydrate and fat food, its purpose in feeding being to build up the fatty portion of the animal body and to aid in keeping it warm. Wheat and barley are intermediate, furnishing considerable muscle and bone-building material, while being largely of a fat-building order.

With this explanation we can easily understand why brood sows before farrowing and while suckling their young and growing pigs, both before and after weaning, should all receive a liberal supply of such feeds as are named in the first list.

The best of all these feeds for young pigs, allthings considered, are skimmilk and buttermilk, for nature intended milk for young animals. Skimmilk is likewise useful for feeding fattening hogs. As an average of many trials conducted by the writer, it was found that 475 lbs. of skimmilk fed in connection with corn meal saved 100 lbs. corn meal with fattening hogs. Next to skimmilk for growing pigs comes wheat middlings (ship stuff), which feeding stuff is most appetizing and highly appreciated. Rich in ash, it builds up the bones, and carrying much protein, it favors muscular development. Most swine feeders can secure from one source or another either skimmilk (or buttermilk, which is practically the same thing) or middlings. With these feeds they are able to produce good shoters.

About 500 lbs. corn will produce 100 lbs. gain with shoters. If they are lean but healthy and with vigorous appetites when the feeding period begins, they will lay on the first gains at the rate of 100 lbs. gain for 400 lbs. of shelled corn. If high feeding continues more than seven or eight

weeks and the pigs are then quite fat, it will require nearly or quite 600 lbs. of shelled corn for 100 lbs. of gain.

Many farmers query whether or not it pays to grind corn for hogs. I have been experimenting for five years and find varying results. Sometimes there has been an actual loss by grinding the corn to meal for fattening hogs, and other times quite a considerable gain. In general, for healthy, vigorous hogs, lean in flesh, grinding the corn does not seem to pay, while if we wish to push the animals ahead rapidly we can get them to eat more feed and make somewhat faster gains by reducing the corn to meal or well soaked before feeding. Where the fattening period is to continue as long as eight weeks, some skimmilk, middlings, oats or other secondary feeding stuff should be given. Such feed not only furnishes nutriment, but increases the palatability of the feed and aids, apparently, in the work of digestion. Two feeds always give better results when given together than each would if fed separately. Fattening swine, especially those getting much corn, should always be fed some salt, and it is important that they have a supply of such substances as wood ashes, hard coal ashes, corn cob charcoal, etc.; even lime, soft brick or soft sandstone are eagerly eaten and seem to have a good effect. Perhaps these substances correct acidity of the stomach, or they may be useful in killing intestinal worms. At any rate, since there is a strong craving for them, and the animals seem to thrive when such substances are supplied, they should not be withheld.

#### OUTSIDE OF THE CORN DISTRICTS.

barley will prove a most useful grain feed for swine. The Danish experiments and the experience of Canadian farmers in producing fine pork all confirm the high value of barley in the quality of pork it produces. For mere increase in weight, corn leads barley by about 8 per cent, but corn pork is softer and of not so high quality generally as that made from barley. Wheat is about equal to corn for pork production.

so far as making gains are concerned. Both the wheat and barley are useful in feeding young pigs, because they contain considerable protein. Oats are a useful feed in the hands of the intelligent pig raiser. Shotes, and especially breeding stock, are apt to lie too much of the time in their warm beds in the winter and not get enough exercise. They can be forced to take exercise by sprinkling oat grains thinly over a feeding floor. The animals will then have to pick up the grains one by one, and in doing so will be compelled to remain on their feet and walk about considerably. For very young pigs, the oats should be ground and the hulls removed by using the sieve. The part removed can be fed to cattle so there is no waste. Young pigs can be fed oatmeal made into porridge with warm water, and on this food they will thrive amazingly. Such meal is an excellent substitute for skim milk or middlings, or better yet it can be fed in combination with them or along with the corn or corn meal.

I do not wish to be understood as saying that young pigs should have no corn. When feeding skim milk, middlings, etc., a third of the nourishment for these young animals can be made up of corn and corn meal, and as they get older the proportion can be increased until with hogs shut up for fattening, two-thirds or three-fourths of the ration can consist of corn.

The excessive use of corn with young pigs is plainly shown by the weak bones which they possess and their over-fat condition while young. In some feeding experiments made years ago, I fed pigs after they had reached 100 lbs., exclusively on corn from 12 to 15 weeks. When these pigs were killed their bodies were found to be a mass of fat, and their bones were greatly weakened, as was found by testing them in a machine made for such purposes. They were different looking animals from others of the same litters which had been fed during the same time on a variety of feeding stuffs.

It is not difficult to believe that pigs whose bones are weakened and whose

muscles are but partially developed through imperfect feeding are more susceptible to hog cholera than animals in full vigor through exercise, pasture and liberal feeding with a variety of nutritious foods. While poor feeding will not and cannot develop hog cholera, in and of itself, it can certainly put the animals into a susceptible condition when that dread disease appears.

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## The Flock

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### HOW MY DORSETS WERE FED FOR THE FAIR.

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*R. H. Harding, Thorndale.*

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My Dorsets are not subject to pampering. The lambs are principally dropped in January, and while they are suckling their dams I supply the little fellows with a creep pen, where they can be fed a little grain and roots, without being interfered with by the older sheep. At the same time I feed the dams liberally upon grain, pulped roots and clover hay, always allowing plenty of exercise, which I consider very essential in the growing of early lambs. As early in the spring as possible I let them have the run of a pasture field. I find this plan works well so far as the lambs are concerned, as it tends to increase the milk flow of the dams, but I find that the ewes lose flesh to quite an extent at this season, as the taste of fresh grass and the warm sun has a tendency towards sluggishness, turning them against eating hay. As soon as the weather is warm enough we shear the whole flock, unwashed. About a week after shearing, we dip the lambs to destroy ticks, as they have mostly left the shorn sheep and found shelter on the lambs by this time. I have used both Little's and Cooper's dips, at different times, with excellent results. As soon as the grass is good enough I wean the lambs, putting them on nice, fresh pasture, also feed a mixture of oats, bran and oil cake to those



intended for exhibition, aiming to make them firm and plump, at the same time trying to avoid building up a carcass of tallow by allowing plenty of exercise and making the grain ration principally oats. I aim to have a patch of early rape fit to turn the lambs into about the 1st of July letting them, run in the rape by night and in the pen by day. When the rape is fairly well eaten down, we usually have some second growth clover to turn the lambs on to, but last season was an exception to the rule on account of the drought. As the weather gets cool, if I want to increase the fat, I add a small quantity of peas to the grain ration. So far as the cost of growing and fitting my stock is concerned I cannot give anything like an exact account, as the number included in the feeding lot varied from time to time, but I will append the following estimate, allowing an acre to pasture six head and allowing another acre to grow their winter feed. Rating the land as worth \$3 per acre rent would equal \$6 for the two acres, or \$1 per head for the pasture. For hay and roots allowing \$1.50 per acre, and for labour 50 cents per head, and allowing them one pound of grain per head daily for the first year, estimating the grain at 60c per hundred lbs. makes \$2.92 per head for grain, or a total of \$4.42 per head. To the average reader this will no doubt appear unprofitable feeding and to such I would say that these are estimates on feeding and fitting show sheep, and I am satisfied many old exhibitors will say I am far within the mark, but we do not fit all our sheep for the shows.

Concerning the breeding of my exhibit of sheep they are all home bred and mostly from home bred sires and dams, but I have taken care to avoid inbreeding. In selecting sires, however, I am working new blood into my flock by using two first-class imported sires, one of them a first prize winner at the Royal, 1899. From these I expect good results. Concerning the block test, the yearling Dorset wether, that I had dressed was proclaimed by several experts to be either the 1st or 2nd

best carcass in the show. One of these experts was Mr. McKerrow, of Sussex, Wis.

“Farming.”

### A FEW NOTES ON MY PRIZE SUFFOLK SHEEP.

By James Bowman, Guelph, Ont.

The Suffolk shearlings that took 1st and 2nd in the dressed carcass competition were reasonably well wintered last winter and ran in good grass pasture all summer with access to running water. About October 1st they got a little grain, about 1 1-2 pints each per day of oats and peas mixed. This was continued until about the 10th of November, when they were put in a pen and fed what pulped turnips and grain they would eat, with bran and oil cake mixed, about 1-4 lb. of cake to each sheep per day. They were fed twice a day and, when they had cleaned up the grain and roots, they got what hay they could eat. They also had access to salt and water. The Suffolk ewe lamb that got third prize was fed in the same way except that she got rape for about three weeks.

“Farming.”

### BABY MUTTON FARMING.

Cloverly farm, owned by Ira A. Lowe, Franklin Co., Mass., presents an interesting study in raising early lambs. This farm of 130 acres is composed of river bottom and first uplands, and produces great crops of hay and corn. Last year were raised 250 tons best quality English hay and 15 acres of corn, the fodder being shredded into a silo and making very satisfactory feed.

About 270 head of late '99 lambs went to Boston market at a profitable price, and 625 breeding ewes have been fed the past winter. An adjoining farm, rented, has 325 ewes and about 900 young lambs can be seen on these two places in Jan.

and Feb. About 35 head of Dec. lambs went to Boston. Mr. Lowe dresses all his lambs for market. The 270 head above netted him \$1 each above the price he was offered for them on foot, having sold them on their merits by commission house. Bran, oats, cracked corn and oil meal are fed both sheep and lambs, and the lambs are usually ready for market at 12 months old, weighing 28 to 32 lbs. dead weight. Potatoes are proving a good feed for milk.

The owner's close attention to the needs of his flock, ably assisted by his shepherds, shows itself in the very rapid growth of the lambs. But back of it all, there must be the propotent blood of the sire of the flock. The Southdown ram is preferred above all others for quick growing lambs of quality. The Southdown rams have been bought in N. J. The writer believes them to be the best pair of the breed ever sent into this country. Another trio of the same blood has also been added. A half-blood Merino ewe, having Shropshire or Southdown blood, and of good size, makes the best all-around business sheep. She will give plenty of milk and make a fat lamb. A hill farm of 640 acres have been bought, having fine pasturage, water and good buildings, with a high elevation, all conducive to successful sheep husbandry. This will be the Cloverly range for the flocks.

## The Grazier and Breeder.

### MAKING BABY BEEF

Many Canadian farmers are interested in the making of baby beef. Cattle finished for the block at an early age are termed baby beef. The requirements as to weight vary considerably at different times, from year to year. The choice of breeds rests with the feeder; the buyer makes no distinction so long as the cattle suit him.

This question is arousing more attention in the United States, where there is a good demand for a fine quality of baby beef, though it is not quoted as a distinct product on the market. Prof. C. F. Curtiss,

of the Iowa Experiment Station, in reply to a question in a recent issue of the "Breeder's Gazette" on this subject, says:

"At the present time, the cattle that are topping the Chicago market range from 1,200 to 1,500 lbs. in weight. The bunch that topped the market last week (ending Oct. 27) averaged 1,294 lbs. and sold for six cents. The highest quotations on yesterday's market (Oct. 31) were \$5.90 for three bunches of yearlings, averaging from 1,157 to 1,294 lbs. each. These were doubtless long yearlings, possibly some of them were nearer two-year-olds than yearlings, but they fairly represented what constitutes baby beef. Baby beef is not calf beef, as is sometimes supposed. It is, as has already been stated, beef made from cattle that have been pushed by good treatment and liberal feeding to early maturity, or finished for the market at an early age. The modern trend of the market has been decidedly toward lighter weight beef and this has favored early maturity. The consumer, both at home and abroad, is losing his fondness for the old-time heavy cuts bearing a wealth of fat that is largely waste. It is not long since the 1,700 to 1,800 lbs. steer, (1) of good breeding and properly finished, was the only kind that would top the market or command the respect of the British buyer. This class of cattle has now been almost entirely displaced by the lighter compact, well fattened, handy weight sort, ranging from 1,200 to 1,500 lbs.. It is fortunate for the producer, as well as economical for the consumer, that this change has come about. The producer who is making beef on high-priced land can furnish a superior product from a 1,200 to 1,300 lbs. steer for very much less than a similar product from a 1,600 to 1,800 lbs. steer will cost. The difference in cost of making the last 300 lbs. on steers of the weights named, will amount to as much as twenty-five to forty per cent. This is

(1) It is VERY MANY YEARS. The best Scotch Poll-hifers, weighing 720 lbs., the carcass, have been the favourites, for certainly 60 years. Ed.

in accordance with the law that younger animals give better returns for food consumed and that the returns diminish in proportion as the animal approaches maturity. Careful feeding tests have demonstrated this conclusively. There are, then, some decided advantages to the producer in making early-maturity beef on high-priced lands where feeding products are expensive.

"The first essential in making baby beef is to start right; that is, with a well-bred animal. Without this the feeder had better not undertake to produce baby beef as it will prove to be a losing business. Having a good animal the key to success lies in never losing the calf fat but in carrying the calf steadily forward from start to finish. The time lost at the outset or in the early stages is the time of growth and can never be made up. Nature never goes backward to make amends for mistakes of man. The producer of baby beef must bear in mind then that there is no time to lose and every day must be a day of growth and increase in weight. The most successful method of rearing the calves is to allow them the full milk of the dam during the first three or four months. They should not be allowed to run with the cows, but kept in and taught to eat grain and hay at an early age so that they will not suffer a setback when the milk is taken off. Heavy milking cows may raise two calves successfully but they need to be selected with this in view. Some cows will not raise one calf successfully. In Scotland, last summer, I found Mr. David Buttar, a well-known Shropshire breeder, raising three good calves per cow each season. A sufficient number of calves were bought to give each cow two calves for the first three months. At the end of that time, these calves were taken off and carried forward on grain and grass and an additional lot of calves bought and each cow suckled one for three months longer and at the end of the time the undesirable cows were themselves fattened and turned for beef. Shorthorn grade cows were used and bred to Angus

sires. The calves were a uniform lot and fed well.

"In making baby beef, however, or maturing well-bred calves under twenty months, the critical time is not while they are with their dams, but during the first six months following the weaning period, and the next six months are equally important. The calves must be kept growing and yet they must be made ripe and well finished or they will not be fit for market. Other things being equal, the cheapest beef is always made on grass, though the calf makes but little use of it during the first six months, and when pasture is used it should be of the very best. In addition to the grass the grain feeding must be continuous. If pasture alone is depended on, the probabilities are that growth will be made at the expense of flesh and more time will be required in getting them on to market. Corn constitutes the cheapest and best single grain feed, yet it cannot be relied upon wholly for the reason that it does not furnish the elements of growth in sufficient quantity to give the best results. Until the calves are ten months old, shelled corn, supplemented by oats and bran, with a sprinkling of oil meal will constitute a satisfactory ration. No grain need be ground for the calf until it is nearly a year old. For roughage, clover hay and shredded fodder have no superiors. Add to this ration a few pounds of sliced or pulped roots daily during the winter season; and furnish dry, well-bedded and well-lighted quarters with the run of a sheltered yard and the progress of the calf during the first year is assured. The bedding must not be neglected. The old adage 'Well bedded, half fed' is never truer than when applied in the management of the calf and fattening steer."

"Farming."

