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THE JOURNAL of AGRICULTURE. ILLUSTRATED

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NOTICE.—The subscription to the *Illustrated Journal of Agriculture*, for members of Agricultural and Horticultural Societies, as well as of Farmers Clubs, in the province of Quebec, is 30c annually, provided such subscription be forwarded through the secretaries of such societies.—EDITORIAL MATTER. All editorial matter should be addressed to A. R. Jenner Fust, Box 109, Lachine, Que.—or to Ed. A. Barnard, Director of the *Journals of Agriculture*, &c., Quebec.

OFFICIAL PART.

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DEPARTMENT OF AGRICULTURE AND COLONISATION.
Quebec, 1st June, 1889.

Sir,—I have the honor to inform you that at the last session the Provincial Parliament voted the sum of $1,000.00 for the encouragement of lectures on agricultural subjects through the medium of Agricultural Clubs.

RULES FOR THE CHOICE OF THE LECTURERS.

The Honorable the Commissioner of Agriculture, at the demand of an agricultural club, and upon the recommendation of its president, will accept as lecturer any such person thus suggested and duly qualified.

The lecturers, when approved by the Honorable the Commissioner and on presentation of a certificate of the president of the meeting specially convened to that effect, shall receive from the Department of Agriculture the sum of $5.00 for each such lecture thus given; but upon the condition that every lecturer shall make a report stating the locality where the lecture was given, the number of persons present, and the subject of the lecture.

REMARKS.

It is to be hoped that the different agricultural clubs now in existence will avail themselves of the advantages now offered to them, and that parishes, in which there is no such club, will lose no time in organising one as soon as possible.

Please give the subject the earnest attention it deserves by communicating the present circular to the parties most interested.

I have the honor to be, sir, Your most obedient servant,
GEORGES LECLERC, Director of Agriculture.

Herd of Canadian-Jersey cows kept at the S. H. Hospital, Quebec.

MILK RETURN FOR MAY 1889, IN LBS.

Date of birth.	Last calving.	Name.	Proportion of Jersey blood.	Age when last calved.	Number of months since calving.	Average quantity of milk per day.
1879	24-6-88	Rougetto des Forges pure	Can.	9	11	18½ lbs
15-6 82	14 7-88	Rioter's Montcalm I	¾	6	10	21½ "
22-3 85	22-12 88	Rex Rioter's Bretonne II	¾	3y. 8m.	5	38 "
15-1-86	16-1-89	" " Malo II	¾	3	4	40½ "
2-6-83	3-2-89	Rioter's Montcalm II	¾	6	3	41½ "
2-5 83	10-3-89	" Brodeur II	¾	6	2	40½ "
27-3-85	11-3-89	Rex Rioter's Flèchée	¾	4	2	36 "
15-5-82	15-3 89	Rioter's Brodeur I	¾	7	2	42½ "
27-3-85	15-3-89	Rex Rioter's St. Lambert	¾	4	2	40½ "
4-5-85	31-3-89	" " Bienvenue	¾	4	2	36½ "
16-3-87	9-4-89	Rex Rex Rioter's	¾	2	1	22½ "
2-. 84	20-4-89	Rex Rioter's Bretonne I	¾	4	1	45 "

This herd has been milked on an average 10½ months out of 12.

The feed during the whole winter, of those in milk only :

10 lbs. mixed hay	costing $	7	per 1500 lbs.	=	4 66
3 " Cotton seed meal	"	30.	" 2000 "	=	4 50
1 " Wheat bran	"	19.	" 2000 "	=	0.95
3 " Straw	"	3.	" 1200 "	=	0.75
Average per milking cow					10.86 Ten $\frac{100}{100}$ cts per day.

Hay and straw cut fine and steeped in warm water.

Ensilage was given until 1st March—15 lbs. per cow—but less cotton seed meal and bran were then given—Making the cost of food about the same. ED. A. BARNARD.

DE OMNIBUS REBUS.

Permanent grasses.—A very sensible suggestion was made at a meeting of the R. A. Association of England the other day, by Mr. Robert Holland, the consulting botanist of the Cheshire, Shropshire, and North-Wales Supply-Association, on the rye-grass controversy. After briefly reviewing the history of the controversy, the speaker went on to say that there could be no doubt as to the rye-grass being a native of the country, and that, therefore, it *ought* to be permanent. Still, as it had been grown for seed for the last two hundred years, it was possible that its character had been altered, so as to make it less permanent than it originally was. In all parts of South-Cheshire, red clover, like the white, might be found growing wild in the pastures : it was then a strictly perennial plant, which grew year after year from the same roots. But by cultivation, the ordinary red-clover had become a biennial, or at most a triennial, and rye-grass might be collected, and a new stock raised from it. As to its nutritive quality, he remarked that on the Roodee, at Chester, which had *never been cultivated*, the herbage was composed almost entirely of perennial rye-grass and white-clover, and the pasture was so luxuriant, that it had given rise to the proverb, "as rank as Roodee."

Mr. Andrew Dawes has kindly allowed me to make an experiment with this grass, combined with the true *cow-grass*, or perennial red-clover, under very favourable circumstances. About an acre and a-half of limestone land was sown on the 15th May with a mixture of these seeds, and very well they went in, under the careful hands of Mr. Tuck, the invaluable manager for the Messrs. Dawes. A peck of sainfoin was sown alongside of the rye-grass, and very well they are looking — May 28th—. I need hardly say that I shall watch their growth with deep interest.

M. Daigneault, another neighbour, is trying a mixture of rye-grass, lucerne, and timothy. The seed for these experiments I imported from Messrs. Carter, of Holborn, London, about the most trustworthy of all our English seedsmen.

Corn for the Silo.—Well, this is doing the thing on a gigantic scale, indeed! The Messrs. Dawes, finding that growing hops in such a high-waged district as Lachine does not pay, and being greatly pleased with their experience in silage of last year, have broken up their hop-garden and sown it, with a lot more land—40 acres in all—with corn for ensilement. Seeing that thick-sown corn, such as they grew last season, was too watery, they are putting it in now about 27 inches apart, and three grains or so to the foot. I do not often indulge in the passion of envy, but I must confess that Mr. Dawes' dairy almost raised that feeling in my mind when I inspected it yesterday. Temperature of the setting-room—deep cans—38° F.; temperature of the water in which the cans were placed, 40° F. The cream goes, by contract, to the Windsor hotel, Montreal, at a dollar a gallon. A thinner cream, of course, than that gathered in shallow-pans—the dairyman, a most intelligent French-Canadian, told me it would turn out 2½ lbs. of butter to the gallon, whereas we always reckoned a quart of cream from shallow-pan-setting to give a pound of butter—, but of a rich colour, and no wonder, seeing that 13 out of the 21 cows attached to the dairy are Jerseys of a very high caste. There are, on these farms, about 165 head of cattle, altogether : Herefords, Jerseys, and Polled-Angus. Somehow or other the Jerseys, here, are queer in their calving. Many of them drop their calves six weeks or two months before their time, and if, as too often happens, the young ones are attacked by the scours, it is hopeless to attempt to combat the complaint.

The first swedes Mr. Tuck sowed on the 9th May, hoping to avoid the fly. But it was no good. Three days after the young plants appeared, they were all swept off, and a fresh seeding was made on the 27th—yesterday. (1) My own cabbage-plants were sown April 23rd ; up on the 3rd May, all gone May 10th, sown again, May 12th, up and gone, and carrots sown instead on the 24th ! Pleasant, very !

Basic slag.—It seems that this form of phosphatic manure demands considerable care in selection. The percentage of phosphoric acid varies, in different samples, from 10 % to 20 %, and that of lime from 40 % to 60 %. The oxides of iron and manganese are present to the extent of 10 % and 5 %, respectively. This is a great drawback, but, doubtless, some of our scientific men will discover a method of ridding this valuable material of at least the major part of the objectionable oxides.

Soil-analysis.—I have, as my readers know, long held the idea that the analysis of a soil may be interesting, but that it is rarely or never useful. The only definite answer to the question : what does such a soil require ? must be given by the soil itself. Thus, in Ville's experiments, the four necessary elements of plant-food were applied separately, one plot remaining unmanured, another receiving all the ingredients, whilst upon the other plots, each ingredient was in turn omitted. A chemical analysis of a soil may, and often does, give an approximate idea of its composition and capabilities, but it is the plants alone which can tell us what we want to know, namely, if the ingredients contained in the soil are in the condition in which they can severally appropriate them.

Now, here is a most striking instance of this : At Flitcham, in the county of Sussex, England, on an experimental farm, were certain plots, the soil of which being subjected to chemical showed as much potash in the top foot of it as would be contained in *three tons* of muriate of potash per acre. Two of these plots were manured for barley as follows .

No. 1... 3 cwt. superphosphate and 3 cwt. nitrate of soda.

No. 2... 3 cwt. superphosphate, 3 cwt. nitrate of soda . 2 *cwt. muriate of potash.*

And yet, in spite of the exact similarity of the actual contents of the soil, the barley on No. 1 failed to yield a crop, while No. 2 gave the handsome return of 54 bushels to the acre. It was not, therefore, a deficiency in the quantity of potash which caused the failure of the barley, but the condition in which that potash subsisted. At present, *science* cannot supply an answer to the question we are considering, but *practice* can.

Webb's Southdowns.—Mr. Henry Webb sells part of his flock—400 ewes and 100 rams—at Streetly Hall, Cambridgeshire, England, in July. This sale will be followed next year

(1) These are all right now—June 19th The carrots are a good plant; and in fact all the four farms are as full of grain, roots, and fodder as possible. The clover on the home-farm at least 3 tons to the acre—magnificent.

by the disposal of the remainder, as the lease of the farm expires in 1890. These sheep are bred directly from descendants of Mr. Jonas Webb's celebrated flock, at the dispersion of which, in 1872 (?) the high average of $58 a head was attained. I knew Jonas Webb and his sons and had many dealings with them, and as I saw a strange story in one of the U. S. agricultural papers about the origin of the Babraham Southdowns, I may as well lay bare the real facts of the case.

Mr. Jonas Webb was, some fifty years ago, game-keeper to Mr. Adare of Babraham, Cambridgeshire, a wealthy landowner. His master, having bought some Southdown ewes and a ram of Mr. John Ellman, of Glynde, Sussex, the first improver of the breed, sent Mr. Webb, as a thoroughly careful, trustworthy man, to bring them to Babraham. The sheep arrived safely, were neat enough, but small; the two-year-old wethers, in those days only weighing about 16 lbs the quarter. Mr. Webb, on his return, remarked upon this diminutive size to the Squire, and said, "if you will let me the Lodge-gate farm at a fair rent, I will start a small flock, and see if good feeding of the lamb and dam will not increase the weight of these sheep. No sooner said that done. Mr. Webb entered on the farm—120 acres I think—; returned to Sussex; bought more ewes and rams of Ellman; formed his own ideas on selection; and succeeded so well that he added farm to farm—some rented others purchased—until, before he died he was farming nearly 2,000 acres of land. His flock, and the herd of shorthorns, sold after his death for upwards of $130,000.

The increase of size in these sheep was the point aimed at, and successfully aimed at, as many of the 22 months old wethers I have seen at the Smithfield Club-show must have weighed 30 lbs. a quarter. The necks too, which were originally meagre, became strong without coarseness, but his great pride was in the rotundity of the "legs of mutton"; to which I well remember his calling my attention at the Gloucester show of the R. A. Society.

My own feeling has always been that, at some or other, there was a slight taste of Cotswold blood introduced into the flock, but the family have always strenuously denied this, and assert that the increase of size is solely owing to the ewe-tegs having been well fed during the first winter, whereas the Sussex men send their young ewes out to keep on the lands of the Wold, where they are and always have been, half starved. Any how, they were splendid sheep, and laid the foundation of the improved flocks all over the South of England. From them descended the prize-winners of the Rigdens, the Gorringes, the Duke of Richmond, Lord Walsingham, and the Prince of Wales; and I heartily hope that some patriotic Canadian may import a selection from Mr. Henry Webb's flock to improve the breed of his own country; for it is high time, if we want to do anything worth speaking of with our mutton, that the long-wools should die the death.

EDS. COUNTRY GENTLEMAN—Your able and interesting English correspondent, Mr. Bowick, says: "The well known Mr. Jonas Webb's flock of Babraham was the lineal and direct descendant of the flock of Mr. John Ellman, who was the father of the breed in its leading Sussex branch." I visited Mr. Webb twice in the summer of 1841, and staid there about two days each time looking over the flock very carefully, as I purchased a ram and several ewes. Our minister, at the English court, Mr. Stevenson was with me, also purchasing several head to stock his farm in Virginia and that of Bishop Meade. Mr. Webb in talking to me about his sheep was rather chary of information as to their breeding, but from the little he said on the subject, I inferred that he chose sheep for the improvement of his flock wherever he could find them among the Downs of a superior quality, and that he inherited at least a part of the originals from his father. He did not speak of Mr. Ellman's, but judging from the appearance of the two stocks, I did not think there was much, if any, of the Ellman blood mingled with that of the Webb. The sheep I saw of the former were not so large, I thought, generally by one-fifth, or perhaps more, as the latter, and they were finer and more delicate in their points and of a somewhat different style. I should like to know from Mr. Bowick whether I am correct in my recollections. He can easily ascertain this from Mr. Henry Webb, and it will be interesting information to furnish the COUNTRY GENTLEMAN.

A. B. ALLEN. (1)

Cost of roots.—Mr. Frank Smith, a regular correspondent of the English Agricultural Gazette, and a large occupier of land, puts the cost of cultivation of an acre of roots at $10.00:

One ploughing	$1.25
Carting 16 loads dung and spreading	2.50
Ploughing in dung	1.25
Rolling	0.20
Drilling	1.25
Harrowing, rolling, hoeing	4.00
	$10.45

This is, of course, *the actual cost* to the farmer. The various estimates of the cost of farm-operations are very far apart. Mr. Tuck, Messrs. Dawes' foreman, puts the price of a man and two horses at $4.00 a day! I incline towards a dollar and a quarter; in the country parts, where wages are low, it would not cost the farmer more.

Weight of hay.—Hay in a newly made stack, in England, weighs about 5 lbs. or so per cubic foot; after heating and settling, about 8 lbs., and sometimes, in the London district, where the best hay is made, clover-hay will weigh as much as 9 lbs. per cubic foot. Will any reader be good enough to cut out a cubic foot of hay from a mow in his barn, carefully, and let me know how much it weighs?

Cow-grass.—"A constant reader" wants to know "all about" this valuable clover. It is said to have originated from a cross between *Trifolium medium* and *T. pratense*, the former of which is a perennial plant, common in English pastures, with a glaucous leaf and of a creeping habit: not good stuff by any means. The *T. pratense*, is the common red clover. The real cow-grass, *T. pratense perenne*, is very like the common red-clover, except that the flower is supported upon a stalk, instead of resting directly upon a pair of leaves. I do not see why it should be called a grass, as it is a clover. I regret to say that the cow-grass and rye-grass, just sown here, will be mown next summer: they should be pastured, to give them a fair chance.

Phosphates in England.—The following is a list of the quantities of phosphates produced in and imported into England yearly:

	Tons.
Phosphate—Carolina rock, apatite, &c. imported	270,000
Coprolites—home-production	20,000
Bones, bone-ash, &c.	50,000
Bone (home-production)	60,000
	400,000

(1) See ante.

With these materials, probably about 750,000 tons of superphosphate are manufactured, or about four times as much as was made thirty years ago.

Sainfoin.—Botanically, *Onobrychis sativa*, the derivation of the former of which words is a puzzle to me. *Onos*, in Greek, is an *ass*, and *Brucho* signifies to bellow, to howl, to roar, &c., perhaps, to *bray*, but I fail to see the connection. At all events, sainfoin is a very useful, perennial plant, of the *genus Leguminosæ*, with a long, deep-searching root, capable of resisting drought, and particularly suited to *calcareous* soils. The trivial name of course is a corruption of the French, *saint-foin*, or *holy hay*. It is sometimes called in England, *cinque-foil*. It is far more productive the second year than the first, and in land suited to it, will last 8 or 10 years. Lambs afflicted with the scour soon get right again on a sainfoin layer. Our chalk-land farmers grow a great deal of it, as do the Cotswold men on the oolite. It should be cut for hay when in full bloom, and four bushels of rough seed or 50 lbs. of milled, must be sown to the acre. The small lot—1 peck—on Mr. Dawes' farm is looking very well indeed.

Pacey's perennial rye grass weighs from 26 lb. to 30 lbs. a bushel . the common annual rye grass, only 20 lbs.! a good test of the true sorts before sowing, when up, there is no difficulty, for the *Pacey* is of a much more humble habit than the annual. Strangely enough, Mr. Stephen, in his "Book of the Farm," reverses these weights, saying—p. 613, vol. I, ed. 1850 . The annual weighs 30 lbs. the bushel, the perennial, 18 lbs. the bushel." This is the very opposite to all my experience, and I cannot account for the error.

Speech of the Hon. J. J Ross. (1)

Mr. President and Gentlemen,—You honour me greatly in asking me to address this important meeting. It is an honour for me, but I sadly fear that you will not find it a pleasure to listen. You have take me unexpectedly; I had not the advantage of being invited in time to prepare something worth listening to.

I have only, then, a few words to say on the questions which occupy us at the present moment. In the first place, you will allow me to congratulate you most sincerely on the success of your association, and permit me to say, Mr. President, that when you first spoke to me about founding this association and asked me for a share of the public money to aid in its proper working, I was far from believing that it would produce all the great results it has produced up to the present time. I am glad, therefore, to see that your association is flourishing, and has surpassed all the hopes that we built upon it.

You have just heard, Mr. President and Gentlemen, the addresses of lecturers of reputation: M. Labelle, deputy-minister of agriculture, who, as such, has all the graces of his position (grâce d'état) for the subject he treated, M. Beaubien, who, since siloes were invented, has behaved like a crazy-man, who has been seized with a species of indescribable madness on this silo question, because he is convinced that it is destined to promote the interests of the agricultural class as well as of the whole country; Mr. McPherson, who addressed us on the important cheese-question, knowing well what he was talking about, as was probable, considering he manages seventy-five factories, and makes money by them! As for me, I have only one factory!... had I two, I should have been ruined.

But you must not be allowed to suppose that if I was nearly ruined by my factory, it was therefore due to bad management. Not at all; we made good cheese at a moderate cost. But competition intervened; in one parish where up to that time there had been no factory, one was built close to mine. I had not time to look closely into things: all the capital I had put into the business, all the milk of my cows; all vanished, and I have no longer any interest in the business. In my eyes, therefore, Mr. McPherson is a veritable prodigy!

Much interesting information have we received from this gentleman. He spoke at first about things that we all know and thoroughly understand, but which for want of reflection, we do not always put in practice. Unfortunately, we act too much like machinery, we do not put enough thought into our business.

Some people think still that a farmer has no need of thought; that if he is intelligent, he need not make use of his intelligence. Allow me to say that this is an error. As much intelligence is needed by a farmer to conduct his business properly, as by a merchant to avoid ruin, by an advocate to succeed in his profession, by a judge to insure the equity of his decisions.

Let me tell you once more, and let me implore you not to forget it; all that you do as farmers, you ought to do in a well thought out, well studied manner, applying to it the intelligence necessary to extract all possible profit from it.

I hope, Gentlemen, you have thoroughly understood the meaning of what Mr. McPherson said, about the care of your milch-cows, and therefore about the care to be given to land in order that it may furnish the food necessary to the production of milk, which, in its turn, will turn out good cheese, and plenty of it.

I cannot keep silence; I thought Mr. McPherson's lecture of great use, and after having heard it I said to myself: This is a man of great abilities; he has only one defect: he does not speak French!

When once your cows are well fed, and are giving plenty of good milk, Mr. McPherson told you how to profit by this milk in making cheese of it. And, decidedly, the advantages which he enumerated are sufficient to induce you to follow his advice.

Gentlemen, I am in favour of giving all possible encouragement to the manufacture of butter and cheese. I believed in the importance of this great industry, and I am ready to do my share (I think I have already proved it) of every effort possible to develop it.

But, I am not one of those who are always inclined to put all their eggs in one basket.(1) If your basket fall, all the eggs will be broken, and your hands will be empty. Put, on the contrary, your eggs into two baskets; if one fall, the other will remain for your conservation. I am desirous that all possible encouragement should be given to making of butter and cheese, but I trust that the other branches of agriculture will not be neglected.

Observe; to every calculating mind, it is evident that in agriculture there is a chain not one link of which can be broken without incurring great losses. For example, you aim at producing plenty of good milk. To that end, you improve your pastures, you sow green-crops; you even build siloes, if you trust to M. Beaubien, whose advice is good. Thus you can feed more stock, which produce more dung, and thus you are enable to grow more grain.

Well! This gear (*engrenage*) must be taken into account, and our endeavours must, necessarily, not be restricted to the production of butter and cheese, but at the same time,

(1) At the Dairymen's Association meeting at L'Assomption.

(1) Bravo, M. Ross. A. R. J. F.

we must deal in due proportion with the breeding of stock, the improvement of our meadows, and the growing of grain.

M. Beaubien told you of a certain visit I paid him: a very pleasant excursion it was, very useful to me, and perhaps not entirely without utility to him. About this, M. Beaubien told you the truth, but not the whole truth (not on purpose did he keep anything back, I presume; besides, he had no interest in doing so). I will tell you at once what he forgot to tell you.

It was raining when I got to his house, and after a chat and a good dinner, we, in spite of the weather, started off to see the cowsheds, the field, and all around. At the barn, we saw some men cutting up Indian corn. Well! I must confess it, I never saw a dirtier mess in my life, and in spite of the rules of politeness, I could not conceal what I thought. The corn, one would have said, appeared to have been rolled in the mud, and the mud of that part of the country is as black *as* mud. Then the men twisted it about, cut it up, and sent it into the famous silo, where, it seemed to me, it must become a mass of rottenness. I was wrong, it seems, on that point, since they tell me that the sample of ensilaged exhibited here by M. Beaubien is one of the best, if not, the very best; I was wrong, then, and, if I admit it, it is not for the pleasure of proving the error of my opinion, but to show that no very great precautions are needed in making ensilage.

But another point on which I bothered my friend, is this: "How many arpents have you in corn?" said I. "Fourteen," replied he. And how many cows have you to winter on it"? "Seventeen" replied he. "Are you going to give them nothing but this ensilage, this rotten stuff?"—"No," he answered, "they will have maslin, hay, and bran." "There," said I, "now I see. If I remember, you stated in a lecture that with an arpent of silage seven cows could be wintered; now, you have fourteen arpents of silage for seventeen cows, and you are going to give them extra food." My friend did not know what to reply on the spur of the moment.

A short time after, I met my friend, and he began at once about the silo. "I was mistaken," said he, "the other day when I told you I had fourteen acres in corn; I measured the land, and I find I had only eight." I answered: "If you can winter seventeen cows on the corn of eight acres, it is better; I confess there is encouragement in it."

I see, by his lecture of this evening, that my friend has reduced his figures still lower, and that he calculates he can winter two and a half cows on an arpent of corn. Well! I think this is a success; but I believe better can be done in a favourable year, and M Beaubien himself will find it so.

I am in favour of silocs, and I hope every farmer will give them a trial. A trial is easy to make, and for a trifling sum you may succeed in convincing yourself (the best form of conviction) of the advantages of the silo.

Another thing which has hardly been mentioned, up to the present, and which seems to me of much value, is green-meat, in summer. I have proved, at home, the advantage of having green-food for the stock, such as corn, lucerne, or clover, when the pastures fail in summer or otherwise. I think I have settled the point, that it is as, or even more important to have green-meat to give the stock at that season than later.

Again, to produce milk, it is not only necessary to feed the cows well, but it is also of some, or even of great importance to select them well.

Unfortunately, it was formerly, and is now in some degree, the practice of farmers to keep and rear a calf because it was a handsome one, without troubling themselves whether it came from a good milking dam, or from a pure-bred bull. It is of the greatest importance to select young ones which are the offspring of good milch-cows, by a bull himself the progeny of a good milker.

It is by these means, united to those already mentioned, that we shall obtain the results we aim at, and contribute to the wealth of our country, and to the prosperity of each of its inhabitants.

I could speak much more at length on these agricultural questions, but I feel that I am trespassing on your patience, and am occupying the place of men who are able to afford you much more precious information than I can give you.

I thank you, then, for the attention you have given to my words, and I assure you that in the future, as in the past, I shall always take an interest in the success of your great and important association.

(*From the French.*)

To Adolphe Bruneau Esqr., M. D., Sorel.

Dear Sir,—In reply to your letter, I beg to say that in the course of last summer I was at Sorel, and visited the hoed-crops of M. Séraphin Guèvremont. I was suprised to see 18 acres of land, covered with swedes, mangels, carrots and potatoes in an unusual state of cleanness, and promising a great yield. From what I learnt from my friends in the neighbourhood, these crops are grown with ease and at, comparatively, slight expence by the Messrs. Guèvremont, who learnt the method from Mr. Jenner Fust during his residence at Sorel. I am a market gardener by trade; I sell large quantities of vegetables at the St. Hyacinthe market, but in spite of my experience in these crops, I could not do better than does M. Guèvremont at Sorel.

In 1888, I sowed 1¾ arpents in orange tankard mangels—as sweet as the sugar-beet, and contain more nitrogen—; I harvested 60 tons—34 tons to the arpent—. My son, 16 years of age, and an old man—66—hoed the piece in 3 days each; 6 days work of one. Up to date, I have kept my 22 pigs on them with hardly any other food.

At your request, I send you my opinion for what it is worth, and I hope it will be of use to you.

I have the honour to be
your obedient servant,
(*From the French*) Chs. Péloquin.

Mr. President and Gentlemen,—As I am not used to public speaking, I beg your indulgence for the few facts I have to relate to you.

Before 1885, I had never grown any roots, unless you call potatoes by that name—I had grown a good many of them. Having seen, in 1884, on the Lincoln College farm, entire fields covered with superb crops of mangels, carrots, turnips and cabbages, which Mr. Jenner Fust was cultivating there, I made up my mind to imitate him, and to make an attempt to grow these crops, which previously I had imagined to be very difficult.

In 1885 I grew, in accordance with his instruction and under *his immediate supervision*, 2 arpents of swedes and carrots. I was so well satisfied with my crop that, year by year, I increased the quantity of land devoted to it, until this year I have 18 arpents in root-crop. I may say that, up to 1887, I was directed in my cultivation by Mr. Jenner Fust, who used to call me and my brother, his pupils. But this year, 1888, we have worked without any assistance, and have succeeded very well indeed.

My chief crop is swedes, for it is the best yielder on my sandy soil. Then come white-carrots and mangels, and then potatoes. I shall not speak of the cultivation of these different roots, since my friend Dr. Bruneau has explained to you all the operations in an exact, complete, and precise manner.

The hoeing, which seems to be the great difficulty with all root-growers, is easy, if the plan described by Dr. Brunéau is followed, and if his advice, never to delay its execution and always to do it in proper weather, is strictly complied with.

The following is the cost of growing an arpent of roots, the number of bushels harvested, and the value of the crop in money; at least, as nearly as I can reckon:

	Mangels.	Swedes.
2 ploughings	$2 00	$2.00
4 harrowings	1.00	1.00
Drawing drills	1.00	1.00
Spreading dung	75	75
Splitting drills	75	75
Rolling	50	50
Sowing	50	50
4 horse-hoeings	2.00	2.00
Hand-hoeing and singling	3.00	2.40
2nd hand-hoeing	1.00	1.20
Pulling	5 00	7.00
Storing	4 00	5 00
	$22.30	$24.10
Cost and cartage of dung	10 00	10 00
Seed	1.70	90
	$34 00	$35 00

I harvested more than 4,200 bushels of swedes on 6 arpents of land, or 700 bushels per arpent:

Say, 600 bushels of swedes at 20 cts	$120.00
Refuse swedes &c. for cattle	10.00
	$130.00
Cost of growing &c.	$35.00
Net profit per arpent	$95.00 (1)

I use the mangels for my milch cows in spring, and some I sell.

I thank the meeting for their attention, and I shall esteem it my duty to reply, by letter or otherwise, to all questions which may be put to me. I am happy to be able to contribute, to the utmost of my feeble means, to the success of that great cause, of which you, gentlemen, have been for many a long day the indefatigable promoters.

SÉRAPHIN GUÈVREMONT.

(*From the French.*)

Hoed-crops and their Place in Agriculture.

By Arthur R Jenner Fust, Editor of the Journal of Agriculture.

Many of the correspondents of the American Agricultural papers assert, Mr. President and Gentlemen, that cultivation can be substituted for manure. This is a reverting to the ideas of Jethro Tull, an old English agriculturist, whose methods were abandoned a hundred years ago.

Nobody denies that if the land be stirred frequently, a great quantity of fertilising matter will be set free and will be ready to fulfil its function as the purveyor of food to the plants we cultivate, but as to what the American writers say, I do not agree with them. Though I believe that a field well ploughed and well cultivated will produce during several years more abundant crops than a field whose cultivation after sowing has been neglected, I maintain that the fertilising elements of such a field would be much more rapidly exhausted than those of the latter, I maintain that a field ploughed and sown, with a slight dressing of dung and no other cultivation, will produce more abundant crops than a field, however good the cultivation after sowing may have been, but to which no manure has been given, but, to make the said field yield the most prolific crops possible, I maintain that it must unite the three desired qualities, that is, that it must have been well ploughed, well cultivated, and well manured.

Now there are two modes of insuring the perfect cultivation of the soil: the summer-fallow, and the growing of hoed-crops. The summer-fallow is almost unknown here; but, in England, the heavy-land farmers, especially when their farms are distant from large towns, are *obliged* to allow their lands to lie fallow every 5 or 6 years. Let me say, in passing, that the English heavy-land is incredibly heavy: four horses—and big horses, too—can with difficulty break up ¾ of an acre—nearly an *arpent* a day. To make a good fallow, the field must be ploughed, harrowed, rolled, grubbed, tormented in every way, and all this during a whole summer, so that the field which has borne a crop of wheat remains entirely unproductive for an entire year. Fallows are a great expense to English farmers, but where root-crops cannot be grown they must be made.

Fortunately for us, there are hardly any farms in the province of Quebec where roots and the other hoed-crops cannot be produced. The principal aim in cultivating them is to make the land yield an abundant provision for the stock, and, at the same time, to prepare the soil for the crops of grain, grass, and leguminous plants which are to succeed the hoed-crops in the intended rotation. And this is the reason why the rotation should always begin with the member containing plants sown in rows, or, as we call them, fallow-crops.

The following is the method of treating heavy-land:

The last crop, as was said just now, was a grain-crop, the last of the rotation, and if there be any couch grass (*chien dent*), or any other root-weed, it must be eradicated. In England, this is the most important of all our operations. Directly the grain is carried, and sometimes even while the shocks are in the field, the grubber, or cultivator, is sent along and across the piece, the harrow and roller pulverise the grubbed surface, and the horse-rake collects the grass and root weeds into rows: this rubbish is burnt, or, preferably, carted to the corner of the field, to form the bottom of the future mixen. *Even in England*, the sun is sometimes very powerful in August and the early part of September, and I have often seen the couch-grass and other weeds so completely dried up after its exposure for a couple of days to the air at that season, that all danger of their growing anew was dissipated.

Towards the end of October, the fall-ploughing is given. Where the land has been well farmed and is not in bad condition, the furrow may be made as deep as the horses can draw the plough. As a rule, I would not bring up from the bottom-soil too much at once—say two inches. Still we must not forget the enormous pulverising effect of the frost in our climate. The descent of some of the particles of former manurings into the subsoil may have mitigated its crudities, so as to render it less hostile to the penetration of the rootlets of the future crop, especially if the heavy dunging, which we must give the land if we intend to raise a paying crop of mangels or other roots, be considered.

If I were to lay down a principle so dangerous as an absolute rule, as to ploughing, I should say: always plough deeply in autumn for a root-crop, but never go below the former furrow when ploughing for a grain or a leguminous crop.

On heavy-land, not subject to spring-floods, the easiest way

(1) =$112 per imperial acre!

of growing mangels and swedes is to turn the dung down in autumn, with a ploughing done after the deep fall furrow, and to sow in spring *on the flat*. When sowing in this way, we have only to grub, harrow, and roll, until the annual weeds are destroyed, and then sow the seed, in rows of about 24 inches apart, with the Matthews or Planet Jr. seed-barrow. I recommend those who practise this plan on heavyland, not to make their ridges too wide; 12 feet will be sufficient, and will allow of four rows of mangels or swedes per ridge, the two outside rows being a foot from the furrow, so that the crop will be in rows two feet apart from one side of the field to the other.

The hoed crops are

Potatoes.
Indian corn or maize.
Cabbages.
Swedes.
Carrots.
Parsnips.
Haricots.

I will not weary you by describing the different modes of growing the two first crops above named—potatoes and maize. But, I may say in passing, that the chief fault I observe in the cultivation of potatoes in this province is, that they are earthed up too high, in fact, very much too high. Plant the sets deeply—say, 4 inches—, and only earth up once, adding a very little earth to the covering of the tubers.

As to maize, to sow it broadcast is, in my opinion, to lose all chance of cultivating it after it has grown beyond the har rows, and this takes broadcasted maize altogether out of the category of hoed crops.

The Abbé Chartier at your last year's meeting, expressed his ideas on the cultivation of corn, and I was very much surprised to see, in one of the agricultural papers of the States, that this gentleman had spoken in favour of sowing this grain broad cast! He said just the opposite, for I re member his words perfectly:

We never sow broadcast. Some who have done so have had splendid crops, but let them beware! Sooner or later they are sure to be caught in a cold spell in June, in spite of every precaution as regards previous cultivation; the grass will overcome the corn, and their crop will be a failure. For no assistance can be given to broadcasted maize.

I need not say I am of the Abbé's opinion.

THE PREPARATION OF THE LAND FOR HOED-CROPS.

The more deeply the soil is worked, the better will be the crop. This does not mean that in a clay soil you are to bring up a lot of raw soil in the spring, for this would become a source of trouble in ploughing, in grubbing, in harrowing and rolling, all through the summer. It would hinder one from sowing at the proper season to insure a good crop. The principal aim of the root grower should be, to work the land to a proper depth and he should never stop until he has succeeded in doing this to at least 10 inches deep. The deep furrow should invariably be executed before winter.

SPRING PREPARATION.

The following is the usual manner of sowing root-crops, the land being, here, seldom sufficiently cleaned in the fall, and a sufficient quantity of manure being difficult to obtain at that season. The land may be cross-ploughed or grubbed. I my self would rather harrow it along and across, and grub it afterwards. If the land is in good order, you need only t' e harrows used, perhaps, the roller to fit it for being drilled up. If cross-ploughed, the depth should be the same as that of the autumn-furrow, only the plough will go more steadily if it goes half-an-inch deeper—more would be dangerous. This furrow will bring to the surface all the root-weeds that escaped the autumn-cleaning, and they can be got together to be disposed of as you please.

PREPARATION OF THE SEED.

I always steep the seeds of mangels, carrots, and parsnips, and I do it thus: I tie the seed up in a bag, let it steep about 40 hours, hang the bag up to drip, keep it in a warm place till the white germ just shows itself, then dry it up with sand, charcoal in powder, &c., and it is ready for sowing. Six pounds of carrot- and mangel-seed, three pounds of swede-seed, and eight pounds of parsnip-seed, are the quantities required per *acre*. (1)

MANURES FOR MANGEL AND SWEDES.

The mangel requires nitrogen, the swede phosphoric acid. An addition of 120 lbs. of sulphate of ammonia for mangels, and of 200 lbs. of superphosphate of lime for swedes, to the ordinary dunging, will be found profitable. The sulphate of ammonia is to be found at a reasonable price at Mr. Vasey's, Hochelaga Ammonia Works, and the superphosphate at Mr. Nichol's Albert Mines, Capelton. To give the ammonia to swedes or the phosphoric acid to mangels is wasteful, that is, when you have enough dung to give a moderate dose of it to every acre sown: the case is different when one is obliged to use artificial manures alone.

The land is now ready for drilling. There is nothing gained by making the drills wide. My distance is 24 inches; this leaves plenty of room for the horse-hoe, and for the entrance of abundant supplies of light and air to the growing plant. Numbers of acres of land are lost by drilling up at 36 inches for roots and even for Early-rose potatoes; by this error, a third of the ground is left unoccupied.

As soon as the drills are completed, the dung is to be carefully spread, and I will take the liberty of saying that this operation is conducted far from economically by many of our best farmers. It takes more time and labour to spread a heap of dung over five rows, than over three rows. The farmer should drive the horse in the middle of the first *three* drills, and drag out enough dung into the drill in which the horse is walking without stopping 'im for a moment. Another man divides the dung among the *three* drills, and this, it is evident, can be done with much more care, and in much less time per acre, than if it were attempted to dung five or more drills at once.

THE SOWING OF THE SEED.

This operation varies according to the state of the seed, whether dry or steeped. In the latter case, the following is the best mode of proceeding. roll the drills, make a shallow furrow in the centre of each, with a stick or the corner of a hoe, not more than ¾ of an inch deep, sow the seed in this rut by hand, and after covering it in with a rake, pass the roller again over the drills. Rolling is a most important point in root-growing; by omitting it, a distinguished agriculturist at Lachine lost $\frac{9}{10}$ of his crop in 1888. (2)

The seed barrow will sow mangels, carrots and parsnips, if the seed be dry. Every time I use an American seeder, I open the distributor two, or even, three holes more than the

(1) 2½ lbs. of *turnip*-seed.

(2) This season, the drills on the said farm were all rolled down with a heavy roller, and the carrots and swedes are the proof of the utility of the practice.

indicator points to. Of course these tools sow turnips and swede-seed famously, but the roller should always be used after them, and on light land, it should be a pretty heavy roller.

Try to sow all the seed at the same depth, that it may all come up equally. There is nothing more annoying at hoeing time, than to find the growth of mangels or turnips uneven.

The steeped seed of mangels, &c., and the dry seed of turnips will begin to show above ground towards the fifth day—sooner or later, according to the season.

The moment the rows of the young plants are visible, start the horse-hoe. This is the reason why I have so often recommended in the *Journal of Agriculture* the drawing of drills perfectly straight, for if they have been well drawn, the horse hoe can pass along the space between them without hurting the plants, even if, here and there, there is a yard or two of a row not up. Immediate horse-hoeing is most important, and so much do I think of it, that where parsnips, which take a long time to come up, are in question, I often mix half a pound of turnip-seed with the parsnip seed, and the former coming up rapidly, allows the horse-hoe to be set to work the seventh or eighth day after sowing.

THE HORSE-HOE.

If the horse-hoe is properly contructed, that is, if the side blades are made with the right curve, it will cut, or rather pull off, the sides of the drills, the second time it is worked, leaving only a narrow piece of earth, from an inch and a-half to two inches wide, for the hand-hoe to do. No *drill-grubber* can work properly until the *horse hoe* has thrown down the sides of the drills, after that is done, the former tool is useful enough, though I never could see the use of having two implements where one would do the work perfectly.

THE SINGLING OF ROOT-CROPS.

Mr. Stephens, in his excellent work, *The Book of the Farm*, objects to the deep hoeing of drilled root-crops, on account of the risk run of disturbing the dung. What he thinks a mistake, I think an excellent practice; for the more the dung is intimately mixed with the soil, the more freely will it impart its fertilising juices to the roots of the growing crop. Dung is applied in drills simply for economy' sake. In 1884, I was surprised to see the roots of white-turnips, as big as the stem of a common clay-pipe, running across 24 inch drills and, not content with meeting their neigbours half-way, actually invading their territory. The reason was clear: the horse-hoe had pulverised the middle-space, the hand-hoe had pulled down the drills, and the turnips were floating, so to speak, on a sea of mingled moisture and fertility which offered them every liberty possible in searching after their favourite food.(1) If this is true of turnips, it is ten times truer of mangels and swedes. Of these two, the best attainable crop cannot be grown, unless the drills be pulled down to the level of the dung, and the young plants, after singling, left so naked that an inexperienced observer would think them doomed to perish by drought.

There is no fear of this! Delicate as they may seem, in 24 hours they will be upright again, and all the part left bare of earth will, eventually, be converted into good cattlefood. The more deeply you hoe, the more completely you draw away the earth from the plants, the heavier will be your crop.

(1) These turnips were *on the table* six weeks and two days after sowing, and most delicious they were.

WHEN TO SOW MANGELS.

In this part of the world, mangels cannot be sown too early If the land is in good order, the first week of May is a good time. After the 25th of that month, I had rather sow swedes. The same may be said of the carrot and parsnip. The *orange globe* mangel is very superior in quality to the *long-red*, but in this climate, the yield of the latter is so much greater than the yield of the former, that I dare not recommend sowing the orange-globe.

THE CULTIVATION OF FIELD CARROTS.

We now come to the true "Dairyman's crop," the White Belgian carrot. It is white with a greenish white neck, growing from 4 to 6 inches out of the ground. This is the carrot we prefer, and a valuable root it is; easy to grow, a large yielder, good in quality, and no more trouble to pull than a swede is. It suits itself to most soils, for I have seen 1,400 bushels an acre on heavy land. It yields better than swedes on light-land, and, in spite of analyses, it is of far higher value for milch cows than the latter, though it must be confessed, its cultivation is a little more costly. It is the best of foods for the production of milk, since to it it gives richness and colour, while to the butter it never gives any bad taste. Is not this what all dairy-men want?

HOW TO SINGLE CARROTS.

This may be made a cheap or an expensive job. If the fingers only are used, it will cost a good deal to single an acre of carrots, but I can show you a cheaper plan: that practised at Sorel. First, let us see what will be the best distance to leave between the plants, to get the greatest possible yield from an acre. We must not be guided by the distance left between mangels or swedes, for these plants do not send their tap-roots down so deeply into the subsoil as carrots. I think 3 Belgian carrots to the foot would be a fair average, were I certain the hoers would observe that number; but, unless I did the work myself, I am sure I should be disappointed, so we will say, 3 plants to 15 inches.

To single carrots at 5 inches apart, a special tool is required. The one I use is made out of an old scythe; it is 2½ inches wide, and is kept very sharp. A woman cuts up the plants with great ease, by alternate strokes of pushing from and drawing towards her feet. She is followed by a girl or boy, who pulls out by hand all the carrots but one from the tuft left by the hoer, and thus the operation is finished. The horse-hoe must of course be kept going as often as convenient to the farmer—it cannot be worked too frequently—. As to this point, the farmer must remember that even if the crop of roots is not tangibly increased (though it will be) by this constant stirring of the soil, all hoed-crops, well done by, have a special influence on the grain and grass crops that follow them; and although the weeds are destroyed during the process, this is only a small part of the benefit derived from the constant and seasonable use of the horse hoe. M. Gustaf Gylling, who succeeded me in the Lincoln-College farm, told me, and from what I saw during the growth of the crop I believe him, that in 1885, on the 5 acres I had cultivated the previous year in cabbages, swedes, white carrots, potatoes and mangels, the crop of oats yielded 70 bushels and the barley-crop 48 bushels an acre, i. e., 60 and 40 bushels an arpent respectively.

PARSNIPS.

The best of all roots for milch-cows, is the parsnip, but the seed is so dear here, the plant comes up so slowly, the

singling is so expensive, and the getting out of the ground so troublesome, that I dare not recommend its cultivation. Steeped parsnip-seed sown by me in 1884, on land thoroughly well prepared, was six weeks before it showed itself out of the ground.

CABBAGES.

Excellent food for all kinds of stock. Towards the end of April or the beginning of May, a pound, or so, of cabbage-seed—St. Denis or Savoy—shoud be sown in a seed-bed, in the open air, in rows 10 inches apart and thinly. About the 10th June, transplant into well-manured rows, *rolled down heavily*, 24 inches apart, and 12 inches from plant to plant in the rows. Books and amateur farmers recommend 3 feet each way, but long experience has taught me that the distances I advise will bring the heaviest crop to the acre, and that those who follow the directions spoken of above lose one-third of their land. To those who grow tobacco, it is advantageous to plant a row of cabbages and a row of tobacco, alternately. This leaves 48 inches between the rows of the latter: plenty of room for the man who prunes or disbuds it.

CAN FARMERS PROVIDE THEMSELVES WITH ARTIFICIAL MANURES WITHOUT GOING TO THE MANURE-MANUFACTURERS? THE UTILISATION OF BONES, ASHES, PLASTER, THE WASTE-PRODUCTS OF FACTORIES, &C.

I have been requested to say a few words on the preparation of artificial manures from the waste-matters generally available for that purpose on our farms, they are bones, ashes, &c. Unfortunately, I have but few things to say about their employment, for except the dissolution, so to speak, of bones by means of dampened ashes, I see no means of furnishing, from the refuse of the farm, the three necessary ingredients of a good manure: nitrogen, phosphoric acid, and potash. Never mind; I will do my best, and if the audience find my essay rather poor in ideas, it will kindly excuse it.

At the last meeting of this Association, M. Marsan addressed you on the subject of the care to be given to farm-yard dung to prevent the loss of its precious elements. Wherefore, I need not enlarge upon that subject. It is enough to say that, if the urine is kept from wasting itself, either by collecting it in tanks, or, preferably, by using enough litter in the stables and cattle-sheds to absorb it completely, the solid dung will take care of itself, provided it be not too much drenched by the drip from the eaves, and is not allowed to heat too much in summer.

As I said, just now, the three necessary constituents of a good manure are nitrogen, phosphoric acid, and potash; although the last is not always absolutely requisite in heavy-land, especially when that land has not been exhausted by a too frequent repetition of the grain-crop.

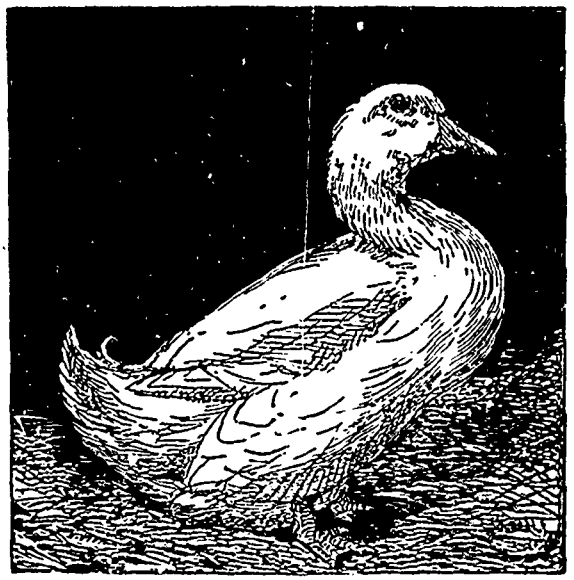
As for nitrogen, a fair dose of it would be about 40 lbs. to the acre, and it would take from 1,000 lbs. to 1,200 lbs. of bones to yield that amount: equal to 48.56 lbs. of ammonia. Among these bones will be found about four times as much phosphoric acid as is generally wanted on an acre. Thus, as you see, bones are not a well balanced manure. To the bones add a few bushels of ashes, and beside the potash therein contained you will find in them still more phosphoric acid, for hardwood ashes, especialy those from the beech, contain, on the average, 5 % of that compound.

What are we to do then in such a case? We must take refuge in the hope that the surplus of phosphoric acid may remain in the ground for the use of future crops.

After all said and done, it is clear we cannot afford to deal with bones in this lavish manner. One thousand pounds of them is about as much as we can hope to collect on a farm in the course of the year, and to apply such an amount as this to an acre of land would be to waste both time, labour and money-value. Let us take 400 lbs, then, and mix with them 20 bushels of ashes—this quantity being a dose for an acre:

Place the bones on a block of hardwood, or an anvil, and smash them with a sledge-hammer; mix the bones and ashes intimately, and make them into a flat-topped heap, moistening them a little, but not making them dripping *wet*. As to the knee- and hock-bones, they had better be burned, as they are almost unconquerable by any other means. When burned, they can be crushed by rolling a barrel, loaded with stones, over them when spread out on the barn-floor, and turned over after every passage of the roller.

After the damp heap of bones and ashes has reposed about 3 weeks, it will have heated considerably, and when the heat is at its height, the heap should be turned over carefully, and moistened afresh. In three months from the commencement, the bones will be so softened that they can be crushed as before described.



PEKIN DRAKE.

In almost every village in the province there is a tannery. Although the spent bark is worth nothing as manure, the refuse bits of skin are very valuable for our purpose. They contain much nitrogen, and as tanners employ a good deal of lime in preparing their *liquors*, the nitrogen is converted into nitrate of lime, a fixed salt. To make the best use of tanners' refuse it should be mixed with earth at the rate of 3 loads of earth to one of refuse, and a heap made of it which should be dealt with like the heap of bones and ashes, that is, kept moist, and turned over two or three times after it has properly heated. Three loads of refuse—it is very heavy—and nine of earth, are enough for an acre.

As to the employment of bog-earth (terre noire), I am wholly of M. Chapais' opinion:

"We cannot advise you, as a profitable thing, to employ bog-earth as a manure on any soil. The expense of cartage are not compensated by the results obtained, which are problematical. Still, bog-earth, well dried, is an excellent absorbent in our stables and cow-sheds, to retain the urine, and to be used in this way, if you have it handy, it is both advantageous and remunerative."

As to *composts*, I must tell you frankly that, while they are truly desirable from the *restitution* point of view, the employment of the refuse of factories, &c, should only be undertaken after a serious consideration of the financial side of the operation, at least when it is necessary to expend money in the purchase of the material. After reckoning the cost of the refuse, the expense of cartage, loading and unloading, spreading, &c., &c., &c., all have to be counted in, and all this is in a country where labour is so dear.

I forgot to mention that the manure of the poultry- and pigeon-houses may be profitably mixed with the bones and ashes as described above, but after the *fermentation* of the heap is finished, otherwise great loss of ammonia will ensue.

(*From the French.*)

ARTHUR R. JENNER FUST. (1)

Reports from all parts of the British Isles are to the effect that never has there been a more promising appearance of the general crop. Hay-making was was in full swing on the 1st June—7 days earlier than usual—and the grass is very heavy.

Federal Meeting of the Dairy-Association of the Dominion of Canada at Ottawa.

Mr. W. H. Lynch, of Danville, P. Q., is well known to all our readers as one of the most earnest and active promoters of the dairy industry of our province. When we say "of our province," we say less than the truth, for Mr. Lynch has done his best to promote this industry not only in all the provinces of the Confederation but even in distant England. Again, last winter, pursuing without cessation his arduous undertaking, he published through the press a series of letters on the dairy industry which has no doubt attracted the attention of the entire agricultural public. In the fourth of these, Mr. Lynch put forth the idea that a Federal meeting of the Dairy-associations of the Dominion would be of immense benefit in regard to the promotion of the interests of the industry which these associations represent. Mr. Lynch proposed in his letter that the meeting should be held at Ottawa, during the session, with a view to the obtaining of the aid and patronage of parliament.

To-day, we are happy to say that this idea of Mr. Lynch has made its way, and, thanks to his efforts and his energy, has been realised in action. On the 9th and 10th of last April, the Capital of the Dominion saw assembled within her walls delegates from all the dairymen's associations in the Confederation, for the purpose of discussing the numerous questions of general interest which demand the attentive study of all those who, in whatever way, are interested in prosperity of the dairy-industry.

Thanks to the kindness of the Speaker of the House of Commons, the meeting was held in the committee-rooms, and the sittings were opened on the 9th of April.

FIRST DAY OF THE MEETING.

MORNING SESSION.

The first session was held in Committee-room No. 50, at 10.30, A. M.

Seven societies were represented:

The Dairymen's Association of Manitoba;
The Creameries Association of Ontario;
The Dairymen's Association of Western Ontario;
The Dairymen's Association of Eastern Ontario;
The Dairymen's Association of the Province of Quebec;
The Dairymen's Association of Nova-Scotia;
The Farmer's Association of New-Brunswick.

The following delegates from these associations were present at the meeting: Messrs. D. Derbyshire, Brockville, president of the Ontario Creameries Association; Prof. Barnard, Secretary of the Council of Agriculture, P. Q.; Eagar, Morrisburg, Ont.; H. S. Foster, Knowlton, Que., president of the Brome agricultural society; de la Bruère, St. Hyacinthe, president of the Dairymen's Association of the Province of Quebec; N. Bernatchez, vice-president of the Dairymen's Association of the Province of Quebec; J. de L. Taché, secretary of the Dairymen's Association of the Province of Quebec; Louis Beaubien, Montreal; Col. the Hon. W. Rhodes, commissioner of agriculture of the Province of Quebec; D. A. McPherson, Lancaster, Ont.; Col. Patton, Knowlton, Que.; E. Caswell, Ingersoll, Ont., an eminent member of the Western Ontario Dairymen's Association; Alexis Chicoine, St. Marc, Quebec, director of the Dairymen's Association of the Province of Quebec; McInnes, Ottawa; J. W. Rathbone, Montreal; Major Boulton, Manitoba; A. Lespérance, St. Timothée, Quebec; M. E. E. Spencer, Frelighsburg, Quebec; James Haggerty, West-Huntingdon, Ont.; Thomas Ballantyne Stratford, Ont.; J. B. Lane, Dorchester, Ont.; Prof. D. M. Robertson, College of Agriculture, Guelph, Ont.; W. K. Everetts, president of the Eastern Ontario Dairymen's Association, Easton's Corners, Ont.; Rev. Théophile Montminy, priest, St. Agapit, Quebec; H. Beatty, Stanbridge-East, Quebec; G. Publow, Perth, Ont.; J. C. Chapais, St. Denis, Kamouraska, editor of the *Journal d'Agriculture*, Quebec. The following members of the House of Commons and of the Senate attended the sessions of the meeting: The Hon.—La Rivière, St. Boniface, Man.; D. Cameron, Dr Robertson, S. Fisher, M. P., Brome; Messrs. Edwards, Wood, (Westmoreland, N.-B.); Couture, McMillan, (Ont); Garth, St. Thérèse, Que.; Philippe Landry, Villa Mastai, Q.; Peter White, Dr Sproule; Senators Reed, Ogilvie, and Robitaille, &c., &c.

Messrs. Chs. Gibb, Abbotsford, Que., and E. A. Struthers, Manitoba, excused themselves, by letter, from attending the meeting.

Mr. W. H. Lynch, the organiser of the present meeting, requested the delegates to elect a president and secretary before proceeding to business. Mr. H. S. Foster was unanimously elected president and M. J. de L. Taché secretary.

The president then invited Mr. Lynch to lay before the meeting the questions which he thought ought to form the basis of its deliberations. Mr. Lynch, on rising for that purpose, was greeted with much applause. He was happy to say that three associations of Ontario, three of Quebec, one of New-Brunswick, one of Nova-Scotia, and one of Manitoba, nine societies in all, had replied to his invitation to meet there to-day. If he had desired to call together a meeting of this kind, it was because, though the local interests of the dairy-industry were studied by the local dairymen's associations, the general interests of the said industry were neglected, on account of the impossibility experienced by the local societies of promoting these general interests. It was, therefore, to apply a remedy to this state of things that he had thought of convoking delegates from the different local societies; that those questions which extend beyond the limits of these societies might be discussed among themselves, and he thought that the first thing to be decided by the delegates was the creation of a Federal Association of the Dairy-industry. When this association was once in existence, it might adopt as its programme the suggestions that had been made to him, in a letter, by Mr. Edward Barnard, secretary of the

(1) Read at the D. Ass. meeting at L'Assomption.

Council of Agriculture of the province of Quebec, which stated that the work of the federal association should be, in particular, to study the state and requirements of the markets in which the Canadian dairy-products are sold, to cause to be made experiments on the most perfect way of manufacturing dairy-products, and to encourage the establishment of local dairy-associations. The appointment of a commissioner of the dairy-industry would favour the carrying into effect of this programme. The new association, once started, should be incorporated by act of parliament, and, consequently, should draw up a constitution, which should be elaborated by a committee specially named for that purpose. Mr. Lynch, after requesting the president to ask the delegates to express their views on the ideas he had laid before them, took his seat.

The president invited Mr. McPherson to give his opinion. That gentleman observed that the dairy-industry was, perhaps, the most important of all industries, because, not only had it a direct effect through the pecuniary advantages offered by the sale of its products, but the indirect, though considerable effect it exercised on the whole system of agriculture must be considered as well.

The business of the present convention was to provide that the general benefits that proceed from this industry be fairly put before, and placed within the reach of, every one. He compared the good already produced by the dairy-industry and that which it might produce in the future if a federal organisation were established which would enable all its advantages to be developed. Such an organisation, especially if it were supported by the legislature, would be productive of great good. In a few words, this should be the programme of the proposed federal association: The prevention of the frauds committed in the factories, on the farms, and in the towns; an enquiry into the means of facilitating the export of the products, which now suffer greatly from the defects in the means of transport employed. The latter point might be greatly elucidated by a consideration of the experience gained by the *Live Stock Association of the Dominion.*

Mr. S. Fisher said that to embody the excellent ideas of Mr. McPherson, a committee of organisation should be appointed.

M. Louis Beaubien said it had been proposed to draw up a constitution. The shorter it was the better, in his opinion. It might even be done without. A practical piece of work was what was wanted; all local questions being pretermitted.

Col. the Hon. W. Rhodes observed that the Dominion of Canada was of all countries the one best suited to the development of the dairy-industry, and, consequently, the creation of the proposed federal association must produce excellent effects.

Mr. D. Derbyshire earnestly supported the ideas of M. Louis Beaubien. The new society should labour to obtain uniformity of manufacture and of the packing of the products of the dairy, and to spread abroad a knowledge of the best methods of making butter and cheese.

Mr. E. Caswell spoke forcibly against the frauds committed in the matter of milk, cheese, and butter. The new society must organise an efficacious service of inspection. The Canadian dairy-industry is on the road towards improvement; still it must not loiter, but advance continually, unless it wish to be distanced.

Mr. Barnard showed how important it was to collect into one body from all parts of the province the men skilled in the dairy-business, and what good results must spring from such a reunion.

The Hon.—Larivière related what things had been done for the dairy-industry in Manitoba.

Mr. Boulton also spoke on the state of the dairy-industry in Manitoba, and enlarged on the advantages offered to its development by the Dominion of Canada.

Mr. Robertson, member of parliament from Prince Edward's Island, said that farming and dairying could not exist without one another, seeing that they afforded each other mutual aid.

Mr. Cameron, of Nova Scotia, told how the dairy-industry was beginning to interest every one in that province.

M. Couture, member for Chicoutimi, Quebec, gave the meeting an account of the progress of dairying in the Saguenay district.

Messrs. Patton and Lane enforced the necessity of organising a good system of inspection.

Mr. White, president of the agricultural committee of the House of Commons, said that he came there to learn and not to teach.

M. Chapais observed that, although M. Beaubien had said a short time previously that there was no need of an elaborate constitution, his own opinion was that if the proposed association desire the aid of the government, it must prove that it is regularly incorporated, and in order to obtain incorporation, the association must be prepared with a constitution of some sort or other. He then gave some details of the revolution that the dairy-industry had produced since its development in the Eastern part of the province of Quebec.

Mr. Everetts spoke of the enormous sums expended by the government of the United-States for the promotion of the dairy-industry, saying that this ought induce our government to assist us.

M. Barnard submitted to the convention four points which he thought ought to engage the attention of the new society as soon as it was established.

1. To aim at encouraging the manufacturing of the best products;

2. To study the very important question of the outlets and markets to which the products of our dairies are sent;

3. To study most attentively the demands of these markets;

4. To seek to improve, generally, the dairy industry, and to make the manufacture of the different articles cost as little as possible.

The delegates unanimously adopted a resolution deciding that, as the practical result of the present convention, a Federal Association of the Dairy-industry be founded, and that an organising committee of the said association be appointed.

The committee was immediately named, and consists of the following gentlemen:

Messrs. E. M. McPherson, Louis Beaubien, W. H. Lynch J. C. Chapais, E. Caswell, P. B. de la Bruère, Ed. A. Barnard, Major Boulton.

The newly appointed committee fixed its first meeting at 2 P. M., and the general session was adjourned till 3 P. M.

AFTERNOON SESSION.—SESSION OF THE ORGANISING COMMITTEE.

The committee met at 2 P. M., in the committee room, No. 50, of the House of Commons.

M. J. C. Chapais was elected chairman, and Mr. W. H. Lynch secretary of the committee.

The chairman submitted the discussion of the clauses of the constitution to the committee, and the following were unanimously adopted.

1. The name of the new association shall be: *The Dairymen's Association of the Dominion of Canada.*

2. The aim of the association shall be to promote the general interests of the dairy-industry in the Dominion of Canada.

In order to become a member of this association it shall be

necessary for the postulant to be a member of one of the regular district or provincial associations, except in the case of senators or members of the House of Commons, who shall be *ex-officio* members of the association.

The association shall be under the control of the president, a vice-president for each of the provincial associations, a secretary, a treasurer, and three directors for each of the provinces of the Dominion, in conformity with the act of incorporation, all of whom shall compose the board of directors of the association, and report to the said association at its general meeting.

The hour of the general session having arrived; the present session of the organising committee was adjourned.

GENERAL SESSION—AFTERNOON.

The session opened at 3 o'clock in the railroad-committee-room. Mr. H S. Foster took the chair. Mr. Fisher informed the meeting that Mr. Peter White, the chairman of the agricultural committee of the House of Commons, wished to know at what time the convention desired to meet the committee for the purpose of explaining its views to the members of the committee.

It was arranged that the delegates should meet the committee at 10 A. M., of the next day—Wednesday.

Mr. W. H. Lynch, secretary of the committee of organisation made a report of the session of the committee, an account of the proceedings of which we have given above.

Col. The Hon. W. Rhodes, seconded by Mr. Ed. Barnard, proposed that the elections of the new association be proceeded with. The proposal was adopted, and the following officers were unanimously elected:

PRESIDENT—Mr. D. M. McPherson.

VICE-PRESIDENT.—The presidents of all provincial Dairymen's Associations.

SECRETARY.—M. J. C. Chapais.

TREASURER.—Mr. H. S. Foster.

DIRECTROS.

ONTARIO.

Messrs. W. H. Eager, Morrisburg, Ontario.
James Haggerty, West Huntingdon, Ontario.
E. Caswell, Ingersol, "
Thos. Ballantyne, Stratford, "

QUEBEC.

Messrs. Louis Beaubien, Montreal, Quebec.
Col. Patton, Knowlton, "
M Bernatchez, Montmagny, "
Ed. A. Barnard, Quebec, "

NEW-BRUNSWICK.

Messrs. Junus N. Inches. Fredericton, New-Brunswick.
Arthur C. Fairweather, Rothsay, "
George Fawcett, Sackville, "

NOVA-SCOTIA.

Messrs L C Archibald, Antigonish, Nova-Scotia.
Paul C. Black, Falmouth, "
John McKeen, Mahon, Cape Breton.

PRINCE EDWARD'S ISLAND.

Messrs. The Hon Alex. Laird, Bedique, Prince Edward's Island.
Hon. D. Ferguson, New-London, Prince Edward's Island.
John Hamilton, New-Perth, Prince Edward's Island.

MANITOBA.

Messrs. Major Boulton, Shellmouth, Manitoba.
Hon. Alifford (?) — "
S. M. Barré, — "

NORTH-WEST TERRITORY.

Mr. Jos. P. Dill, Wolseley, North-West Territory.

The elections being over, the members of the convention, at the invitation of Prof. Saunders, visited the Central Experimental Farm at Ottawa, and a most interesting visit it was, particularly as regards the splendid stables, cattle-sheds, hen-houses, and the experiment-rooms for grain and seeds. There are no stock on the farm at present, except some very fine horses, as the establishment has only just started into life, still, what the members of the convention saw there promised much for the future. Nothing could exceed Prof. Saunders' kindness and attention.

EVENING SESSION.

The first evening session of the Dominion Dairymen's Association was opened at 8 P. M., Mr. D. M. McPherson in the chair.

The chairman introduced Mr. Adam Brown, M. P., who, addressing the meeting in a pleasant speech, told them how deeply interested he was in the industry they represented. It was he who put the first box of Canadian cheese on the English market. He promised his aid to the new association founded by the delegates present. The dairy-industry has done a great deal in the past, said he, but it promises to do still more in the future.

Dr Sproule, M. P., spoke after Mr. Brown, showing the value of the new association and the good it must produce.

Major Boulton, seconded by Mr. Everetts, then proposed, that the next meeting of the association be fixed for the second Tuesday in the next session of the Federal parliament, so that the legislature may have time to consider the important questions the association may have to submit to it. Carried unanimously.

Messrs. Lane and Derbyshire pointed out to the meeting the great importance of *quality* in the products of the dairy, saying that it was one of the points to which the attention of the association should be most particularly directed. Pains should be taken to unmask the numerous frauds practised in the "handling" of milk from the time it leaves the cow's udder until it arrives on the market in the form of the finished product. To insure this, a well-planned system of inspection must be organised by the association.

Messrs. Caswell, McPherson, Taché, Everett, Fisher, Foster, Payne, gave their opinions on this matter. Major Boulton made some remarks on the advantages the *assay* of milk offered to the factories in the detection of fraud.

Mr. Edward Barnard said before a solution of all the questions which had been put forth by many of the delegates could be arrived at, the government must be solicited to appoint a Dairy-Commissioner. This suggestion was accepted,

and a resolution to that effect proposed by Major Boulton and seconded by Mr. E. Caswell in the following terms :

Proposed and unanimously resolved that the government be prayed to appoint a Dairy-Commissioner whose duty shall be to watch over the interests of the dairy-industry of the Dominion of Canada.

And the session was adjourned to 10 A. M., the next day.

SECOND DAY.

MORNING SESSION.—INTERVIEW OF THE DELEGATES WITH THE COMMITTEE OF AGRICULTURE.

The delegates having assembled, they were introduced to the President and the members of the Committee of Agriculture, in their committee-room, at 10.30 A. M.

At the invitation of the president of the committee, Messrs. McPherson, Robertson, Bolton, Beaubien, Caswell, and Derbyshire related to the members present the object of the interview, which the members of the committee having listened to, they expressed their interest in what they had heard by adopting the following resolutions.

1. Proposed by Mr. T. S. Proule, seconded by Mr. Hesson, and resolved unanimously, that in view of the extension and importance of the dairy-industry of Canada, and the necessity of protecting its interests, the committee thinks it its duty to recommend the appointment of a Dairy-Commissioner whose duty it shall be to watch over and promote, as far as possible, the progress of the different branches of this important part of the national industry.

2. Proposed by Mr. Fisher, seconded by Mr. McNeil, and resolved unanimously, that the committee has learned with satisfaction the creation of the Dairymen's Association of the Dominion of Canada, and is of opinion that, considering the general advantages which must be derived from the labours of this association and the extensive programme which it has to go through, every possible encouragement should be afforded it.

After the adoption of these resolutions, the delegates retired with the intention of meeting again in session at 2 P. M.

AFTERNOON SESSION.

The session was opened at 2 P. M. in the Central Tower; Mr. McPherson in the chair.

Mr Lane, seconded by Mr. Foster, proposed that the association ask the federal government for a grant of $3,000, as an aid to its organisation, and to enable it to realise the execution of the different points of its programme.

Before the discussion of this proposal, certain remarks of M. Thos. MacFarlane, analyst of the department of Inland Revenue, were heard, imparting to the meeting his views and ideas on the adulteration of milk, the analyses to be made for their detection, the system of inspection to be adopted, and the advisability of establishing a legal and official standard of the composition of milk.

Messrs. Bruère, Barnard, Derby, Fisher, Robertson, Sproule, Lane, Taché, Haggerty, Boulton, took part in a lively discussion on the remarks of M. McFarlane; after which, the motion of M. Lane, mentioned above, was passed unanimously.

After a fresh discussion with respect to the establishment of a legal and official standard of the composition of milk in which, Messrs. Fisher, Sproule, Everett, Boulton, Lane, Foster, Robertson, Taché, Patton, Carpenter, took part on one side or the other, it was decided that at present it was not advisable to fix this standard, and the subject was remitted for discussion at the meeting of next year.

The delegates were informed that the Rt. Hon. Sir John A. Macdonald having been requested to grant an audience to the delegates, informed them that he would be ready to receive them at 8 P. M. Messrs. McPherson, la Bruère, and Robertson were appointed to address the prime-minister, and the session was adjourned to 7.30 P. M.

EVENING SESSION.—INTERVIEW WITH SIR JOHN A. MACDONALD.

At 8.30, the delegates were introduced to the premier, in his private room, and found with him three other ministers : the Hon. Messrs. Carling, McKenzie Bowell, and Costigan. The following members of the House accompanied the delegation: Messrs. Small, Taylor, Marshall, Choquette, Hickey, Sproule, Ferguson (Leeds), Coughlin, Carpenter, Innes, Fisher, Adam Brown. Dr. Sproule introduced the delegates to the premier. Messrs. McPherson, Robertson, Foster, Larivière, Brown and Sproule, related to the premier the desires and views of the new association of the dairy industry, a deputation from which was present, and requested him, in particular, to appoint a Dairy-Commissioner, and to grant the association a sum of $3,000 to enable it to accomplish the task it had set itself to discharge.

The Right Honourable Premier replied that he was well informed as to the progress of the dairy-industry of the Dominion of Canada. He knew it to one of the most powerful promoters of agricultural, and therefore of national prosperity. He remembered still the first cheese—made by his mother—that he had tasted. He knew that the manufacture of cheese had improved more than that of butter, and advised the new association to try to improve the butter produced in the Dominion. He recognised the usefulness of a Dairy-Commissioner, and would confer with his colleagues on the advisability of appointing such an officer. As to the grant asked for, he would be glad to have, in writing, a description of the mode in which it was proposed to expend it, and requested Prof. Robertson, who had just addressed him, to prepare such a description and to submit it to him.

The delegation then retired, enchanted with the pleasant manner with which Sir John Macdonald had received them.

CLOSING SESSION

At 9.30 P. M. the delegates met for their last session, and appointed committee of organisation to replace that already named, which had not been able to finish the work of elaborating the constitution of the association.

The committee selected was composed as follows: Mr. McPherson, chairman, Messrs. Ed. Barnard and E. Caswell.

It was then decided that Prof. Robertson, who had kindly consented to undertake it, be entrusted with the duty of preparing the memorandum, on the employment of the grant, requested to be furnished to the government, and which the prime-minister had asked the professor to prepare.

A resolution was also passed unanimously, to the effect that Mr. W. H. Lynch be repaid all the expenses he had incurred in organising the present convention, and the convention was dissolved, with the intention of meeting again on the second Tuesday of the next session of the federal parliament at Ottawa.

J. C. Chapais.
Sec. Dairymen's Ass. P. C.

(From the French.)

PEKIN DUCKS.

This variety of duck has only been known in Europe for about a dozen years. At one time it appeared as if it would

take the place of all the other varieties, but the "furor" in its favor did not last very long, though there are still many breeders of it, and large classes are to be found at the various shows. It is of Chinese origin, and very hardy, having in this respect done good service by giving a needed stamina to some of the other varieties. It is probably the best layer of all ducks, and where eggs are chiefly sought for it can be recommended, as it will thrive almost anywhere, being a capital forager. With respect to size, it is most deceptive, for the abundance of feather gives it the appearance of a large duck, whereas it is much smaller than the Aylesbury or the Rouen. The flesh also does not compare well in flavor with these breeds, being rather dry. In shape it differs from every other variety of duck, being totally devoid of keel, and the carriage almost upright, not unlike the penguin, for the legs are placed far back on the body. The head is short and thick, and the bill strong and stout. Considerable discussion has arisen as to the color of the Pekin, but it is usually accepted that it should be of a light canary yellow tinge, as if the under coat were yellow and the upper white. A pure white Pekin may be found, but the canary yellow is to be preferred. The bill is of a deep orange, the eye black, the legs and feet a bright orange, and small in bone. The tail feathers are larger and stronger than are found on other varieties. For crossing they are very valuable, and, as already stated, as layers they have really no equal.

The following are the general characteristics of the Pekin duck or drake:

Bill—Broad, and of medium length.

Head—Rising from the bill in an arch, as in the call-duck.

Neck—Longish, carry very high, and also sometimes slightly curved like a swan's.

Eye—Large.

Body—Deep and full carried, very erect, with the stern almost on the ground.

Back—Long and Broad.

Wings—Moderately developed, and carried close to the body.

Tail—Rather long, and carried very upright, the more so the better.

Thighs—Short, stout and wide apart.

Legs—Short.

Plumage—Very abundant and soft.

COLOR: *Bill*—Bright orange, perfectly even, and free from all dark-colored spots.

Legs—Bright orange.

General Plumage—White, shaded with canary color—the under plumage being a deeper shade, getting paler toward the surface, which, with time and exposure, becomes nearly pure white.

Il—, England STEPHEN BRALE.

HAMPSHIRE-DOWN LAMBS.

In the last of his articles on Sheep and their Management in the *Live Stock Journal*, Professor Wrightson says. I trust that those of my readers who have followed the last seven articles upon Sheep and their Management will not judge me harshly if on this occasion I take as my theme my own particular breed of sheep. However mistaken and however misplaced my affection, I love the Hampshire-Down Lamb. The feeling is not shared by all, and I could name more than one gentleman who dislikes them as much as I cherish them. Still the admirers of these sheep are numerous, and they prefer them on their intrinsic merits.

It is as lambs that they particularly excel, and I have often declared a Hampshire Down ram lamb, as he appears in the sale-ring at the Market House, or on the Butts, at Salisbury, late in July, or in early August, to be one of the wonders of the world. These lambs are for the most part born between the 10th and the 31st of January, and the principal fall is about the 20th of that month. A few are dropped late in December, but this is not thought desirable by ram-breeders, as they are then apt to have passed their most perfect bloom before they are disposed of. Nothing, we know, beats a January lamb; and if we take January 20th as the day upon which a lamb is yeaned, we shall be able to show a record of a daily increase in live weight of 1 lb. from the day of birth to August 1st—that is, a lamb 192 lb. weight at 192 days old.

Comparing this with the increase of ordinary sheep or even of cattle it is very striking, and will scarcely be credited by those who are accustomed to the usual system of bringing up lambs described in my last article. The result shows the wonderful earliness of maturity in improved Hampshire-Down sheep as a breed, in which quality they are unrivalled, and also the merits of the system of feeding which can produce it. The three factors necessary for the achievement of such a result are, first the breed, second the mode of feeding, and third the peculiar soil and climate of a southern county adapted for the growth of summer fodder crops as well as of good root crops.

It was only on the 27th ult. that we weighed fourteen ewe tegs of this breed, and found that they averaged 231 lb., while the heaviest was 270 lb. at fourteen months old. This result was, of course, less extraordinary than the statement above made, but was obtained without forcing diet until a comparatively recent time.

To bring out a 12 stone (1) lamb at eight months old is well within possibility in the case of this breed, and yet this was the limit I proposed when contrasting the usual management of sheep with what I am now about to describe.

A Hampshire-Down lamb may then be supposed to be born on January 20th, and we have to follow his short history until he appears either as a wether ready for the butcher early in August, or as a ram lamb fit for service at the same date.

In the first place it will be necessary to feed the dam liberally in order that her milk may be both plentiful and rich, and with this end in view we early begin to feed with cake, giving an allowance of 1 lb. per head per day. This, together with hay and turnips or swedes, constitutes her diet, and this is continued for at least ten weeks, or until such times as it is considered advisable to lower the amount of cake or corn given to the ewes in order to increase that given to the lambs. Both ewes and lambs are comfortably housed at night in a well littered and well sheltered pen, and have daily access to a fold of turnips, and receive their cake and hay regularly. The young lambs quickly learn to nibble at the turnip-tops and to select the finest portions of the hay, and when this is noticed it is time to give them a corner to themselves, where they can have a little finely-ground linseed cake, split peas, oats and crushed malt. This they soon learn to relish, and it is pleasant to see them crowding round their lamb-troughs after their corn, and then passing through the creeps or lamb-hurdles to steal a drop of milk from their mothers.

The lamb-hurdle is from this time an institution. By its means the young creatures can run forward and crop the first green food of the season in the form of succulent swede or rape tops. They are at this time in receipt of eight different sorts of food—namely, hay, turnips, turnip- or rape-greens, linseed cake, peas, oats, malt, and milk. Their progress is wonderful, and their short and smooth coats evidence their perfect health. As the season advances into March, further change

(1) That is, 96 lbs. the carcase.

is obtained by a fold of young grass for three or four hours in the middle of the day. This system is pursued until early in April, when they enter upon a succession of spring and summer fodder-crops which were sown extensively the previous autumn. This series begins with rye, over which swedes or mangels have been heaped, and from this fold they go daily in many cases into water-meadow, always returning to the rye-fold in the afternoon. These sheep are always between hurdles throughout the year, although a "spread" over a field is frequently allowed during a few hours of the day. The lambs also continue to enjoy the privilege of choice of food by means of the lamb-hurdles, so that while the ewes are close-folded the lambs enjoy much greater freedom. There are generally two descriptions of green food, and, in many cases, three or four, according to the season of the year. Following the order in which the fodder crops mature, we find that these lambs are, successively, upon turnips and rape, rye and water-meadow, winter barley and water-meadow, winter barley and trifolium, trifolium and vetches, vetches and rape, rape and cabbage. There are at least two distinct changes of food every day, and as vegetation becomes more luxuriant, they often have a variety of courses which is quite epicurean in its character. Take, for example, a fine midsummer day, when the lambs awaken upon a fold of vetches. The shepherd is up betimes, and begins by giving them an allowance of cake. He then grinds some mangel into troughs, which they eat with great relish. They are next admitted to a fresh fold of vetches, after which they are walked quietly away to a neighbouring piece of good rape or cabbage. After two hours or more, and in the heat of the afternoon, they are allowed to spread themselves over some old sainfoin or aftermath clover, after which they return to the vetch-fold, and after receiving another feed of corn they lie down to well-earned repose, having increased their weight by over 1 lb. each. Hay chaff in troughs is also frequently supplied, even in summer, by way of keeping them firm in their bowels; thus, a lamb may easily partake of six or eight different kinds of food. Rape and cabbage or kale give way to turnips in late July or early August, and the allowance of "corn" is kept up to from 1 lb. to 1½ lb. per head. This allowance is pretty constant from birth, considering the cake given to the ewes, which is, of course, given for the benefit of the lambs. Weaning usually takes place in May, and the ewes then go on to hard keep.

Such is the system, so far as it can be described, by which these lamb prodigies are produced. The most serious expense is probably the cake and corn, but the total amount consumed per head is not so serious as might at first be thought. At the very fair allowance of 1 lb. per head per day for the entire period of the lamb's short life it would not be more than 200 lb., and 2 cwt. would probably give all that is required. At 8s. per cwt. this equals 16s., so that we are probably justified in stating that the corn and cake cost within 20s. a head. The increase in value due to the cake is, I submit, considerably beyond these sums, so that it appears probable that these lambs pay well for their cake. Lambs treated according to the system just described would be worth 64s. each on August 1st, and could not have been worth 44s. apiece without cake and corn, so that we have good reason for thinking that the cake and corn is paid for, and more than paid for, by the increased value of the sheep.

Careful shepherding, plenty of change, liberal allowance of concentrated foods, and a good breed to work upon are the chief points required in order to secure success. The remaining points of management are the tailing of the lambs, which is done by scaring at a month old, castrating, which is usually performed in May, and careful attention to the feet in order to prevent foot lameness.

As it is intended that these articles upon sheep should keep pace with the year, I will conclude by mentioning the present position of lambs on the Hampshire (*chalk*) hills. They are just now (1st April) leaving the winter-folds of swedes and rape intermixed, which is a characteristic crop of the district, and passing into the series of spring and summer crops already mentioned. Heaps of mangel and swedes are dotted over the rye, and the water-meadows are now receiving them. The lambs are strong, and are at present travelling daily between a fine crop of swedes and rape and a fold of young grass. They still have the advantage of shelter at night in a temporary range of hurdles and litter, and they look the picture of youthful vigour. Their mothers are receiving a liberal allowance of linseed cake, malt culms, and such hay as we have this season. Although still young they bid fair to realise the expectations set forth in the earlier portion of this short article.

FEEDING OF DAIRY COWS.

At the Framlingham Farmers' Club, Suffolk, Eng., Professor Long delivered an address on dairy farming. In the course of the discussion which followed, Mr. D. F. Smith said that since her Grace the Duchess of Hamilton had established a large dairy in the country, he had found it necessary to take special interest in the dairy question. There was one subject he hope Mr. Long would have touched upon, and that was as to the best method of feeding cows. No matter how skilled the person employed to make the butter, if the material was not right, it was impossible to make good butter. His belief was that the feeding of cows was a subject that needed to be better understood than it was at present. Science had, no doubt, been very helpful in the matter, but there were many people who paid very little heed to scientific researches in this particular. He should like to know whether Mr. Long would advocate the growing of maize for dairy cows, or if not, what other green crop he would recommend to provide an adequate supply of food in the summer months. In Suffolk, the pastures were not so good as they were in some parts of the country, and in some districts especially if they had to depend upon the pastures, he was afraid that they would come badly off. He should also like to know Mr. Long's opinion as to the use of ensilage. Some people were of opinion that ensilage gave the butter a taste which was not exactly pleasant, but it was of course necessary to provide the cows with a certain amount of succulent food, and one question was whether ensilage could be produced cheaper than roots, and used to greater advantage accordingly.

Mr. Calvin D. Smith also spoke on the question of feeding, and said he was a great believer in the principal of filling the bodies out and letting them puff off a bit.

Dr. Jeaffreson thought Mr. Smith was perfectly right—a good belly-full was a very important thing. A supply of rough indigestible food was essential in order to keep an animal in good health—they must not have a large quantity of first-class highly nutritious food unless they had a quantity of indigestible matter to fill them out and exercise the digestives organs. Indigestible food was not to despised by any animal.

Mr. Gooderham called attention to the value of cabbages as food for dairy cows in the winter months.

Mr. D. F. Smith asked whether, after a certain quantity of food had been given to a cow, all extra food was not waste?

Mr. Long, in reply, recommended the cultivation of green maize as a food for dairy cows. After trifolium and vetches he had grown from 15 to 20 tons of maize per acre, and he thought that was not to be despised. He should like to know what Mr. Smith's crop had been, but if it approached anything

like 6 ft. in height, he should say it was a most valuable food, especially for butter making, and he should advise them to grow it if they could conveniently upon farms. Of all green crops he had most belief in vetches, lucerne, and rye-grass. He had seen the cows at Glenham, and the remark he had made to Mr. Smith was that for milch cows the animals looked too well or a bit too fresh. Sometimes if a cow looked too well she did not milk so satisfactorily. Especially, perhaps, was this the case with the Jerseys. We were told that a Jersey, to be a good milker, should be a bag of bones, with a good tight skin stretched well over it. As to ensilage for cows he (Mr. Long) had made ensilage himself, and liked it well. He knew men who had made ensilage from year to year, and they strongly recommended its use. There was "ensilage and ensilage"—there was sour ensilage and sweet ensilage. The sour was not so good for milk, and besides it had a pungent smell. Milk absorbed smells of all kinds, and he had often heard of milk having been spoiled from the fact of its having absorbed the strong flavour of sour ensilage. He didn't like cabbage as a food for butter-making. If they were producing milk for London he advised them to use all the cabbage they possibly could, but according to his experience it was not a good thing for butter making.

Mr. D. F. Smith, in answer to Professor Long, said they had grown maize 13 ft. and 14 ft. high; last year it was between 10 ft. and 11 ft. high; and this year, in spite of the bad season, it averaged between 3 ft. and 4 ft.

VALUING DUNG.—Dr. A. P. Aitken, chemist to the Highland and Agricultural Society, writes as follows to Mr. Little, Sark Tower, as to valuing dung.—A few years ago I went very carefully into the question you refer to, and although it is impossible to state in exact terms the actual value of dung derived from the consumption of cakes, meals, &c., seeing that there are so many qualifying circumstances to be taken into account in making an accurate estimation for any special case, yet we are not far from the truth when considering that the value of such fodders when consumed by dairy cows is just about half of that got when consumed by feeding beasts. I think it safe to value the manurial worth of linseed-cake consumed by feeding beasts (at present prices) at about 50s. to 55s. per ton, granting that the dung is properly made and well cared for. That of dairy cows would therefore be about 27s. per ton. If the cows are in full milk and in lean condition, it will be somewhat less; if partly drying up, and being fattened off, it will be somewhat more.

Review of the Live Stock and Dead Meat Trade.

FAT STOCK.

Wherever foreign cattle have not overweighted port-markets the trade for beef has been very firm, with a brisk demand and generally improved values. It is the foreign stuff which is crushing the trade, in more ways than one, although the numbers for the moment are comparatively small. In the Metropolitan Cattle Market at Islington on Monday last, supplies were rather light, and sellers were enabled to hold out for rather higher rates, which, as a rule, were paid, 7⅞d. being the extreme quotation for ordinary best beef to sink the offal. At Deptford, on Monday, there were 1193 American beasts on offer, and these sold up to 6¼d., showing ¼d. per lb. advance; the 46 Dutch beasts on offer were only of middling quality, and the top price realized was 6d. At Liverpool on Monday the trade was not fast, but full prices were obtained, up to 6¾d. to sink the offal, and from 2⅞d. to 3⅞d. per lb., live weight "on the hoof." At their auction sale at Perth on Monday, Messrs. Macdonald and Fraser report a good supply, and a good demand at slightly improved rates. Messrs. John Swan and Sons report that at Edinburgh the trade was rather slow, owing to unfavourable weather for killing, and rather heavy supplies, at Glasgow the arrival of 750 United States cattle, which sold up to 6d. per lb., made the trade dull, but quotations were not lower. (1)

Drying Cows for Grazing Purposes.

I saw in your paper an enquiry as to the best way of drying cows for grazing purposes. A large dealer and grazier gave me a recipe which he had used successfully for years, and which I never knew fail with barren cows intended for feeding.

Two tablespoonsful of Goulard's extract of lead, and one ditto of spirits of wine mixed in a quart of water is sufficient for one cow. The mixture is to be well rubbed into the udder and milk vein for half an hour at least, using one-half for the first dressing, then, miss a day, as apply and before.

The udder will not require stripping, in fact, to draw the milk does away with the effect of the lotion. Nor are any drenches wanted. I also saw in the *Agricultural Gazette* some years ago a remedy for hoven or swelling in cattle, which I used with good effect. Drench the animal affected with two tablespoonfuls of dry chloride of lime in a quart of water, and the effect is immediate. Years ago a well-known Shorthorn breeder lost several cows from milk fever. He changed his herdsman who introduced a new practice at calving time. He never milked a newly-calved cow for at least three meals, but let the calf remain with the cow and take as much as it required. By milking a cow clean, just after calving, you cause an unnatural flow of the milk and all sorts of complications ensue. Whereas, by following nature's laws no excessive strain is put on the system. Anyway, the method has answered well in many cases, and I followed it for years. *Country Gentlemen.*

(1) June 1st.

NON-OFFICIAL PART.