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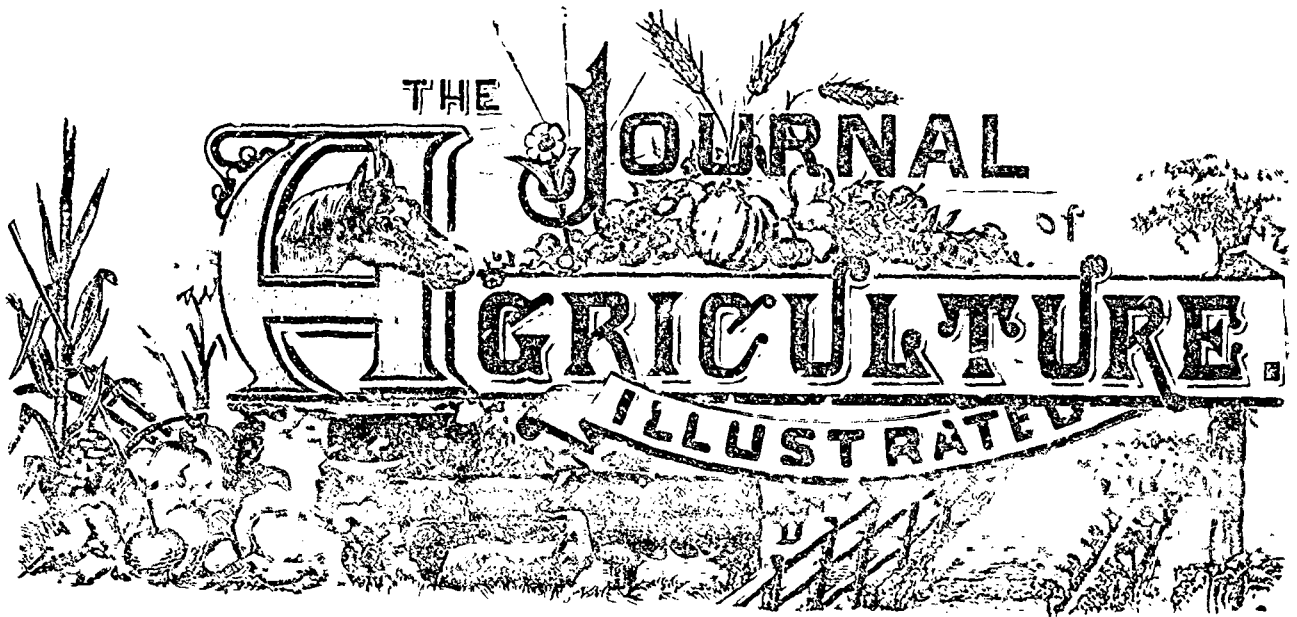
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NOTICE.—The subscription to the *Illustrated Journal of Agriculture*, for members of Agricultural and Horticultural Societies, as well as of Farmers Clubs, in the province of Quebec, is 30c annually, provided such subscription be forwarded through the secretaries of such societies.—**EDITORIAL MATTER.** All editorial matter should be addressed to A. R. Jenner Fust, No. 4 Lincoln Avenue, Dorchester Street West, Montreal—or to E. J. A. Barnard, Director of the *Journals of Agriculture, &c.*, Quebec.

OFFICIAL PART.

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Notice.—Gratuitous distribution of plans of barn byres,
and of pamphlets on drainage.

The Hon. L. Beaubien, Commissioner of Agriculture and
Colonisation, requests us to inform our readers that, by ad-
dressing the Secretary of the Department, plans of barn-
byres and pamphlets on drainage may be obtained gra-
tuitously.

Notice—Herd-books.

Dr. Couture, 49 rue des Jardins, Québec, is the secretary
of the herd-books and stud book of Canadian cattle and hor-
ses, and of the swine and sheep registers recently opened by
the Council of agriculture.

In future, all requests for registry in the above books as
well as all letters, documents, &c., connected with them,
should be addressed to him.

All letters requiring an answer must contain a 3 cent stamp.

ED. A. BARNARD,
Sec. Coun. Agriculture,
Director of the *Journals of Agriculture.*

Agricultural Clubs.—Important Notice.

The agricultural clubs already in existence and those
shortly to be instituted, are requested to apply to the secre-
tary of the Department of agriculture, who will forward to
them, gratuitously, for the use of their members, certain pam-
phlets on agriculture, and all the information on that subject
that the department is able to afford them.

H. G. JOLY DE LOTBINIÈRE,
Pres. Council of Agriculture.

A Speech delivered at the session of June 3, 1892, of the Legislative Assembly of the Province of Quebec, by the Hon. Louis Beaubien, Commissioner of Agriculture and Colonisation

MR. SPEAKER,

I postponed the discussion of this item of \$10,000 for the dairy industry until to-day for a set purpose. Several members had prayed me to wait, in order to give them an opportunity of taking part in the debate, and I thought it my duty to accede to their request.

In the Committee on Agriculture we had lately two such interesting sessions, that we determined to revive them in the early days of next session, at which time the members will not be very busy. This will give the specialists a fresh opportunity of addressing our farmers. The addresses will be published.

We heard Professor Robertson, who occupies an important position at the Experimental Farm at Ottawa, as well as the Assistant Commissioner, Mr. J. C. Chapais, and we were greatly interested by the addresses of both.

SILOS.

Since these two addresses I have made many reflections, which I now propose to communicate to this House.

First, I request the active, sincere cooperation of each member.

A member, in the county he represents, occupies of necessity an important position. I ask for his influence to help us to establish a silo in every parish where no silo exists at present.

Good advice has frequently great effect, and does a great deal more than any amount of offered prizes.

Were each member to devote himself seriously to this end, and push ahead one of the wealthiest of the farmers in each place, we should succeed indisputably in implanting the practice of ensilage over the whole province.

To encourage this practice, we intend, this year, to grant a prize of \$20 to the farmer who shall build a silo in a parish where there is none at present. There are, I believe, a thousand parishes in the province. We should have as many silos as a commencement. The same prizes cannot be offered every year, but this year, I hope we shall have to pay the greatest amount possible.

There is not one member who cannot promise us to devote himself to this task during one day in each parish. Every member follows, doubtless, the laudable custom of presenting himself before the electors after every session to render an account of his stewardship; the best speech he can make to them, after having justified his parliamentary conduct, is one explaining the real value of the silo.

FARM SCHOOLS.

Secondly, I ask the members to send a pupil from every parish to the farm-schools. We ought to have a thousand pupils next year. With the aid of the zealous curés and the chief inhabitants, this result can be obtained.

I spoke of the curés. They it is who can and who will be of the greatest assistance to us. We heard yesterday about the great work done by them in the country, what they had done for the higher education, for the diffusion and the progress of classical studies. They it is who have built the colleges and peopled them with students.

Now, we do not ask them to make such extensive sacrifices. Our farm-schools are nearly ready; it is only the pupils that are wanting, and they must be found.

What steps were taken to develop this state of the higher

education, the advantages of which are nowadays so highly valued that even the poorer farmers deprive themselves of everything so to speak, that they may send a son to college?

How often has not the curé sent his *protégé* to college? More than one has even had the merit of sending a dozen or more scholars of his parish at his own expense; and among them have sometimes been men who have distinguished themselves in the service of the State and of the Church. After building the college, the curé found the scholars. What we ask for to-day will not be so costly. The taste for the higher education is well developed, it has become part of our customs, it can stand alone. The curé can now exert his influence and his earnest desire to be useful in another direction. His advice will still be productive of good. Let him endow our farm-schools with an equally numerous band of agricultural students.

If, with the assistance of those distinguished agriculturists who will lend me their cooperation, I am supplied with one pupil from every parish, I will engage to make a good farmer of him. But I beg the members, as well as the other people of the country, to send me fit pupils. I will tell you what a lad ought to be, so that time and money may not be uselessly expended in obtaining pupils to instruct, who the moment they are free from the trammels of the school, will desert the interests of agriculture.

Our proposed pupil should be from 14 to 18 years old, possessed of a certain amount of education, and, in every sense of the word, a nice lad (*joli garçon*). He must be the son of a farmer and the heir presumptive of a farm.

The chief point is the judicious selection of the pupils.

Up to the present time, the results obtained by our schools of agriculture have not, it must be confessed, been in due proportion to the sums expended thereon. We have not been so successful as we hoped to be, because the selection of pupils has not been possible. We have been satisfied with creating the institution, but we have not employed the proper means of finding pupils to fill it; and as a certain number of students was necessary before the institution could receive its grant, any lad who presented himself, or could be picked up anywhere, was received, without much care being exercised in the selection. This must be entirely altered.

To repeat what I said just now: you know the steps that were taken to promote the diffusion of the higher education. Since our success has been so great in that, let us take the same means to promote the diffusion of sound agricultural studies. We said to ourselves: The country needs statesmen and churchmen; and statesmen and churchmen were found for it.

In this, success was obtained in an enterprise much more arduous than the enterprise I put before you to-day; for, indeed, the task then was not to search after the son of a farmer to convert him into a farmer, but, so to speak, to go to the very antipodes of things—to visit the abode of the farmer to find a man who one day might be called upon to govern the nation. The son of the *voyageur* who passed his life in the bush; the son of the peasant-soldier, who deserted the plough for the musket; the youth born in the humblest grade of society—all these were taken, educated, and then placed at the head of the nation; out of them was selected a distinguished prelate, a Cartier, a Papineau. (Cheers.) Thus, by going from one extremity of the social scale to the other, prodigies were accomplished. Out of a population composed in great part of *voyageurs* and poor peasants, means were found to form men highly educated, men who have worthily occupied the most elevated positions, men who have done honor to our country, as they would have done honor to any country in which they might have happened to have lived.

At the time when we were conquered, and reduced, alge-

braically speaking, to our simplest expression; at the time when France was abandoning us, we were endowed with now chiefs. Let the clergy again afford us the cooperation of their intelligence and of their devotion, and the restoration of our agriculture will be assured.

THE DAIRY INDUSTRY.

Agriculture is still the source of our national wealth. That our towns may flourish, our rural districts must be prosperous.

To arrive at this result, I desire to benefit by the experience of those who have followed the best practical methods, who have been successful, and who are living, ostensible proofs that one can gain one's bread on a farm and not come to ruin; that on a farm one can prosper and remain in this our country, Canada. (Cheers.)

One of the largest dealers in the country, Mr. Ayer, of Montreal, a man who has made his fortune in the dairy industry, told us the other day, before the committee on agriculture, that the soil of the province of Quebec was better suited to dairying than the soil of Ontario.

To this statement I am sure you will all listen with pleasure.

Our field of operation in the province of Quebec is superior to that of Ontario! Why, it is a perfect revelation!

I have often heard it said that it freezes in every month of the year in this province. May be, Voltaire was the author of this saying, but I believe many of our people have repeated it after him. They tell us our climate is too severe; our long, long winters devour our profits. Well, here is a man who has realised a considerable fortune in dealing in the butter and cheese of our province, a man who has been obliged to visit all our districts, who is well acquainted with them all, and who tells us: For dairying you have the finest country in the world!

SYNDICATES OF CREAMERIES AND CHEESE FACTORIES.

I ask, in the third place, that the Dairy-men's Association be aided in *syndicating* all the creameries and cheese factories that exist in the province.

Here, Mr. Speaker, is a way in which a member may be of the greatest service. There are, say, ten, fifteen, twenty creameries or cheese factories in his county. These are independent; that is, they form no part of any syndicate. The thing to be done is to reunite them into a syndicate, and the member is the one who can work most successfully for that purpose.

Let him go and hunt up the proprietors of these creameries and cheeseries, and try to convince them of the folly they are guilty of in remaining unconnected with the syndicate.

But it will be said, what good can the syndicate do us? The syndicate is the school of cheese- and butter-making; it is even more than that, I might almost say it is the university for that business. It is the best means of teaching how to manufacture the goods, and to give them the shape and quality needed to assure them the highest prices in the market.

This morning I was breakfasting with an Englishman, and the conversation happening to turn upon the subject we are now discussing:

"Why," said he, "don't you make butter here like some we make in England? And why don't you, especially you who derive your descent from the Bretons and Normans, make such butter as is made in Brittany? *Brittany butter*, that's the stuff! When once one has tasted it, one knows its value. *Brittany butter* is good, and its always the same, always good; so it always fetches the best price. There, the

same quality of butter is invariably made. There is very good butter made in England, but it is not constantly good. One day you buy good butter at market, and the next week you can't get anything equal to it; while *Brittany* and *Norman butter* is always of the same quality, always excellent."

This is the result we aim at in forming syndicates for our creameries and cheeseries: the manufacture of goods of superior quality; good butter, always good; good cheese, and always good.

The system of the syndicate is to reunite from fifteen to twenty-five associations, or makers, under the superintendence of one inspector, whose salary is paid half by the Government and half by the syndicate. This year there are fifteen of them. During the whole summer, the inspector visits the creameries and cheeseries in his charge, correcting faults, making suggestions for the amelioration of the method of working—he himself being a maker—acting in such a way that the goods be made in the most perfect manner. These inspectors are themselves under the control of an inspector-general, and during the winter will attend a school where they will receive full instruction in their duties. I shall have something to say presently about this school. Everywhere, in all syndicated factories, the products will be good, and, consequently will find the best prices.

I take the syndicate to be one of the most important of the things that concern the farmer and the proprietors of creameries and cheeseries.

Here, for instance, is a creamery or a cheesery which turns out a first-rate article; by its side—I am talking of places where the factories are not syndicated—by its side, I say, is a factory that turns out only inferior goods; a dealer visits these factories—Mr. Ayer or Mr. MacPherson,—or he sends his agent to make purchases; the butter or cheese is sent to England. The consequence is, that the mixture of good and bad in the same cargo diminishes the chances of obtaining for the good article the price that was expected for it. And, as the price dealers pay here is in direct ratio with that they receive in England, the careful, intelligent man who has made a good article is compelled to submit to a diminution of his profits because his next neighbour has manufactured inferior goods.

Therefore, it is clear we must improve the defective process of the neighbour and thus raise the general standard of excellence.

That is the aim of the syndicates, the object that the Dairy-men's Association proposed to itself when establishing them throughout the province. I congratulate that association with all my heart on its having advanced so far along the road of progress.

I desire to retain it as my best adviser.

The question with which it is now concerned is: How shall we attach to the syndicates all those creameries and cheeseries not yet syndicated?

Here, the members can assist us. They have influence, and they are even accustomed, in some degree, to the rôle of canvassers. If in their counties there are some factories which are not syndicated, let them tell the proprietors that they are far from extracting all the possible profits from their trade; that they have more to learn before they arrive at perfection; that their school is the syndicate, and their instructor the inspector. They will not have long to wait for their reward.

I will ask the member for Bagot to relate his experience in this matter. The day before yesterday, I heard the president of one of the syndicates, Mr. Brodeur of St. Hugues, give us most interesting information on the way in which the syndicates were appreciated by the people of his neighborhood.

Let the farmers open their eyes and convince themselves of

the good they may derive from these institutions. Under the syndicates good will be well made. Then, I shall propose to the Dairymen's Association to put a trade-mark on the cheese—not on the box, but on the cheese itself. It might be stamped with the words "Class 1," or 2 or 3, by the Inspector-General of the Province of Quebec. With the aid of our friends of the Dairymen's Association, I intend to do my best to provide a sufficient number of inspectors, and to insure that they will know their business.

To what result shall we arrive by this organisation? We shall secure the trade with the English market, the best and safest we have, and we shall obtain prices more constant and more remunerative.

There, that is what I wish to do with the aid of the House; I speak to both sides of the Chamber.

As to myself, I intend to travel through my county, and to labor, with the support of the curé of each parish and of all the well-disposed *citoyens*, to attain to all three of the results which I have been talking about.

I do not say we shall be successful in every point, but it seems to me that if each member would put his shoulder to the wheel, before long, success—general success—would crown our common efforts.

We have to-day 800 cheese factories in operation, but we do not make perfect goods in all of them. We must make perfect goods, uniformly, everywhere, and thenceforward our trade will receive an enormous extension. We exported last year \$10,000,000 worth of dairy products, of butter or cheese. These figures represent the exports of the whole Dominion. Unfortunately I cannot state the share of the Province of Quebec in them; still, looking at these figures, one can see at a glance the result at which we might arrive with a little labor, which every one of us ought to give with his whole heart.

THE SCHOOL OF DAIRY INDUSTRY

A paragraph of the speech from the throne stated that the Government intended to devote special attention to the dairy industry. I am now explaining to the House what it is we propose to do. I am sorry to be rather long, but the matter we are treating deserves that we afford it all the time necessary to its consideration. I said that one of the most certain means of increasing the manufacture of a superior quality of goods, be they cheese or butter, was a conscientious, minute inspection; it therefore follows that the inspector should be a man possessed of the necessary qualifications.

At present we have not enough inspectors, and some of them perhaps are not quite so competent as might be desired, although others are thoroughly well skilled in their business. They are few in number when compared with the number of syndicated factories. This is what I propose: In the very centre of the district where dairying is held in high estimation, at St. Hyacinthe, the cradle of the Dairymen's Association, alongside of the Experimental Farm of the College of St. Hyacinthe, we are about to establish a school where the manufacture of butter and cheese will be taught. This, school, I may say, *en passant*, is well advanced in its organisation. The inspectors will attend it, especially in the winter months, when they will not be on their travels. They will be kept *au courant* of all the new processes, of all the improvements introduced into the business. The cooperation of its skilled professors will be generously lent to us by the Dominion Government for the benefit of this school. Again, for the use of this school, the Dairymen's Association has already retained the services of one of the best makers of the Dominion, and even of the United States. Our course of instruction, then, will be excellent, both in theory and in practice. If the House, which is listening to me with so

much attention, will kindly lend me its aid, will put its shoulder manfully to the wheel, I can promise that in two years we shall be "giving points" to the Province of Ontario in the making of butter and cheese. Before two years are over, we shall even have goods as highly esteemed as those made at Ingersoll, the centre of the Ontario dairy industry. Only the other day, Professor Robertson told us that, as to some goods, we had beaten Ontario. Not, indeed, in the bulk of our manufactures, but we have shown that we are capable of contending to advantage even with that rich province, a contest, the high prize of which is the prosperity of our country. The organisation of which I am speaking will assuredly bring about this result.

The inspectors, after leaving the St. Hyacinthe school, will travel round their syndicates diffusing sound ideas, and insuring us throughout the country the manufacture of an article that shall be always uniformly good.

En passant, I wish to draw your attention to the little care that is generally taken about the manufacture of the cheese boxes.

The best goods, as regards the market, are not only those that are the best made, but they must be also well packed in the best cases. Remember what Mr. Ayer said to us the other day in the Committee on Agriculture, that our package was not the most suitable dress for our goods; that it injured the sale of our products. He quoted facts within his personal experience. It is clear that if a shopkeeper entering a store finds on one side a heap of boxes of cheese laddy dressed up (*agencée*), of rough appearance, and on the other side boxes of agreeable looks, well made and constructed in such a way as to keep the contents in good order,—it is clear, I say that he will naturally be inclined to select the latter as his choice.

Since the preferences of the buyer may be determined, in a certain degree, by the case even of the goods, the package itself must be cared for. It is a detail that is not without its importance.

It being granted that we are going to improve the process of manufacture and the mode of marketing our butter and cheese, we shall necessarily be led to increase our production of milk. And this brings me back to the subject of the silo: with the aid of this we can make butter in winter as well as in summer.

THE SILO AGAIN..

In connection with this, I think I ought to read to the House the observations made by our friend the member for Chateauguay. He spoke to us the other day about the silo, and I am entirely of his opinion. He belongs to a purely agricultural family: he is a near relation of several of the laureates of the *Mérite Agricole*. I may say the same of my estimable colleague, the member for Compton. They both belong to the Scottish nation, so skilled in agriculture, and at whose abodes my countrymen have always found so much kindly feeling, as well as such good examples in farming.

The following quotation is from the *Montreal Gazette* of the 24th of last May:

THE CONSTRUCTION OF SILOS

"While the Government seems disposed to encourage the farmers in the building of silos, it would be well to advise them, in order to save disappointment, rather to expend a few dollars more in their construction than to put up a cheap structure that will not keep out the frost. Mr. Greig, member for Chateauguay, recommends one that is extensively used in his county. The outside wall is composed of two thicknesses of plank, with one or two linings of tar-paper between. The inner wall is of plank, tongued and grooved, and there is a space of eight inches between the two walls. It is almost

impossible for the frost to penetrate, especially if the fodder has been properly out and packed so as to exclude the air. The whole cost of such a silo is about \$46, and every farmer who has built one has found it so profitable that he has added more afterwards. No man of any intelligence would deny that the silo is about the most profitable investment a farmer can make, but at the present time, when it is just being introduced, it is essential that it should be in every respect completely successful. A silo with a wall of a single plank may not produce all the results a farmer expects, and others may be deterred by his experience from adopting the system."

It was remarked, the other day, that it was a hard task to get our farmers to grow roots, and that it was for the purpose of persuading them to do so that a grant was made to them of 50 cents a ton for all beets delivered at the factory. It is much less troublesome to persuade them to grow maize for ensilage, thereby furnishing themselves with the means of drawing a very satisfactory revenue from their farms either by using the silage to fatten beasts or by giving it to their dairy cows.

The farmer who has a field of corn can not only fill his silo with it as a provision for the winter, but use some of it in summer. When the burning rays of the sun shall have scorched up the pastures, so that the cows begin to dry up, he can mow some of this succulent fodder and give it to his cattle, either on the pastures or in the cow-house.

People complain, and with reason, that emigration is decimating us; those on the opposite benches throw it in our teeth. We are all anxious to abolish it. Were the system of ensilage diffused over the whole country, farming would be attractive because it would be remunerative. The silo is the savings-bank of the farmer, which will always afford him abundant supplies for the whole of his establishment. Winter and summer, summer and winter, at all seasons, his cattle will be always full fed, their number, through its aid, will be constantly on the increase, and, at the same time, his stock of manure will be multiplied indefinitely.

The scarcity of manure—there's another thing that needs a remedy. If we would reflect a little on the way in which we have farmed our land, we might say, as Mr. Ayer said the other day, that, without exaggeration, the soil of the Province of Quebec possesses an extraordinary stock of fertility. For, in truth, for years and years we have worked the land; we have extracted from it vast stores of wealth; we have never made it any return, and, even now, it is not worn out.

By breeding and rearing cattle we shall increase our stock of manure, to use in the interim while we are learning how to add to it superphosphates and other artificial manures.

Here is our mistake: we persist in following the old system of farming, which may have been good enough on the confines of the bush, when the soil was virgin, but which, after at least half a century of spoliation, is now no longer good. We close our eyes to the fact that, in the cultivation of grain, we have now a rival with whom we cannot strive successfully—the West, the great West, where this cultivation is carried out on an immense scale that defies competition.

This is a fact that the people in the Eastern States, and especially in the State of New-York, are beginning to feel that they will have to reckon with.

On this point, allow me to read the following extract from a speech recently made by the Governor of the State of New-York:

(The Cultivator and Country Gentleman, 19th May, 1892.)

"My own observation and experience have convinced me that the most practicable kind of relief which can be offered to the agricultural communities of the State, is that which, recognising the changed conditions prevailing now and created

by the opening up of an immense farming territory in the west, endeavors to discourage our farmers from the vain attempt to compete with their western rivals in the production of wheat, corn, and other cereals, and stimulates them to new lines of agricultural effort more suited to existing conditions and to present demands. The rapid increase of population in the towns and cities of the State is of direct benefit to our farmers if they would take advantage of it, by offering a greater market than that possessed by the farmers of any other State for the sale of the so called "small crops," vegetables, fruits, etc., of dairy products, fine butter and cheese, of poultry and other products, the demand for which is constantly increasing, and in the sale of which there cannot be dangerous competition from the farmers of neighbouring States."

VARIOUS KINDS OF CHEESE.

At the dairy school, the mode of making several kinds of cheese, not yet manufactured in this province, will also be taught. These novel kinds will not return smaller profits to the maker even if they were put on our markets instead of cheese we now import. I am speaking of the Gruyère and other kinds.

Nowadays, our business lacks variety. We walk all in the same path, we are all pursuing the same game, we are all making the same kind of cheese, the so-called "American." If we do not wish to see before long the market overcrowded with unsaleable goods, it is important, it is necessary, to vary our products, to open new roads. Let those who are actuated by the spirit of innovation set the example. Let us beware of a possible overcrowding of the market.

The popular saying advises us "not to put all our eggs into one basket." In my turn, I say: do not all make the same thing, but prepare new markets for yourselves by manufacturing goods of a novel description.

I spoke of the school at St. Hyacinthe. Many districts, no doubt, will try to get this school established in their locality, but I think it fair to place it where was the cradle and where is still the centre of the dairy-industry of the province of Quebec. This spot set the example, and it has produced the men who have displayed the most enterprising spirit as regards the dairy-industry. While I applaud their labors, I desire also to give them the encouragement they have earned. We have there already an experimental farm and an analytical station, with an agricultural-chemical laboratory. The new school will be the complement of these establishments.

To diffuse knowledge of agricultural science, is the sincere desire of the Government, and I may tell the cheesemakers, in particular, that we intend to neglect no means of initiating them into all the mysteries of their art.

While we are exporting to Europe an enormous quantity of so-called American cheese, made in our province, we are, at the same time, importing a considerable quantity of other cheese. I know that more than one of my hearers is not satisfied with Canadian cheese, but orders, from Europe, Gruyère and Roquefort for the delectation of his palate.

Well, we are going to try—and I do not see why we should not succeed—to make goods such as these.

WINTER BUTTER-MAKING.

That is not all. The making of butter in winter has just been successfully started, and this onward step in the road of progress must be introduced into our province. Thenceforward, the cheese factory will no longer have to close its doors in winter, but by making butter will continue its operations, and become an establishment remunerative to its patrons.

And, in combination with the silo, this is simple enough:

for the silo is, so to speak, the prolongation of the pasture. The silo receives the growth of the meadow (*plaine de la prairie*), and keeps it fresh and succulent throughout the winter. So surely is this a fact, that I have been told a hundred times, by makers and farmers, that their butter had during winter the same taste, the same aroma, and the same color that it had in summer.

If you have good silage, made from maize sufficiently maturated and fermented, you will have cattle food that will possess the same flavor that it possessed in summer, and your cows will give the same quality of butter.

The silo, then, the silo for ever! The farmer, too, should learn that its cost is not above his means; that nothing out of the way is demanded from him, that he may see one built and in operation in the next parish, even, perhaps, at the farm of one of his friends, and that it is invariably successful.

If you want to persuade the general run of farmers to do anything, show them an example close by, so that they may see it without any trouble. This will prove of more value to most of them than any amount of writing or speaking. And this is what I propose to do.

By means of farm schools, by the building of silos in every parish, by the improvement of our creameries and cheeseeries, I aim at sowing examples broadcast over the whole province, to keep them at all times before the eyes of every one, and by this to say to those even who never open a book or an agricultural paper, "At least open your eyes. There, at your very gate, is one of your fellow citizens, not more industrious than yourself, and yet how much more successful. It is because he has a silo, and with the fresh and succulent food he gets from it, he keeps his stock in good order, and his cows give him almost as much profit in winter as they do in summer."

INSTRUCTION IN THE FARM-SCHOOLS.

I hope our farm-schools will be crowded with the sons of our farmers. These schools shall be, before everything, practical schools of agriculture.

Some may say, perhaps, that all I aim at is to make good workmen. Gentlemen, I have a son who has completed his classical studies; when his agricultural education was going on, he was not much afraid of following the foreman in his work. He learned the practice of farming, and the theory was not long in coming. To day, he is acquainted with those works that contain, briefly, the best information on the subject of agricultural chemistry.

I do not despise theory, but I do not think it is always wise to commence a course of instruction with it.

Circumstances must be reckoned with. With our farmer, we must shoot straight to the target; he must be shown the practical result, so that he can lay his finger on it. If you put into his hand a treatise on agriculture, very likely he won't read it; but if you tell him to look at the practical improvements in a neighbouring field, he will listen to the eloquent voice of the charmer.

I want the agricultural instruction in these farm schools to be essentially practical. When an intelligent practice has once been established, there will not be much trouble about adding the theory.

One of the best books ever written on agriculture, Stephens' "Book of the Farm," was the work of a man who was educated on a farm.

What I am now saying, I consider as very important. When I was only a private member of the Council of Agriculture, I proposed one day the above system of practical instruction, and some one said to me. "You are going to make the pupils nothing but farm labourers." In spite of

that, some of them adopted the idea, followed this road, began the practice, and they it is who to-day are the most successful of all, they who were not ashamed of starting as labourers, are now the princes of the occupation. (Cheers) This Stephens, whose work I just mentioned, after having entered himself on a farm as a simple workman, raised himself by degrees, and ended by being decorated by Her Majesty as a laureate of agriculture. He leapt from the plough to that distinguished position. He began by the practice, and he ended by writing the best book on the theory of farming.

Work, personal observation, an individualistic habit of taking the initiative. these are elements of success.

I do not mean to indulge in useless recrimination, but I must say of our agricultural schools, that they, in my opinion, have not followed the right road to success. It has not always been their fault; they had not a choice of pupils. There was no systematic plan to guide their choice. They lectured the lad, who presented himself, on agriculture, although he frequently showed, indisputably, that his heart was far from being interested in that subject; they did not send him to work on to the land often enough to let him feel the annoyance of storm and tempest, the inevitable lot of the farmer, they did not submit him to the salutary test of labour, proving both his reins and his courage, in order to find out if he had a real vocation to this pursuit, so that the provincial great and the labour of his instructions might not be wasted. A novice has its *raison d'être* in agriculture, as well as in other things.

I never had any doubts about the devotedness of the professors. I admired them all the more that they showed proofs of it without being discouraged at their persistent failures.

There ought to be now at least a hundred and fifty pupils at each of our schools.

I mean to remember with gratitude the services rendered by these professors; to try to profit by their constant good intention, directing it, if I can, gently into a road rather different to the old road, but leading always to the same end, the formation of good farmers. Hurried along as we are, thirsting eagerly as we do for instantaneous progress, let us endeavour to instruct, by surer and prompter means, the sons of our farmers, but only on condition that they are certain to enter on a farmer's life when they leave the school.

I intend to profit by what exists now, altering things perhaps, but with prudence, with discretion. When one can reckon on earnestness and devotedness, one can undertake with confidence that which is dictated, not by the desire to do great things, to make a show, but by the desire to do good according to the ratio of our powers, and with the co-operation of all those that can assist us.

I do not think that, especially at present, a central school under the guidance of the Government, as has been already proposed, is what is wanted. Grignon, in France, has not yet succeeded, as regards the number of the pupils there. Let us first find pupils, bring them forward, and when we shall have succeeded in crowding the schools we have at present, it will be time enough to cast a glance elsewhere.

And we must treat the lads whom we propose to enlist under the standard of agriculture with consideration and respect; we must show that we mean to care for them.

For my part I shall at once tell the cadets of our great agricultural army that in them I see a hope of a salutary change for the country. Let them flock to the farm-schools to do honor to labor, which in turn will do honor to them. They are called upon to go abroad over our country, distributing the good seed that will restore fertility to the heritage they have received from their ancestors.

When our good lads shall have worked for a year, we must help them to take a trip through the country in autumn, so

that they may learn and see for themselves how things are done in the States, in Ontario, and in other places.

They will bring back a good load of experience with them, and many of them will return resolved to put into practice on their own farms the improvements they have observed during their tour.

The idea of a journey has more than once turned the brain of our countrymen, and has led them far away from their country, far away from the paternal roof. Let us hope that, for once, the journey we are speaking of will conduce to their remaining permanently at home. Then like their ancestors, they will pass their days in honor and happiness.

For the cost of these excursions, lightened as they will be by the liberal arrangements of our steamboat and railroad companies, a trifling payment by each cadet will suffice.

These, gentlemen, are the ideas I wish to lay before you.

A CENTRAL CREAMERY.

I see by my notes that before resuming my seat, I have to return to the subject of the dairy-industry.

On another occasion, I related to the House a project, which was to aid the establishment of a central factory, to which butter should be brought in the "grain" state, and be there subjected to the last processes of manufacture.

This central factory would be placed somewhere on the banks of the great St Lawrence, at a spot where the goods could be easily loaded on to the ocean steamers.

Experts in the manufacture of butter say that this article runs special risks in the last handling it undergoes. If it be not well made, if the tub be defective, the butter is soon spoiled; it reaches its destination in bad condition, and the aroma is lost.

Mr. Taché, the Secretary of the Dairymen's Association, conceived the idea of this establishment. I have already spoken about it to Mr. Ayer, who has had a long and fortunate experience in this business, and he thinks the project may be carried out.

THE BABCOCK.

One of the obstacles to the success of the creameries and cheese-eries of the province is the objection a good many of our best farmers, who feed their cattle well, have to send their milk to factories where it will be sold at the same price per lb. as the milk yielded by badly fed cows, or even as milk lowered with water. These farmers desire to be paid in proportion to the value of the milk they deliver at the factory. They are right.

There are many ways of increasing the volume of milk without adding to its richness. Not only can the pail be put under the pump, but, to give the operation a semblance of rectitude sufficient to acquit the conscience of all sense of wrong-doing, hot water, with a little salt in it, may be transmitted through the digestive apparatus of the cow.

The milk of this cow will be abundant, but poor enough; still, it will, if sold by weight, fetch as much as the best.

In order to put a stop to these frauds, recourse was first had to the law, and fines were inflicted on those who added water, directly from the pump, to their milk. But the question was how to reach the other, the farmer who took advantage of the factitious thirst of his cow to induce her to gorge a lot of water as if she were a warehouse, but always with a view to its reappearing in the milk-pail.

Recourse was then had to an instrument called the Babcock—from the name of its inventor, I suppose. Every maker will soon get one; it is the surest of detectives; it will ensure that what belongs to Cæsar shall be paid to Cæsar, and that the cheat will not be able to sell his water. The

Babcock will show how much butter-fat there is in the milk, and the maker will pay the patron his just proportion. The good farmer will thus receive payment in proportion to the good care and food he gives his cows.

It will be with the milk as it is with the superphosphate which you now buy, paying a higher price in proportion to the higher percentage of phosphoric acid, it contains.

Our inspectors, on leaving the dairy school, will introduce everywhere these useful instruments, through the agency of which the main objection of our good farmers to the creameries and cheese-eries will disappear; no more robberies on the common labor of all will be possible.

What I have said to the members of the House to-day I intend to repeat to the agricultural societies, to the farmers' clubs, in the press and in circulars.

From every parish I ask for an agricultural cadet.

A silo I have, at the service of everyone who shall ask for them, all the directions for the construction of a silo and for the practice of ensilage.

All the creameries and cheese-eries in existence should be syndicated.

In the aggregate of our exports, cheese comes immediately after the products of our forests. Timber is disappearing rapidly; when that vast harvest, sown by the hand of Providence on our soil, shall have vanished, man can never renew it. But the greater the exports of the products of our dairy industry, the greater the increase of our cattle, the greater the increase of the fertility of soil, the greater the wealth of our country.

FARM-BUILDINGS.

I cannot avoid saying a word, *en passant*, on the importance of well-constructed farm-buildings. Our climate is a stern one. The cattle are in the house half the year. The warmer, the better ventilated and lighted they are, the less the stock will cost to feed. Of the warmth necessary for the support of life, that which the animal does not obtain from the circumambient air, he must obtain from a greater consumption of food. To erect buildings in which the cattle feel all the warmth they need, is therefore an economy.

The Department has at the service of all several plans of barns, which will be sent, gratis, to all who ask for them.

When any one is about to lay out money in important farm-buildings that may serve as a model to the neighborhood, in addition to the despatch of the plans I have spoken of, the Department will, if it is asked to do so and the project appears to be useful, send to the spot a competent man, capable of giving advice as to the arrangement of these buildings, the best place for their erection, etc.

DRAINAGE.

I may also inform those about to drain their farms that the Department is in a position to procure them pipes at a good discount; that in case the draining is to be of considerable extent and of great interest to the locality, upon request being made to that effect, an engineer shall be sent to take the principal levels.

OFFICE FOR ANALYSIS.

The Honourable Premier called my attention lately to the importance of establishing, in every important centre in the province, an office for analysis, both for the agricultural and the mining industries. An approved tariff will be published, so that every one will know beforehand the cost of the analysis he wants to have made. I need not say that I shall favour with all my power the creation of these offices, and that the charges made shall be as moderate as possible. There will be

one at Quebec, where we ourselves already have the commencement of a laboratory; one at Montreal, one at St. Hyacinthe, where our experiment station in connection with the College of St. Hyacinthe is situated; and one at Sherbrooke.

At these offices, the farmer will be able to get the artificial manures he buys tested. He can have the different soils of his farm analysed, and thus find out wherein they are defective.

The prospector in search of minerals may send his samples there in order to know at once the value of his discovery.

By means of these easily accessible institutions, doubtless more than one farmer, who otherwise would never trouble himself to inquire into the composition of the mineral his plough has just happened to turn up, will find himself, perhaps, all at once the possessor of a property of very high value.

CONCLUSION.

I have said what I proposed to say, and I conclude by asking you all once more to give me every possible assistance throughout the province. Every one should do his part. Your hearty applause leads me to believe that you accept this programme so humbly presented to you. With your aid, coupled with the aid of the clergy and of all earnest and progressive men, our farm-schools will

soon overflow with pupils, there will be siloes all over the province, and all the factories will be syndicated.

When our schools shall be crowded, we will set about other establishments, we will address our good farmers, such farmers as those whom we are about to crown in the House as the laureates of the order of agricultural merit. They, too, can bring up pupils. In that so well farmed country, Scotland, there are no other farm-schools than the farms themselves. (1)

My wish is that good farmers should be found all over our country. Who says "good farmer," says, almost invariably, in this our country, a good Christian, an example to the parish, a man at the head of all charitable works. It has been said of him more than once that, having always before his eyes the marvels of creation, the man of the fields remains good and virtuous, for from the soil there arises around him, as it were, the aroma of all the virtues. Providence gives him his bread in abundance day by day. He has no need to envy his neighbour, but of all men the most free, he depends solely on his God.

To support our courage, we can repeat to ourselves that there is very little wanting to us in the province of Quebec. Our people are moral and industrious. We want a little more

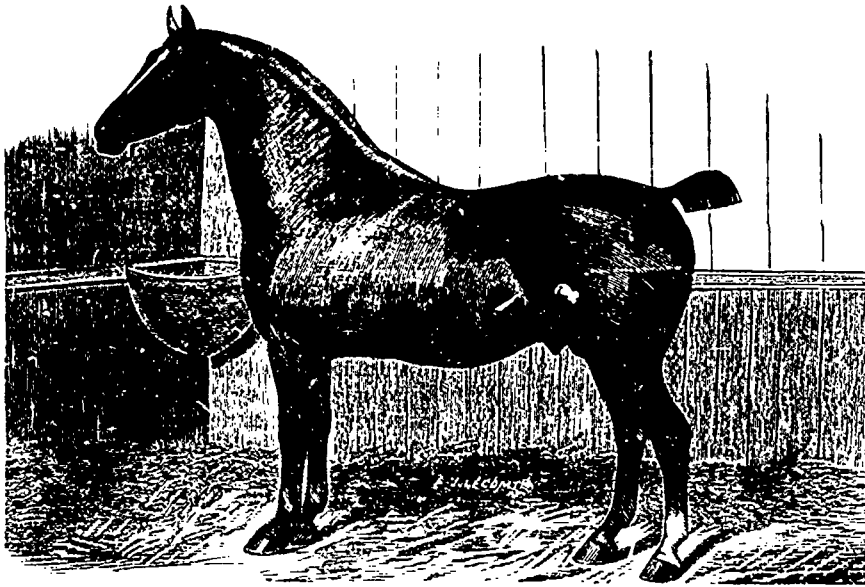
skill and activity in business, in trade, and in manual labour. The work of intelligence is perfected. We have the men: they make their mark.

If intellectual power assists the hand, if the head aids the arm, the province of Quebec will occupy and retain the rank she ought to hold in the agriculture of the Dominion, the same rank she already holds in the arts and sciences: the first rank!

Capons and Their Habits.

Capons are generally raised for eating purposes, but at the same time let me tell you they make about as ornamental a bird as one can keep on his place. When fully matured, they are exceedingly handsome, and no fowl in the world has so profuse and brilliant a plumage as a full grown capon. They are far more handsome than any rooster living, and far more quiet and dignified.

They are exceedingly moderate in all their movements and are seldom inclined to move faster than a slow walk. Their tail feathers grow long, and two of them to extraordinary length. Their hackle is heavy and rich-looking. In fact, their feathers are beautiful, and that is one reason why so many of them are left on the bird in dressing



THE "ROYAL" SWEEPSTAKES HACKNEY STALLION OF 1892.

him for market. They are free from all sorts of diseases, and I do not know that I ever saw a sick or ailing capon. I have seen one or two lose their eyesight, but do not know whether their being capons had anything to do with it.

While they are dignified and graceful when left quietly to themselves, yet let a person undertake to rush them or chase them about in their pen and he will see the most clumsy and awkward set of birds that could possibly be found. The moment they are hurried or rushed they lose all their dignity and gracefulness, and will trample over each other and everything in their way in the most clumsy manner. This condition arises, I think, from the fact that they have grown so much larger than was natural (by being caponised) that it causes them to be clumsy, just the same as we see young boys and girls who suddenly take on lots of fat and grow rapidly. They have not become accustomed to it, and we all know how awkward they are.

Capons also have a great deal of curiosity (almost as much as a woman), and will peck into and investigate every suspicious-looking object lying about. It is fun to see one try to quickly get away from something that has scared him. He can't do it to save his life, and in his efforts to do so, he will make a sort of jump and instead of getting away from the object, it is more than likely he will go straight up in the air and then land on top of it. It bothers him awfully to be

(1) Hear, Hear!

quick about anything, except to grow—and he doesn't know how to avoid that.

Capons become very quiet, tame and peaceable, and are the most satisfactory fowl to have around, so far as needing little care, that I know, and certainly they are the most profitable

GEORGE Q. DOW.

Rockingham County, N. H.

OUR ENGRAVINGS.

The portrait re-engraved from the Mark-Lane Express) shows a cow named Denham Lady Lisburn, belonging to Mr. Harold Swithinbank, Denham Court, near Uxbridge. She is of unusual color for the Irish breed, being red, and has, says our contemporary, "a nice skin, showing quality and character, and is an excellent milker. She won first prize at the Tunbridge Wells Show, and took second prize at the Royal Show at Warwick. She is the dam of Kidmore Lady Lisburn, who won first prize in her class at the Windsor Royal."

The Hackney stallion shown (by reproduction from the London Live-Stock Journal) is named Doncaster 2919, and his breeding is characterised by our contemporary as "the best," his sire being Danegelt and his dam May Blossom by Lord Derby II.

He was foaled in 1888, and had won a number of important prizes before his great success at the Royal show this past summer. He belongs to Mr. James W. Temple, Leyswood, Groombridge, Kent.

DE OMNIBUS REBUS.

Dr. Hoskins is good enough to notice, in the Vermont Watchman, my advice as to growing rape as a preparation for wheat. If he tries it, he will find that it is not only valuable as a preparation for wheat, but for "other grain-crops. Dr. Hoskins says, and I fear with a good deal of reason, that "our average crop, the Union over, is shamefully small; but we have farmers in almost every state who habitually harvest as good average crops as the best English experts." Does he know that one of the "best English experts" would be terribly disappointed if his average wheat crop did not yield, except in peculiar years, forty imperial bushels an acre? That is what all good farmers, on good land, look for as a rule.

But there is something, or rather a good many things, more than feeding off rape to account for the crops of wheat grown by good English farmers: there is the cultivation of the growing crop. I venture to say that I learned my finishing lessons in farming from one of the six best farmers in England: William Rigden, of Hove, near Brighton: and

this is what he used to do to wheat; spring- or fall-sown were treated alike except that the former was not harrowed after it was up:

The wheat was, we will suppose, to come after rape or potatoes: First, about March 1st, it was harrowed as soon as the land was dry enough; then the smooth roller, was passed over it, followed by the horse-hoe (Garrett's), and Cross-kill's clod-crusher, with its serrated rings, finished the job. The land was full of manure: nightsoil and ordinary dung: and the average crop was about 50 bushels an acre.

Barley and oats were treated simply to the roller and the horse-hoe.

The best crops of wheat were grown after clover, which stood for only one season, and was mown twice for hay and once for green-meat, except in very dry seasons.:

The farm was 650 acres, and the rent £1,850 a year, besides rates, tithes, and taxes, equal to another pound an acre, making the whole burden \$13,500 a year!

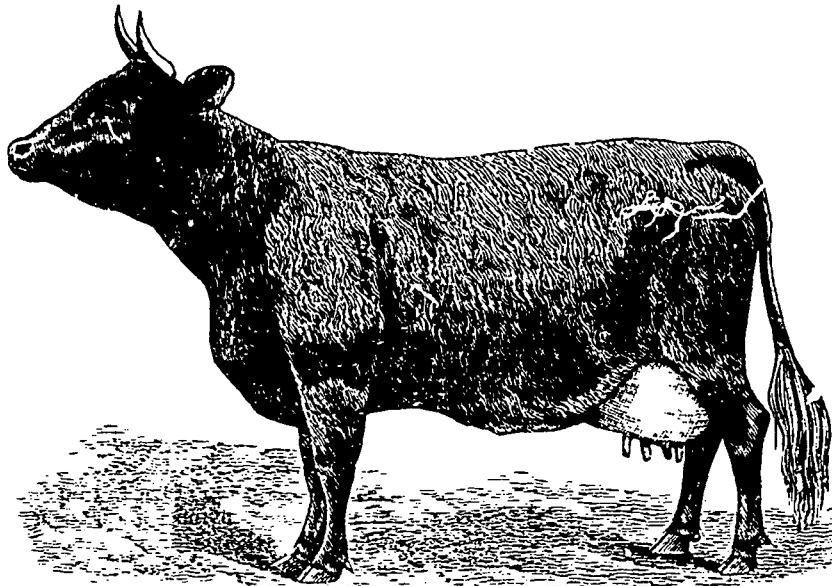
The stock kept was: 20 dairy-short-horns, a pure-bred shorthorn bull, and 4 or 5 young heifers; 350 breeding ewes; and about 100 ewe-togs (lambs of the previous years); 7 horses, that drew nightsoil and dung from Brighton, 4 working all day and 3 all night, and 6 teams of plough-horses.

All the milk was sold, at 20 cts. a gallon, and the

quantity of tares, lucerne, clover, crimson clover (*trifolium incarnatum*), and other green meat that the carts took into the town of Brighton during the summer was almost incredible. There was need to sell something to enable the farmer to pay such a rent: but he did pay it, and lived liked a prince, too.

If Dr. Hoskins would like to see my favourite form of hurdles, I should be happy to send him a pattern. At any rate, an engraving of it can be seen in the Encyclopaedia Britannica, under the head of "Fortification," tit. *chevaux de frize*. About ten feet makes a handy length, and the main bar need not be more 3 inch stuff. One man can set the fold, as the hurdles roll over easily.

"To our remark at American farmers now average so poorly in wheat culture that they could, by farming as well as they do in England, double their crops on the same area, Editor Jenner Fast of the Montreal Journal of Agriculture, say: "Try what feeding off rape with sheep will do to begin with. It is not costly, and never fails." Now, here is a suggestion from a practical man that is well worth paying some attention to. It is true that our average wheat crop, the Union over, is shamefully small; but we have farmers in almost every state who habitually harvest as good average crops of wheat as the best English experts. We believe there



A DEXTER-KERRY COW.

are many Scotch and English farmers in Ontario who do the same. Whether sowing rape and feeding it off with sheep, as a preparation for wheat, will answer as well here as in Britain, remains to be tested. The difference in climate may prevent entire success. But we are very foolish if some amongst us do not give this method a thorough trial.

The use of rape in England as a means to fertilise the land for wheat is, as we take it, most applicable to winter wheat. For spring wheat it would have to be sown late, and fed off in the fall; and it would require some method of fencing to keep the sheep where we want them. In England a temporary, movable fence ("hurdles") is used. On the best wheat lands of the Ohio valley clover is the crop used to precede and be plowed down for winter wheat; and good farmers there get pretty good crops, though not up to the English standard. When we can get our land up where we can be sure to get clover to grow evenly all over it, we shall regard the wheat problem as substantially solved, for clover will make wheat every time, if all the work is rightly done and the season favorable."

DR. HOSKIN-

Mr. Bennett's sheep farm—My readers will remember that I have advocated the restoration of the "abandoned farm in New-England, by means of sheep-farming, over and over again, *usque, I fear, ad nauseam*. At length, it seems, my plan is to have a fair trial. Mr. Bennett is not only going to throw, as I advised, six or seven farms into one, but he is going to stock "this New England sheep-ranch with Hampshire-down sheep"! I am not very often guilty of imagining that I have done any good by my contributions to this periodical, but I really begin to believe that Mr. Bennett must have been reading the Journal!

I am only sorry that the spirited owner of the land will not conduct the business himself. Oh, that I were twenty years younger! Wouldn't I go and help him!

An "Abandoned Farm" Experiment. (1)

EDS. COUNTRY GENTLEMAN.—The country has heard a great deal, first and last, about the abandoned farms of some of the New-England States, and while very many wrong impressions have gone out as to the extent to which agricultural lands have been deserted, it is nevertheless true that there are hundreds of farms remote from the large towns and cities, and more especially, remote from lines of railroad communication with the world, to be found scattered about New-England, that are now growing up to bushes and weeds, while the buildings are falling or have already fallen into decay. To this any one familiar with New-England country towns will readily testify. Several of the States have published descriptions of many of these places in the endeavor to find purchasers for them, knowing that their occupancy and cultivation is of the highest importance to the State in which they are situated—an attempt that, in Vermont at least, is said to have been highly successful.

A great many opinions have been expressed as to the most practical and least expensive methods of "reclaiming" these abandoned farms, all these opinions being from the standpoint of the poor man who has little if any capital to start with beside the small sum necessary to purchase one of the farms in question. The idea has been very rarely broached that there is a chance here for a possibly profitable business investment. Just this experiment is now, however, to be

(1) Last October, Mr. Tuggey, of Little Metis, took a farm that had been abandoned for 6 years—120 arpents in extent—at a rent of \$12.00 a year, and did so well with it, by simply decent farming, that his owner "wants it back again at once!" A. R. J. F.

tried, and in a way that will show very clearly whether brains and a moderate outlay of money will be able to gather satisfactory returns from these wornout lands and decaying farm buildings. Mr. Bennett has undertaken the experiment, and he describes what he has already done, and what he proposes to do, in quite extended detail. He has purchased six adjoining farms in Maine, all of them apparently of the "abandoned" order, and proposes to make one huge sheep farm of the 400 acres thus thrown together, after some barns and sheep-sheds have been built and the whole surrounded with wire fencing. This New England "sheep-ranch" will be stocked with Hampshire blood, in the sensible attempt to obtain mutton, with a fair clip of wool thrown in to bring whatever it will.

All friends of New England agriculture will be glad to see this attempt made, not simply as a possible proof that our many abandoned farms may be made profitable, but because of the incentive which a successful issue to this experiment would give to sheep-raising on farms in these States which are by no means abandoned, but which do not now yield that measure of profit of which they are capable.

Those who are at all familiar with the present condition of the sheep raising industry will note at once that Mr. Bennett is on the right track when he takes a mutton breed as the base of his operations. Wool may fluctuate in value and even rule continually low, but the lamb and mutton market—provided the lamb and mutton be of extra quality, as they should be in this case—is almost invariably in a very buoyant condition. In fact, there is very much less choice meat of this kind than the market would like to handle. A judicious selection of the native sheep of New-England, or of those that are shipped in annually by the carload from Canada, crossed with judiciously-selected thoroughbred rams of the distinctive mutton breeds, should produce lambs that with good feed would fetch a fancy price in the markets.

This experiment, if successful, will be all the more noteworthy because of the obstacles that will have to be overcome when undertaken by one whose home is presumably to be elsewhere than the location of the farm, and where so much of the care and management must be left to hired help. The necessity of providing suitable fences and buildings will also handicap the ledger account somewhat at the beginning, so that it may very reasonably be felt, if satisfactory results come from this "abandoned farm" experiment, that there is abundant encouragement for the farmer of New-England who lives upon his own land, and whose fences and buildings are in fairly good condition, to increase the fertility of his soil and the thickness of his pocketbook by an intelligent attention to sheep husbandry.

WEBB DONNELL.

What I Want and Don't Want

I want my cows to be milked at regular hours each day.

I want the same milker to milk the same cows each time and in the same order.

That the milk should be turned into the pails on milk bench after finishing each cow.

That as soon as possible the milk shall be carried to the dairy-house and strained.

That the cows shall not be eating while being milked, but stand with eyes closed, chewing their cuds and thinking of nothing but letting the milk come full head.

That if a milker is to whistle, he should whistle a good, lively tune, and milk in time to his music.

That every cow in the dairy shall know the man that milks her is a friend.

That all extra food fed shall be at night, when the cows are at pasture.

That when I pass through the cows in yard or field, I shall have to go around the cow rather than have her start off to get out of my way.

I want to know just what each cow can do.

To raise my own cows so I can have the pleasure of seeing them develop, and have the pleasure of studying the possibilities of breeding for a purpose.

To make butter that is just as good as can be found elsewhere.

To know each spring where my butter will be wanted in the fall.

To see less poor butter put on the market, so the consumption of it will be nearly, if not quite, doubled.

To have every dairyman try to excel in the dairy business, so that he may not only benefit himself, but the dairy interests in general.

To have the privilege of being left to make butter after that process that is best suited to the circumstances under which I am obliged to work, and not be called an "old fogey."

To shoot the next man who comes as an agent for something that I could not possibly use in my dairy, and because I will not purchase or give a testimonial for it, tells the next man he meets that "that old hayseed back there is a fossil and must be of Noah's time."

And I don't want any other man to do as I do if he can be more successful by some other method.

H. S. M. Morris, N. Y.

NEW-YORK CONFERENCES.

AT SINCLAIRVILLE—MILK TESTS.

The first session was occupied in making tests with the Babcock machine. Samples from Mr. Orrin Torry's two Red Polled cows (the first of that breed offered for testing this season) tested as follows: Lily 48; Lady Rose, 38. Lily had been in milk since December, Lady Rose since October, and each was giving from eight to ten quarts of milk per day. No grain ration was fed. The tests brought out the usual questions concerning the difference between the so-called "butter" and "cheese" cow. Mr. Gilbert said the cow Lily, if she only gave milk enough and could be kept from drying up ten months of the year, would be a profitable cow for butter. Lady Rose could not be made a profitable cow for butter-production. Mr. Eastman said the cheese cow, as known by some dairymen, was a myth. Any cow not profitable for butter-production would be found fully as unprofitable for cheese. The idea was first set going by certain dairymen whose only thought was to get cows that would give a wash-tubful of milk, no matter whether there was any butter fat in it or not. Those men and their cows are growing beautifully less, and, in time, will have to go from both cheese factory and creamery and set up business for themselves, or else sell their milk on the basis of its butter-fat content, that being the only solid of much value in it.

In the afternoon, Mr. Gilbert directed the work of a churning of cream from the herd of Mr. T. E. Share, whose farm is near Sinclairville. The herd is thoroughbred Jersey and numbers 25 animals. Butter is made by an expert, and the product sent to Cleveland, O., to private customers on Euclid Avenue, where it sells for 40c. The milk from which the cream was taken not having been weighed, no official record of the churning was made. The cream was churned at 68°, in 15 minutes. It had been raised in a Cooley creamer, in ice water at about 40°, in 12 hours, and ripened at 66° or thereabout, 24 hours. The temperature at the separation point was 69°. Mr. Share's butter-maker said he churned

his cream at 65°, and was an hour to an hour and a half in doing it. Mr. Gilbert churned it at 68° for the purpose of showing the difference in time 3° would make. The cows were on pasture, and getting a light grain ration of oats, corn meal and wheat bran, mixed in equal parts, once a day. At the time the conference was held, 15 lbs. of milk was required for one of butter. Several of the herd are only two years old, but the average of the 25 animals was a pound of butter per day. By mistake, a sample of the buttermilk saved for testing was thrown out.

Mr. Gilbert said the meeting was a conference, not a school, as had been advertised:

"We are here not as instructors but as *dairymen*—to confer with you and to compare notes. Thus will we learn something. I never attended a dairy conference of farmers' institute at which I failed to learn something, and I do not expect to go away from this one without having secured some information of value. The man or woman who thinks or observes most, and listens and reads most carefully, will be sure to 'get there' first. The situation in the dairy demands a radical change from the old way of managing it. The average of the 1,500,000 cows in the stall is less than 130 lbs. of butter, while there are hundreds that are making 400 lbs. or more. What then must be the minimum cow? The only way to success is in lessening the cost and the stippage of the leaks. Use the scales, tests and pencil. Weed out the drones, and keep only cows that put butter fat, and enough of it, in their milk to pay you a satisfactory profit for the money they cost you. These recommendations are often repeated, but it is only by 'line upon line and precept upon precept' that sinners can be brought to repentance."

Mr. Eastman spoke of the specific dairy cow. He said: "No man wishes to work for nothing; but many of us do, especially those who work on the farm. There are men in all professions who are successful, while others who work more hours fail. The farmer, as a rule, is unskilled in his profession. He knows more about theology, tariff and taxation—or *thinks* he does—than of nitrogen, potash and phosphoric acid. Many of them went into, or were forced into farming without knowing a single principle that underlies their work, and they are plodding along without making any effort to learn a better way. Their fathers kept cows, but they knew little about them. They kept no record of sales or expenses, and therefore did not know whether they were making or losing money. As a rule, they were *losing* it. Many of us are travelling on the same path, while some of us have investigated and had new routes arranged and graded. How many of the farmers of this town can tell me of what milk is composed—its per cent. of water and solids, what those solids are, their relation one to the other, and their values? Every keeper of a cow should know all this, and may very easily learn, if he will. Butter fat being the only solid in milk of much value, it is necessary that we test each cow that this value may be ascertained. We cannot give all the cows the same ration each day—five o'clock one morning and eight o'clock the next, and that ration wholly wrong, it may be. We must *study* the chemistry of the foods we employ, as well as the individuality of our cows, that we know when, what, and *how* to feed each one. Do not change the position of a cow when in the stable, or change her milker. Have a stall for each cow and *keep her there*, and have her milked every day in the year that she gives milk, by the same hands.

The starting point is a better herd. We can begin the work of securing it *now*. There are not good cows enough for us all, even if we have the cash to pay for them, which many of us have not, but we may have them much quicker than we think if we will but make the effort. The road is an easy one to walk in, and the rules easy and very plain to

all, while the expense will be found small. Time is the chief factor. I will state the requirements: First, balances, to weigh the foods you give each cow, as well as her milk; second, a Babcock test; third, a good lead pencil and note book. Then begin work. All, or nearly all, native herds contain one, two or more cows that are not only persistent milkers, giving milk nine or ten months, but a good flow of it, and containing 4 or more per cent. of better fat. The scale and test will introduce you to them. Once acquainted, then purchase a thoroughbred bull from a good butter-family of a butter-making breed. Do not use him till he is nearly or quite two years old, then breed these tested cows to him. Take good care of the heifers; have them come in milk when they are 22 to 24 months old; use the scale, test and pencil then, if you find they are an *improvement* upon the mothers, keep them and breed them once more to the same sire. I would not inbreed further, although there are those who do it and report good results. If these heifers do not prove to be *better* than their mothers, change the sire and begin again with the old cows. I have pursued this course, and have raised the production of my herd of 50, from less than 150 pounds of butter each to nearly 300 pounds. I am using a thoroughbred Guernsey, and have a number of his daughters that are giving much promise. My herd works most in winter, when the product brings the best prices. I can make fully as much butter per cow in winter as in summer, of *better* quality and at *less* cost, and so can any intelligent dairyman if he but makes the effort. (1) Of course, he cannot do it in the old way, by keeping his cows in cold stables nights, turning them into a barnyard to shiver in zero weather, and feeding them dry timothy hay cut Aug. 15, and musty, moldy corn stalks stacked round a pole out-of-doors. He must have paying cows, warm, comfortable stables, good environment, nice succulent corn ensilage, early cut and well cured clover hay, and have grain foods that contain albuminoids, to go with the clover and ensilage, and *all* should be liberally and intelligently fed.

An entire morning session was taken up in making tests with the Babcock machine, there being two in operation. More than fifty samples were tested. Some of the best and poorest results are noted, also in some instances the number of pounds of milk given. It was stated by the owners of the cows that each sample was *correctly* taken from the entire milking, no cream or strippings having been added to the sample. If the statements were true—which some present very much doubted—Pauline Paul, Lily Flag, Landseer's Fancy and any other cow heard from so far, are not entitled to hold the "pitcher," cup, medal or ribbon any longer. They are noted for the purpose of showing the value of such cows and the small value of others tested at the same time.

Cow.	Pounds Milk.	Per cent fat.
Hooker.....	18	11.0 (2)
Red cow.....	25	4.6
Brown heifer.....	16	8.6
Heifer.....	...	12.0 (3)
Stewart cow.....	...	5.8
Big Red.....	...	6.2
Mr. Reed's cow.....	...	7.2
Mr. Ellis' Star.....	...	4.2
Mr. Ellis' (no name).....	...	4.2
Nancy.....	...	4.2

1) Rather too strong is it not? R. J. F.
 (2) Strippings A. R. J. F.
 (3) Strippings? A. R. J. F.

Mr. Orrin Torrey's herd of Red Polls and natives was represented by—

Cow.	Pounds milk.	Per cent. fat.
White Foot—native..	20	4.8
Little Heifer—grade.	10	4.0
Yellow Cow—native.	18½	4.2
Old Red.....	17½	4.4
Little—native.....	15½	4.3
Libbie—grade.....	15½	3.3
William Reed's cow.	18	(one day's) 6.6
Mr. Loun's herd.....	...	4.0

A sample of Cooley skimmed milk from Mr Shaw's Jersey herd showed 6.2 per cent. fat, and one from skim-milk from the "Baby" separator used in the hall, 0.1.

In the afternoon, Mr. Eastman gave his lecture on foods. He said in part:

Those present have witnessed milk-testing for butter fat and making granular butter and that made in the old way. Great changes have been made in dairy work and practices within a few years, and what was once thought to be worthless is now saved. In many industries the only profit comes from the best products. You have here in this village a new industry—an establishment for converting the milk sugar in whey into sugar to be used for medicinal purposes; this will give you an additional value to your milk. Some of the cows tested this morning, if the milk was normal, are truly wonderful. Such cows should be well fed and cared for; they represent one of the changes in modern dairying, as does the converting of the milk sugar in whey into refined sugar, and should inspire us who keep cows to look round and see if we cannot make great and profitable changes by making better selections of cows, and the selection and employment of foods better suited for the purposes for which they are fed. The latter point is one of vital importance, as all know who have experimented and noted results. There is a wide difference in the values of properly secured clover and the average timothy hay and straw that are fed to the dairy cow. Clover is a milk-producing food, while timothy hay and straw are not. If we are to do winter dairying we should aim to have the foods we feed as nearly like those of summer as we can; they should be succulent, containing the original moisture and juices. Corn ensilage and roots are most used, and, if they are properly balanced with nitrogenous grain rations, will give results in winter quite nearly approaching those of summer.

C. W. J.

ROOTS VS. SILAGE FOR FATTENING LAMBS, P. M. HARWOOD, R. S., AND F. B. MUMFORD, B. S.—To test the relative value of sugar beets and silage for fattening lambs, 16 grade Shropshire lambs were divided into two lots and fed during two separate periods. Lot 1 received beets and clover hay *ad libitum* and lot 2 silage and hay *ad libitum* during 6 weeks (first period). In a transition period of 1 week the lots were alternated, and for 6 weeks following (second period) lot 1 received silage and hay, and lot 2 beets and hay. During the whole trial the lambs each received 1 pound per day of a grain mixture consisting of two parts of oats and one of bran. The lambs were purchased about October 15, at 45 cents per pound. The trial commenced December 9. The amounts of food consumed, gains in live weight, and the financial results, based on oats at 32 cents and bran at 15 cents per bushel, hay at \$7.50, and silage and roots each at \$2.50 per ton, are tabulated. The average gain of the lambs while on roots was 3 pounds per week and while on silage 2.5 pounds per week. "This experiment indicates that (1) roots are superior to silage for fattening lambs; (2) either roots or

silage may enter largely into the fattening ration, and, allowing a reasonable valuation on each, may be fed at a profit, (3) lambs may be successfully fattened without the use of a heavy grain ration; (4) fattening lambs under existing conditions in Michigan is a profitable enterprise and is worthy of the most careful thought and study of all engaged in mixed farming."

NUTRITIVE RATIOS

My readers will do well to ponder the words of Sir John Lawes, as condensed in the annexed article from the *Eng. Agricultural Gazette*. Mr. Beaubien does not care to see theory pushed too far, v. p. —, neither do I. I do "feel tired" after reading some of the articles by E. W. S., in the *Country-Gentleman*.

The new number of the *Agricultural Students' Gazette* opens with an article by Sir JOHN LAWES upon nutritive ratios, in relation to the feeding of stock. The article is valuable as showing that, while science has rendered a service to feeders of cattle and sheep by pointing out the nutritive and manurial value of certain foods, it is a mistake to claim too much for merely theoretical teaching in this respect in the present state of knowledge. About sixteen years ago he pointed out that while linseed cake was selling at £13 10s. a ton, he could not see how its cost could be recovered in the increased weight of the animals consuming it, together with the value of the manure it yielded; whereas, decorticated cotton-cake, but little inferior in feeding value, and superior for manure, could be bought at £4 to £5 a ton. Many subsequent experiments have proved the value of the advice in effect given at the time referred to, and it has had a great influence upon the practice of feeders, greatly to their advantage. Here, then, is one of the many instances of science proving the handmaid of agriculture. But Sir JOHN LAWES very seasonably warns his scientific friends not to assume too much. The question is, he says, whether we are not beginning to refine too much, and to lay down rules for economic feeding which our present scientific knowledge is not competent to decide upon. Whether or not the adoption of fixed nutritive ratios may be of use in scientific feeding experiments, he adds, they do not appear to be of much value as a guide in practical feeding. If we could determine with accuracy the really digestible and indigestible constituents of the foods we use, we should be in a better position to speak of the proper nutritive ratio; but at present we are far from being able to do this.

We fear it will make certain zealous and courageous professors "feel tired"—to use an American expression—to read this. In America, particularly, the nutritive ratio hobby has been ridden to death. As a well-informed correspondent of Sir JOHN LAWES says, it is doing great harm there, by narrowing the line of investigation in feeding experiments. Feeders here are not so easily led away from the sound ground of experience, and Sir JOHN gives them reasons for continued caution, so long as our knowledge is in its present state of uncertainty upon many important points. He gives an instance from his own experience in which, as he pithily observes, the idea of cattle as to digestible matters and that of the chemist were obviously at variance. Part of a crop of oats was made into silage when the corn was beginning to solidify, and another part was cut into chaff when it was ripe, without being thrashed. Ten oxen were carefully selected and divided into two equal lots, one of which was fed on the dry oats, and the other on the silage, both getting the same quantity of cake. The silage was pronounced excellent by a committee of experts, and analysis showed large proportions

of digestible fibre and soluble carbo-hydrates. Still the oxen refused to eat it in sufficient quantity to enable them to gain flesh with fair rapidity. The animals fed on the chaffed oats, with cake, consumed 20½ lbs. of dry substance each per day, increasing 16 lbs. in live weight each per week; while the other lot, fed on silage and cake, consumed only 14 lbs. of dry substance each, per day, and increased only 7½ lbs. per week. Sir JOHN further shows the danger of trusting entirely to analysis in the case of any food containing much fibre when he states that the results of analyses carried out a few years ago by the Government of the United States, to determine the feeding values of the principal grasses grown in that country, represented some of the finest grasses as the least nutritive, and admittedly inferior varieties as the most valuable.

It is some consolation to devotees of science to be assured by Sir JOHN LAWES that, although analyses of succulent and fibrous foods should be received with caution, in the case of ripe grain, cakes, &c., the chemical composition may be trusted to give a fair indication of feeding quality. But, he goes on to say, even supposing that the adoption of exact nutritive ratios would lead to some economy of food so far as the increase of the animal is concerned, it does not necessarily follow that the result would be more advantageous, upon the whole, to the practical farmer. It may be more economical, he thinks, to waste a certain amount of food, in order to hasten the fattening process, bearing in mind that the objects are to obtain the greatest increase of meat in a given time and also to secure a valuable manure, than to pay too much regard to the nutritive and digestible properties of the feeding-stuffs. This may seem to be going too far; but it is certainly important to bear in mind that, with such a waste of food, there is a saving of labour as well as time, and of interest on capital. Sir JOHN LAWES is to be thanked for his seasonable contribution upon an important subject.—*Ag. Gazette*.

BY THE SUN

A FARMER'S NOVEL PLAN OF HATCHING LITTLE CHICKENS'.

"Jacob Johnston, residing near Gallipolis for the past month, has been reading about chickens being hatched by the sun, and yesterday afternoon took six fresh eggs out of his chicken yard and put them alongside of a thermometer that stood at 100 degrees. In the evening when he returned from the wheat field he was surprised to hear the feeble peep of young chickens that had been hatched by the sun."

I suppose this is the climax of silliness!

A BEAUTIFUL COW.

A poetical auctioneer in Gloucestershire made use of the following lines in describing a beautiful cow.—

Long in her sides, bright in her eyes,
Short in her legs, thin in her thighs,
Big in her ribs, wide in her pins,
Full in her bosom, small in her shins,
Long in her face, fine in her tail,
And never deficient in filling the pail.

The Exhibition is just over; a splendid show of cattle; it would be absurd to discriminate. Sheep good indeed, and Berkshire pigs first-rate. Horses superb—in fact by far the best show I ever saw on the grounds. A full report next month. A. R. J. F.

Department of Agriculture and Colonisation.

(From the Illustrated Journal of Agriculture).

A CATTLE PLAGUE IN CANADA.—The following article from Professor Fletcher, the eminent Entomologist of the Experimental Farm at Ottawa, calls for immediate and continued action from our farmers, in order to avoid great loss among their cattle.

ED. A. BARNARD,
Director Journal of Agriculture.

THE HORN FLY (*Haematobia serrata*)

Much anxiety is felt by farmers concerning a small black fly, about one third the size of the common house-fly, which has lately appeared upon cattle in the field, and has annoyed them very much by its irritating bites. When resting they frequently gather in large number around the base of the horns so as to form a more or less complete ring and from this fact the name "Horn fly" is derived. This is the new cattle pest which has been attracting so much attention in the United-States during the last three years. It was imported from Europe, probably upon imported stock, about 1886 and first appeared abundantly in Pennsylvania. From that locality it has gradually spread in all directions until it has now reached Canada. Sensational and exaggerated accounts of injuries done by the fly have gained credence amongst farmers and have caused much anxiety. It is frequently alleged that the eggs are laid upon the horns and that the maggots on hatching bore into the horns and thence into the brain, or that they are laid in holes eaten through the hide and that the maggots burrow into the flesh of the animal. It is further frequently stated that many head of stock have been killed outright. It will be reassuring to farmers to know that none of these statements are true. The complete life-history of this insect has been worked out most thoroughly and it is known that the early stages are not passed on the cattle, but in their freshly dropped dung in the fields. This fly, like other insects, has four well-defined periods in his life, 1. THE EGG, which is very small and dark brown in colour is laid by the female fly on the surface of freshly ejected cattle droppings. THE MAGGOT, which hatches from the egg in less than 24 hours after it is laid, and at once burrows down into the soft manure and feeds upon the liquid portions. It grows rapidly and in 5 or 6 days is full grown when it is whitish in colour and $\frac{2}{3}$ of an inch in length. It now burrows a short distance into the ground and changes to the next stage, 3. THE PUPARIUM, which is a short brown oval object $\frac{1}{4}$ inch in length, inside which the fly forms, and 5 or 6 days afterwards, 4. THE PERFECT INSECT appears in the shape of a small blackish fly with red eyes and a pointed tongue which sticks out in front, beneath the head. This last is the instrument of torture with which it harrasses cattle. There are several broods in a season, and the last brood passes the winter in the third or puparium stage. The first brood appears in May and they increase rapidly in number and torment the cattle right through the season. Although they have never been known actually to kill animals, they worry them so much with their bites that they soon fall off in flesh and in the quantity and quality of the milk they give until these have been reduced in many cases one third or one half. This is a serious loss to farmers and one which they can avoid if they will use some of the following remedies :

REMEDIES.

These are of two kinds, 1. Preventive, by which the flies are prevented from biting the animals and 2. Active, by

which the insects are destroyed in their different stages : Of the preventive class the best are applications of some substance obnoxious to the flies which when placed on the cattle will prevent the flies from biting them.

For this purpose almost any greasy substance will answer Train oil, fish oils, axle-grease, tallow, Kerosene Emulsion, etc, rubbed on the parts most liable to attack will keep the flies off for three or four days and after three or four applications for a much longer time. If a little Carbolic Acid or Oil of tar be added to the above, it will not only add to the efficacy of the applications but will have a very healing effect upon any sores which may have been formed by the animals rubbing against trees or other object to allay the irritation of the bites.

Two ounces of Carbolic Acid or Oil of Tar will be sufficient in one gallon of oil.

Kerosene Emulsion, made by churning forcibly together for five minutes, by means of a force pump on syringe, two parts of coal oil with one of soap-suds and then reduce with 9 times its quantity of water will be found an excellent and easily applied remedy. The easiest way will undoubtedly be to spray it over cattle with a force pump and spraying nozzle.

Of active remedies the most effective will be those which aim at the destruction of the eggs and maggots in the manure, this may be done in two ways either by throwing lime plaster, or wood ashes on the droppings in the field or by having them spread out every day or two, so that they dry up in hot weather or are washed away into the ground when it rains.

The eggs are deposited upon the droppings immediately they fall and the maggots live only upon the liquid portions of the fresh manure. If therefore the droppings be spread out or covered with some dry material so that they are dried up before the maggots are full grown these latter must perish.

Wood ashes would probably be the best powder to use not only from their caustic nature ; but from their great value as a fertilizer. (Lime and ashes applied on fresh manure are liable to drive out its most costly element NITROGEN. Plaster, on the contrary saves it all. Therefore, the latter should be preferred. ED. A. BARNARD).

I think however that the cheapest and most effective remedy will be found to be the spreading of the manure. This could be done by a boy and twice a week would be sufficient. (1)

(Signed)

JAMES FLETCHER.

THE PRIZE FARMS OF R. A. S. E.

CLASS I.—FIRST PRIZE.

OCCUPIER, MR. JOHN PALMER, HAMPTON-ON-HILL.

This farm is 380 acres in extent, about one half arable and the other half grass. Although varying somewhat, the general character is a heavy loam on clay subsoil, better for wheat and bean culture than for other corn crops, and it will be found that these crops enter largely into the rotation. Roots are only grown about every seventh year, the course of cropping being usually—1, wheat; 2, beans; 3, wheat; 4, roots; 5, barley or oats; 6, seeds, which remain two years. Sometimes, indeed, the grass layer remains longer, and such being the case it seems rather surprising a different admixture should not be adopted, no timothy or cocksfoot entering into

(1) In all well-managed grass-farms in England, the "clots" are knocked about every week to prevent the grass growing in patches.
A R J. F.

it. Ryegrass and broad clover, a little trefoil and white clover, with a slight addition, perhaps, of alsike, seemed to be the mixture, so far as could be learnt from observation, and the one year old layers certainly looked well. One field, which the foreman stated had been fed down bare on the 12th of May, appeared in the Royal Show week likely enough to yield $2\frac{1}{2}$ tons of hay per acre. The proportion of crops to one another appears to be—wheat from 70 to 80 acres, beans from 20 to 30 acres, oats 20 acres, barley 18 acres, roots 20 acres, and remainder alternate grass layer, about twenty acres being seeded down every year; still no fixed rotation is adhered to.

The leading feature on the farm which appears to be most worthy to receive attention is the magnificent herd of cross-bred dairy cows and the very admirable system of breeding them, which Mr. Palmer appears to have carried out very skilfully and with great success. The cross is the Shorthorn-Hereford. The dairy herd was originally of the Shorthorn variety, and Mr. Palmer allied them with a Hereford bull, employing this for three years, when his progeny would be matured and require service. A Shorthorn bull would then be placed in service for three other years, and thus in alternation there would be periods of three years in which a Hereford bull would be employed and three for the Shorthorn. In this way Mr. Palmer has managed to keep clear of mongrels—at least, none were to be seen at Hampton-on-Hill in the show week—and, of course, it is well known that by adopting similar means a great many sheep-breeders obtain flocks very akin to the Oxfordshire Down type, they being in the habit of employing a Cotswold ram on Hampshire ewes for three years, and then placing on their progeny a Hampshire ram, after which they keep up these changes in alternation perpetually.

No cross can possibly be better than the Shorthorn-Hereford to produce general purpose cows, they being quite as good for milk as they are to feed rapidly to beef when out of profit, and to breed calves that are turned into steers of large size and admirable grazing character. Mr. E. C. Tisdall was one of the first to draw public attention to the great importance of keeping milk registers, and he published in one of the early volumes of the Journal of the British Dairy Farmers' Association a list of the produce of forty of his best cows. Strange to state, three or four of those which yielded most milk in the course of the year were of the same cross as Mr. Palmer has adopted, the Shorthorn-Hereford. Some may think the Shorthorn has nothing of value to borrow from the Hereford breed to become more perfect as a dairyman's friend, but, if so, they are mistaken, for Hereford cows give richer milk than Shorthorn, consequently if quantity can be obtained from one source and quality from the other there must be great gain. The number of dairy cows kept in profit is from eighteen to twenty, and, adding heifers and steers, the herd is nearly one hundred strong altogether. The whole of the calves are reared and have to be content mostly with skim, or rather separated milk, for a hand separator is now employed which abstracts so much of the fat that the calves do not thrive so well on the residue as they formerly did on skim milk. This has been the case to such an extent that Mr. Palmer has found it necessary to mix a little new milk with the separated. Theory would suggest that the admixture of a little linseed mucilage would answer the same purpose, and it certainly does in some dairies. The cream is churned for butter by one of Hathaway's churns, and a mechanical butter-maker is employed in the dairy room.

The flock consists of 170 Shropshire breeding ewes of very good character, a ram from one of the best flocks being always used. The last that was purchased was from M. W. F. Ingo's famous Thorpe Hall flock. A similar system is pursued as

with the cattle: the males being grazed out, and the ewe tegs being kept for breeding purposes, and both wether tegs and steers receive oil-cake and home-produced corn so as to bring them fit for marketing tolerably early, a system which of course answers well for the farming generally in affording fertility to the corn crops, otherwise they would not produce such heavy yields as they appear likely to do this year.

Pig-farming is also carried on to a considerable extent, there being from fifty to sixty often on the farm at one time. They are of the Large Yorkshire breed. Their houses are well arranged under a large shed, with a walk down the centre for convenience in feeding, &c. Poultry also forms a notable feature, and it is said that from £70 to £80 per annum is made of poultry and eggs. Dorkings are crossed with pure Indian Game fowls, but the white Leghorns are preferred for layers. The crossing of pure-bred fowls is followed to a considerable extent, but a pure-bred cock is always used. Eleven cart horses and one nag horse perform the work of the farm, and the former are strong, lusty animals, which are required here, some of the arable being of rather stiff character; in fact, this was the farm selected in the late plough trials for the competition of the ploughs best adapted for heavy land. More, however, than these eleven would probably be necessary, only steam cultivation is resorted to occasionally, not often, perhaps, but in autumn and likewise in spring if the cropping should be in any danger of falling in to arrears.

The pastures are, of course, not naturally so good as many nearer the banks of the Avon or some other stream in Warwickshire, but they are not at all bad, and Mr. Palmer adopts the very admirable old-fashioned method of collecting all kinds of refuse, such as bank parings, ditch scourings, and road scrapings to form compost heaps with lime, which, after being turned over once or twice for the lime to get well incorporated and act on the rubbish, are very serviceable to be spread on the turf. Thousands of acres of grass land are impoverished solely through want of minerals available for the grass roots to take up; these compost heaps spread on their surfaces would supply that want. The utilisation of waste products as well as the prevention of waste on a farm does much to aid in making it remunerative. Every bit of hay consumed by the cattle in winter is trussed and weighed ere being delivered to them. A certain quantity is allowed for each beast which is far better than placing before the animals much more than they can possibly consume, a practice labourers so frequently resort to, with the result of large quantities, which some term "orts," having to be removed daily from the beasts after they have blown on it. This would in consequence not be eaten by other animals except badly-kept, half-starved ones, of which there would be none on a farm so well managed as this one, consequently the refuse would be likely to be trodden into dung.

A neater stackyard could scarcely meet the eye. Instead of heaps of straw lying about which are sometimes seen at ordinary homesteads, all such had been made into thatch bundles, and built on rick stands that had parted with their treasures of the previous year. This making of thatch-bundles beforehand is likewise a preventive of waste, as the freshly built grain stacks can be covered over secure from wet with promptitude and dispatch, if the thatch be ready in sufficient quantities. Perhaps it may be said this is only an old time-honoured practice, but it is one to be noted with approbation for all that, and building the bundles on the rick stand tends to keep the timbers of the latter well sheltered from both rain and sun.

There is not much more to tell except that almost all the crops on the farm whether of grain, roots or grass have a healthy, and some of them quite a luxuriant appearance.

This was so especially in regard to several pieces of wheat, the square head variety appearing to be a favourite. The beans had quite a magnificent look about them, and owing to having been planted in double rows, with wide intervals for horse-hoeing, they were entirely free of charlock. Moreover their bloom was so profuse that if they only escape "green dragon" they will be likely to pod abundantly. Mangel wurzel, too, appeared forward and thriving. The novel practice had been resorted to of planting cabbages into the few gaps where the wurzel had failed. Kohl rabi and thousand-headed kale have often been made use of to perform the like service, but whether cabbages will do equally well only experience can show. The young swedes had escaped the fly, but had not been singled out when inspected in the Royal Show week. Artificial manures are mostly relied on for roots, 4 cwt. per acre of superphosphate being put in with the seed and some nitrate of soda sown broadcast after the thinning has taken place. Evidently the chief reliance in sustaining high fertility in the soil is by high feeding the stock and making rich farmyard manure.

Some farmers are handicapped, very much by having insecurity of tenure, and being tied down by absurd covenants to fixed systems of cropping. Mr Palmer has always been free to do as he liked, and his security of tenure is as good as if the farm were his own freehold. If he has been more successful than his neighbours, the fact must be partly attributed to this circumstance. He has not launched out into any new course except in those well-approved ones of breeding a good herd and flock, and managing both so as to make the farm productive in meat making, and at the same time to yield valuable manure for the sustentation of corn-crops. Several prizes have been won by his cattle at the local shows during the past three years. He keeps strict accounts, and no doubt proves to the judges that he has made the farm pay, but the present low prices of wheat must make an immense difference in his annual returns. Indeed, he imparted the information himself to a party of visitors inspecting the farm that the wheat sold therefrom realised as much as £1,795 9s. 7d. in 1855, but only £373 11s. 2d. in 1888.

JERSEY CATTLE.

The fawn-like appearance and docile habits of these animals, in conjunction with their useful qualities, stamp them as the *beautiful* cow for the amateur dairy farmer, or suburban villa resident, with his acre or two of land. The yield of milk is small compared with that of some of the large breeds; but, though scanty in quantity, it is of superlative quality. The quantity of food consumed usually bears a corresponding ratio to the weight of the animal. If tested by the standard, the Jersey is one of the most valuable breeds we possess under suitable conditions of climate and soil. On the rich pastures and more dripping climate of the Midland counties, there is a tendency to a grosser habit of growth. We are not much enamoured with the present show-form fashion, which is simply a skeleton clothed with skin. If the object be the production of quantity and quality of milk, such a system is contrary to the teaching of animal physiology. Let the recognised points be fully developed, but, at the same time the skeleton should be clothed with a moderate covering of muscle, "lean flesh," and fat. At any rate, in the case of other dairy breeds it is impossible to obtain rich milk from animals in a similar condition. At the recent Royal Show at Warwick there were thirty-six heifers, many of which were in-milk, and when shown all were under two years and six months old, many only turned two years.

We know of no other breed that can at present show an equal record. We had a good opportunity of carefully examining this class whilst the animals were waiting to enter the judging-ring. The weak point in the breed is what the Scotch dairy farmers call the "milk-vessel." This is not only a visible defect; it is vital in any animal whose chief utility is filling the pail. Amongst so large a number, they, as may be expected, varied in degree; but, so far as I could judge, there was not a single animal amongst the thirty-six exhibits that carried a perfectly-shaped bag or milk-vessel. In many the teats were placed too closely together, and the bags ill-shaped. Instead of extending forwards along the belly, and also well to the rear, they are generally purse, and circumscribed in capacity. Viewed from behind, they appear to have a parting running down the centre. In some, the whole four teats were close together, whilst in others each forms a different part of the bag. This is a vital point, and one that, by careful selection, could be bred out in a few generations; but, in order to do this, more attention must be directed to the selection of the male, as well as of the female. The young calf intended for service as a bull in due course should at an early age be subjected to a rigid examination as to the position of the rudimentary teats on the scrotum. If these are close together the calf should be rejected and altered. Whole colours should be cultivated, broken colours are the result of domestication and close breeding.

GILBERT MURRAY.

Elvaston, Derby.

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