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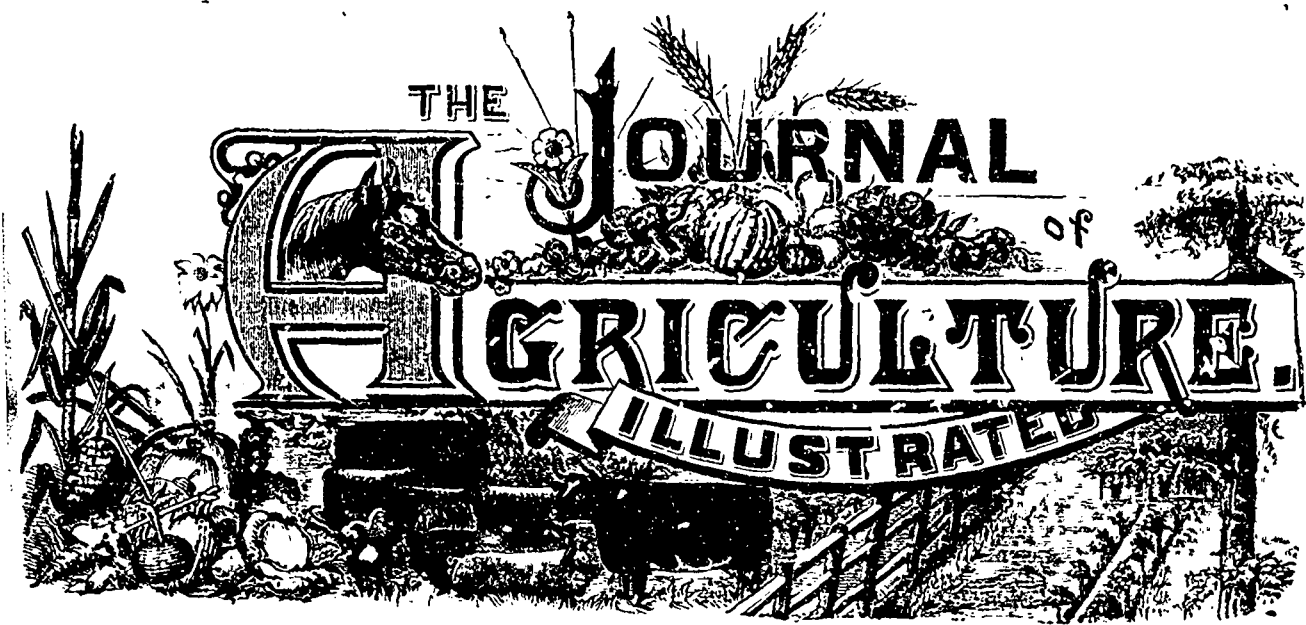
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NOTICE.—The subscription to the *Illustrated Journal of Agriculture*, for members of Agricultural and Horticultural Societies, as well as of Farmers Clubs, in the province of Quebec, is 30c annually, provided such subscription be forwarded through 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 Ed. A. Barnard, Director of the *Journals of Agriculture, &c.*, Quebec.

OFFICIAL PART.

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DELIBERATIONS OF THE COUNCIL OF AGRICULTURE.—26th OCTOBER, 1891.

1 The Council of Agriculture met, at the usual place, on
 3 Wednesday morning, October 26th, 1891, at 10 A. M.
 3 Present: The Hon. H. G. Joly de Lotbinière, president;
 5 The Hon. MM. Ouimet and Sylvestre; and MM. Pilon,
 6 vice-president, Blackwood, A. Casgrain, Champagne, Décarie,
 6 Fisher, Lussier, Marsan, Morier, Moore, Ness, Péroquin,
 Ricard, Rocheleau, and Valois.
 6 The president introduced to the council Mr Collamer Moore,
 8 their new colleague, named by an order in Council, dated
 8 June 2nd, 1891.
 8 The deliberations of the last meeting of the council were
 8 read and approved.
 9 The president made a verbal report of a visit paid by him,
 9 and M. Pilon, of the committee on schools, to the agricultural
 10 school at Ste. Anne Lapocatière, and expressed the
 10 satisfaction they felt at the progress made by the students
 since M. Lippens had acted as professor of agriculture.
 11 1. The president submitted a report showing the manner
 11 in which the agricultural societies have discharged the duty
 of sending in the affidavits required by section 1669 S. R.
 P. Q.
 11 The council of agriculture sees with pleasure that the in-
 13 tervention of the committee on agriculture of the legislative
 assembly during the last session has borne its fruits.

Sixty-eight societies have sent in the required affidavits in time, and seven a short time afterwards. The only ones that have not yet sent in their affidavits are the societies of the counties of Bellechasse, Charlevoix, div. B. Dorchester, Gaspé, No. 2, div. A, and No. 1, div. B, Lévis, Maskinongé, Ottawa, No. 1, div. A, No. 2, div. A, and No. 1, div. B; and the council recommends that the Hon. Commissioner of Agriculture do take the necessary measures to cause the law to be observed by these societies, or to suppress them.

As regards the seven societies mentioned above, as having sent in their affidavits a little later than the date of the 15th September, the council recommends that, seeing the marked improvement observable, this year, in the punctuality with which the affidavits have been sent in, these societies be treated with indulgence, and that the grant be paid over to those of them that shall explain satisfactorily the cause of their delay.

The council then considered the question of changing the final date fixed for the sending in of these affidavits. The question remains under consideration.

The Council heard the petition of the Hon. Mr Maroil, legislative councillor, and others of the county of Two Mountains, in favour of the formation of a second agricultural society in their county. The council also heard the statement of the president and secretary of the existing society, who represented the opponents to the said petition. The question was debated on both sides in the Council and the decision postponed to another meeting.

The Council postponed to another meeting the petition of the inhabitants of the southern part of the county of Témiscouata, praying for a division of the county on account of the great distances and of the badness of the roads to be travelled over by those who seek to be present at the exhibitions held in that part of the county that borders on the St. Lawrence. The Council ordered a copy of this petition to be sent to the society of agriculture of Témiscouata, requesting an immediate reply.

2. A letter was read from M. A. Musy, manager of the Farnham beet-sugar factory, informing the Council of the intention of M. le Baron Seillières to purchase the Berthier sugar-beet factory, and to set it going again next year; and praying the government, which grants a reward for the cultivation of the sugar-beet, to encourage also those who have expended such large sums for its conversion into sugar. To this end, they pray that an efficient amount of protection be granted them and be maintained for a sufficient length of time, that is, for at least ten years.

Resolved unanimously: That, after the great sacrifices made for several years to introduce into this province the cultivation of the sugar-beet and its conversion into sugar, sacrifices which, up to the present time, seem to have been absolutely thrown away, the council is happy to hear of the results obtained this year, results that promise much for the advancement of agriculture and the progress of trade, and which seem to show that there is no reason why the success obtained in several of the countries of Europe should not be obtained in the province of Quebec.

That, before the publication of the report of the Commission sent to Europe, to study on the spot the cultivation of the sugar beet and its conversion into sugar, the council does not think it ought to take upon itself to make any recommendation, but, if the report be favourable, the Council trusts that the government will do all in its power to endow agriculture and commerce with a new source of profits which will contribute largely to the prosperity of the country.

3. *National Stud*.—Reading of the report of the National Stud Society and of the report of Dr Couture on the visit made by him of the stallion furnished to the county of Bellechasse

by the National Stud Company, and of the report of the Berthier agricultural society on the stallion sent to it.

The secretary was instructed to write once more to all the societies which have had the use, this past season, of the stallions of the National Stud, to send in their report without further delay, and to request the Berthier society to send in a more complete report.

4. *Compton, No. 2*.—After having heard the explanations given by Messrs. Layfield and Monroe, delegates of the No 2 agricultural society of Compton, the council thought that this society ought to benefit by the indulgence granted by the committee on agriculture of the legislative assembly, since at the last session it obliterated the errors and neglect of the past, and it recommends in consequence that the grant of last year be paid over to the said society.

The president reported on the advantage offered to butter-makers by the opening of a special course of instruction in butter-making which is to begin, under the auspices of the University of Vermont, at Burlington, on the 30th November next, and which will last four weeks. The council expresses its gratitude to the authorities of the University of Vermont for the advantages offered to the province of Quebec, and has taken such measures that at least five students shall be sent to Burlington, at the expense of the council, selected from the most skilful butter-makers of the country, provided that the expenses of each shall not exceed fifty dollars.

The council took cognisance of the request of M. Bégin that it would assist in the encouragement and teaching of the art of apiculture in this province. On the motion of M. Péloquin, seconded by Mr Blackwood, it was RESOLVED to draw the attention of the government to this matter, and to ask for a grant to encourage this important branch of agricultural industry, and to popularise it in this province.

The council took notice of the request of M. Boucher, of L'Islet, a manufacturer of metallic pegs for fence-posts. The council, after having examined the samples shown by M. Boucher, and at the recommendation of some of its members, who had adopted his system for their fences, was unanimous in strongly commending it to farmers.

The president reported that the committee on Agricultural Merit had finished its report on the best cultivated farms visited during the summer. This report will shortly be in the printer's hands.

The council thanked the Judges for the long and arduous task of several months which they had taken upon themselves, in order to do justice to the competitors and to afford to the public much and precious information derived from the visits thus made to the best farmers of the provincial agricultural Region No. 2.

5. A report was read from Messrs Couture and Ness, on their mission to Lake St. John, with the view of determining if it were possible to find in that district a stallion of the pure ancient Canadian race, and mares of the same. The report was adopted.

Proposed by Mr. Pilon, seconded by Mr. S. A. Fisher, and resolved: That the council respectfully calls the attention of the government to the report of Messrs Couture and Ness, and especially to the measures recommended by those gentlemen to prevent the complete extinction of the ancient race of Canadian horses, so well fitted to the wants of the country and so highly appreciated by our neighbours of the United States, who have only left us some isolated remains of the race in the most retired districts of the province.

That the putting into execution of these measures is urgent, and admits of no delay.

That the plan recommended by those gentlemen of buying some thoroughbred Canadian mares, which are still to be had,

and putting them to the best Canadian stallion that can be found, is the only practical plan.

That these mares be placed at Quebec, or in its immediate neighbourhood, where they can be under the care of Dr Couture, the government veterinary surgeon. That those to whose care they are entrusted shall keep them, for their work, so that they shall cost the government nothing, and that their produce shall belong to the government, to be disposed of in favour of the agricultural societies, or in any other way that shall be thought conducive to the desired result, that is, not only to prevent the extinction of the ancient Canadian race of horses, but, in addition, to spread them afresh about the country as far as it may seem advisable to do so.

6. *Number of students at the butter factories.*—The Council advised that instead of exacting from the owners of cheese- and butter-factories a report showing that they have had the minimum of 4 students, without saying for how long, it would be better to ask them how many students they have had, their names and addresses, and for how long a time each of them has remained at the factory.

7. *Revision and codification of the regulations.*—The council approves the revision of its regulations, as it appears in the published volume entitled: "Laws and orders in Council, concerning Agriculture, the Dairy-Industry, Arts and Manufactures and Regulations of the Council of Agriculture now in force; and especially the article 78, which defines the persons who have the right to vote at the annual elections.

The Council then proceeded with its elections.

Re-elected unanimously:

The Hon. H. G. Joly de Lotbinière, president.

M. J. Pilon, vice-president.

The out-going committees were re-elected unanimously; and the council adjourned.

ED. A. BARNARD,
Secretary of the Council of Agriculture.
(From the French).

The next meeting of the Dairymen's Association will be held at Montmagny on the 27th and 28th Jan. 1892.

Exercise for young cows—Is bedding indispensable?

The November number of "The New Dairy" treats the question of exercise for cows with great good sense.

Healthy young cows do very well, even tied to a sty for seven months in the year. None have experimented longer on the matter, very likely, than the French settlers in the Province of Quebec. With steady heavy cold, for months at a time, it is with us a question of permanent warm stabling, or no milk, and this experiment has already lasted for at least two hundred and fifty years.—Are our cows of Brittany and Normandy descent degenerating in consequence? I would pity the man who should try his lasting qualities by being tied by the neck of one of our young cows, on a free run, he after due training and she after seven months of close prison, and calving at that. As to their milking qualities, when well cared for, the Babcock tester shows an average of over 4% of butter fat in the milk of two year old heifers. As to quantity, we can show two small heifers, both in milk since February and March last, giving over twenty pounds each now, and which gave 36 and 42 lbs a day respectively at their best.

So much for close stabling and degeneration. This stock being kept within the city limits of Quebec, is open to inspection any day. It is stabled the year round, having two hours of free roam in the yard for five months, and constant stabling for seven months. Our calves as a rule are penned in the stable for the first year. The second year they have free roam

in country pastures. We try and have them calve at 24 months, after which we want each of them to do its duty as a mother and milker.

Of course our stables are well lighted, thoroughly ventilated and kept scrupulously clean. But each cow stands close to its neighbour, only three feet space in breadth being allowed to each. The climate being so cold, we must count on animal heat to keep our stables warm. The passages are as narrow as is compatible with comfort and cleanliness.

Now comes the question:—What is good bedding for animals?

In nature the cow selects a dry knoll. If straw be left there the cow very soon moves away to a dry spot elsewhere. Dampness is eschewed by most animals.—Again, straw is usually the ordinary bedding material of farmers. What is straw? A fodder which when well preserved and prepared is worth half its weight of similarly well preserved hay.—We may then well ask if hay is in its nature intended for bedding? Again is not straw or hay bedding, as generally used, a mass of dampness, just starting in the rotting process? Can such bedding help in the production of healthy milk? At all events here we cannot afford to rot our hay or even our valuable straw. Not one pound is used as litter the year round, in our cow stables. The cows stand on short dry boards and are kept perfectly clean,—all the manure falling in the manure gutter below, in one stable, and through steel bars direct into the manure cellar in the other. Thus, every pound of feeding material is used, for all it is worth, and good, healthy, rich milk produced in abundance.

ED. A. BARNARD.

The Vermont butter school.

The following information on the public school in actual operation at Burlington Vermont will prove interesting. We shall be thankful to Mr. S. A. Fisher for the full report kindly promised.

E. A. B.

Van Ness House, Burlington Vt. Dec. 10th.

Dear Mr. Joly,—I write to inform you that I have come down here to inspect the Dairy or Butter School and see how the pupils the Department have sent here to attend it are succeeding.

I may say at once that every thing pleases me very much. I find the five pupils sent under the auspices of the Department: Messrs. Côté, Lord, Bernatchez, Meroier and Hayes all hard at work and earnestly endeavouring to profit by what they see and hear. Also there are two more Messrs. Préfontaine and Brousseau, who have come down at their own expense, who also are doing good work and will profit much. These two do not expect to stay through the whole of the course. I am also very glad and proud to find that both Prof. Hills, the scientific chemist and lecturer, and Mr. Gurley, the practical mechanic and butter maker, are both much pleased with our young men and told me, of their own initiative, that among them are two or three who are the best pupils in the School. I can see myself that this is so; our men appearing to take hold of the work the most promptly and practically and to be the most intelligent questioners and answerers in the lectures. I think these five, we may be proud of them and that we can feel satisfied a good choice of delegates has been made.

The arrangements of the School are very complete and the building for the practical work though small is very well built, etc. Perhaps in some ways, with this example, we might improve on it with no extra expense. I speak thus for I am satisfied that we must do something of this nature another

year. When I see and appreciate how much benefit this month's work is going to be to the 30 odd smart young American butter makers who are here, I am convinced our own young men must have as good, and I am sure that the reports of our pupils here will bear me out. I trust too that among these five may be found material out of which instructors for such work may be made. Without making invidious comparisons, I may say that Mr. Lord and Mr. Hayes, especially, seem to grasp the work exceedingly well. The others labour under the great difficulty of not fully understanding English, but, as the Professor remarked, they use their eyes well and study every thing closely even if they don't take in all that is said. I shall remain here until Saturday, and, if you wish it, I will write an account of what I saw for the Journal, though perhaps the reports of the pupils will be sufficient for that.

Trusting this will find you all well,

I am yours very truly,

(Signed)

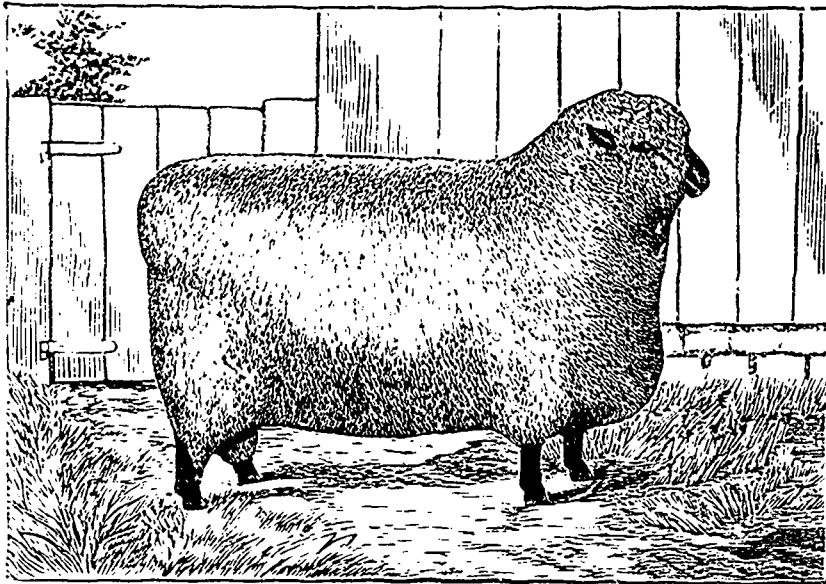
S. A. FISHER.

True copy.

class, being divided into three sections. On alternate days each class is detailed to do the laboratory work and the other the practical work of the creamery, the three sections being detailed to the separator churning and other work alternately.

The school is called to order at 8.30 A. M., and is lectured for one hour, by Prof. Hill, on the subject under consideration for the day; after which, the work of the day commences.

In the afternoon the school is again called to order, and for about one hour, a discussion is held on the practical work of the day under Prof. Gurley. All are invited to ask questions on the various methods employed in separating; the care of the cream, the churning and the working of the butter; and any other points which may be brought out in the discussion, and which may occur to the scholar. I would say, here, that I think that this is one of the best features of the school; as the school consists of a large proportion of practical creamery men, there is here a splendid opportunity for the exchange of opinions and experience; thereby bringing



IMPORTED SHROPSHIRE RAM NOTTINGHAM HERO.

Burlington, Vt., December 8th 1891.

ED. A. BARNARD, ESQ.

Dear Sir,—I am in receipt of your favour of the 1st, and in accord with your request, will endeavour to give you what information I can in respect to the working of the dairy school here.

I arrived in Burlington on Monday, Nov. 30th and was very kindly received by Prof. A. A. Cook, and at once introduced to the other members of the class.

The classes were formed immediately on the opening of the school, but, owing to some slight delay, in getting the machinery into place, the solid work of the school did not commence until Wednesday.

The course is divided into two parts, as follows: The laboratory work, under Prof. Hill, and the practical butter making, under Prof. Gurley. Both of the Gentlemen, I may say here, are competent and painstaking instructors.

The subdivision of the classes is made in such a manner that each in his turn has a share in each branch of the work and is as follows:

There are two classes, A and B, and about twenty in each

out the best methods of making butter and preventing loss of fat in the manufacturing.

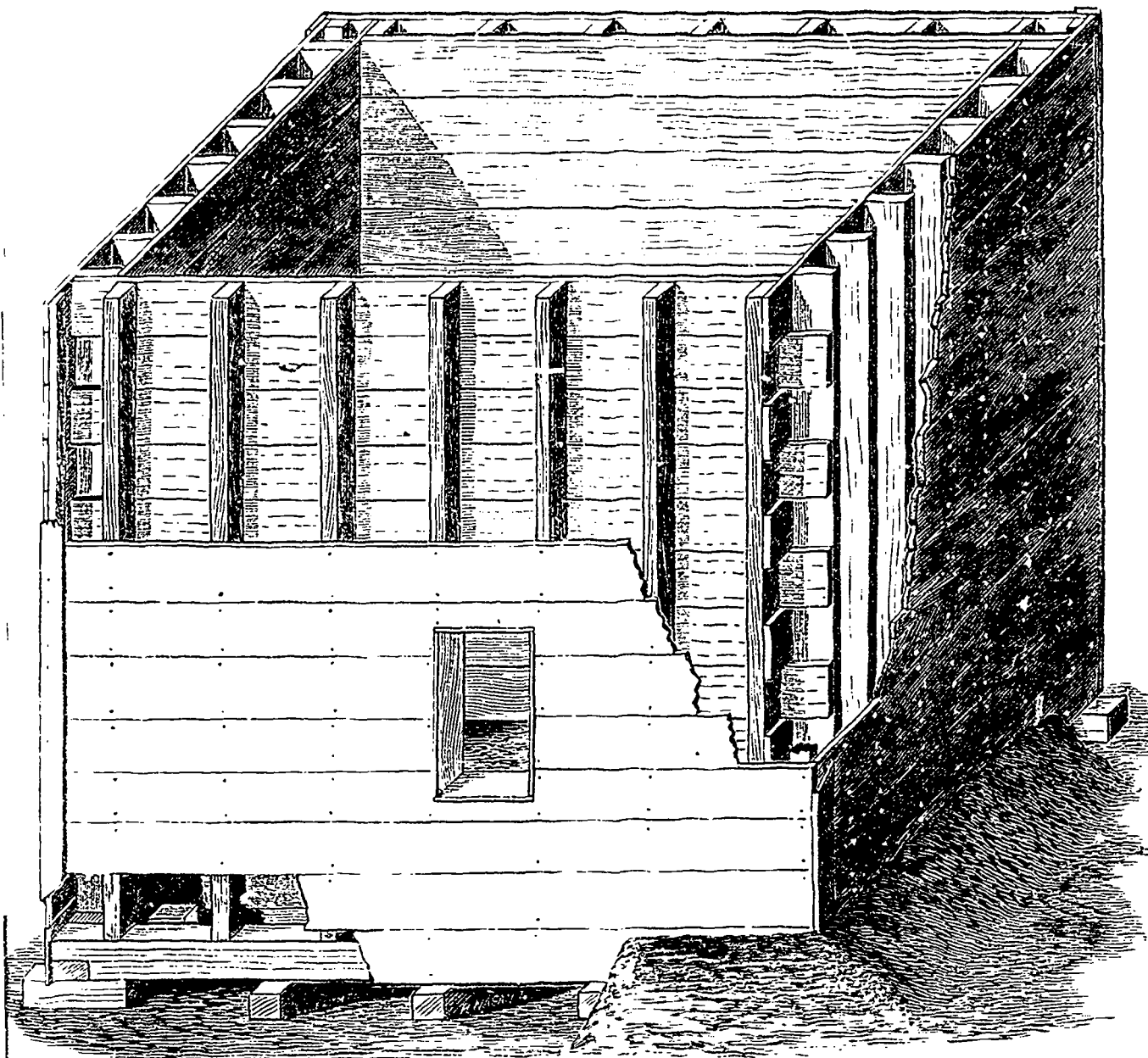
In a future letter I shall have more to say on this feature of the school from a provincial standpoint.

The course of instruction for the last week was on the Babcock test, the method of using it, its use in determining the $\%$ of fat in the milk; how to pay patrons according to the amount of butter fat in their milk; its use in detecting adulterated milk; also, and especially, its value to the creamery man in keeping a check on his work to prevent loss in the skim-milk and the butter-milk; and to the dairyman to help him to select his cows, so as to breed only those valuable as butter-producers.

In the laboratory, the classes have been instructed in making practical analyses of the different samples of milk taken from the whole milk, skim- and butter-milk, by the Babcock test.

An account is kept by the members of the class on the work of the different separators as regards their complete skimming capacity and ease in running, of which I will give you a summary in a future letter. The separators used are the De Laval belt and Steam Turbine. The Russian Steam Sepa-

SILLO.



rators and the Butter Extractors. All the machines are doing good work.

This week will be devoted to the use of the lactometer and the Babcock test, combined; the different formulas for finding the total solids in the milk; the detection of adulterated milk; and *how* adulterated, whether by skimming, or watering, or by both.

In my next letter I will send you a description of this work, and will give you some statistics on the work of last week.

If my letter suggest to you any point on which you would like definite information, write to me and I will try to get it for you.

Hoping this letter may prove of some interest to the department, I am, Sir,

Your obedient servant,
J. AUGUSTUS HAYES, Burlington, Vt.

The Construction of a Silo.

In order to reply to all the questions which we so often receive about the practical and rational construction of a good silo, we have done our best to unite in one engraving (see engr) all the details of the frame, the panels and the bottom of an average silo, say, 12 x 12 x 12 feet, inside measure. This will hold enough corn-silage to feed 12 cows for 200 days, at the rate of 20 lbs. a head each day. The cut shows the general view of a silo on a scale of $\frac{1}{4}$ inch to the foot.

FRAME OF THE SILLO.—The ground-plate is formed of five

horizontal beams, 9 x 9 inches, and rests on wooden blocks two feet long and 6 x 6 inches wide. These blocks are placed at intervals of 3 feet from one another.

On the plate are erected the posts; these are planks 9 x 3 inches, at intervals of 2 feet from one another, and to them the boards of the panels are nailed.

THE INTERIOR BOARDING AND CORNERS.—An important detail in the building of a silo, and one which is too often neglected, is the making of the four corners solid enough to prevent the side-walls from opening and separating from one another. The way to prevent this is as follows: the boards, from 1 to 2 inches thick forming the interior panel ought to be perfectly uniform in width (say 1 foot wide), their ends, at the corners, should cross each other alternately, as shown in the cut; the ends of the boards that penetrate thus into the space between the side-walls can be easily nailed to the corresponding posts. For this, it is not necessary to have the boards of unequal length, since they can be so arranged that if one projects too far to the right, the one above shall project further to the left, and so on. In order to make this more easily understood, we have, in the engraving, raised part of the outside panel to show almost the whole of the right and left corners with the arrangement we recommend. This easy, simple plan gives great solidity to the silo.

THE OUTER PANEL.—This consists of common boards nailed from without to the posts. Inside the four corners of this panel a post is placed to which the boards are nailed. For greater security, the extremities are covered, outside, with a narrow board in a vertical position.

In the cut, is seen a door, 3 x 2 feet, 3 feet above the ground-plate. Lastly, in the engraving, the base of the silo is shown perfectly earthed up, while the left part has been left naked up to the level of the bottom of the silo to show the blocks of wood on which the plate rests.

The *sablère* or wall-plate, has been left out, to avoid hiding the space between the side-walls. H. NAGANT.

(From the French)

Dr Couture on our Horses

Dr Couture, the Government veterinary surgeon, has an article in the November No. of the French Journal that is full of sound sense and good advice. Speaking of the general run of horses to be found on the farms in this country, he, and with much justice, asserts that the breeders seem to have aimed at producing an animal the very reverse of what a useful farmer's horse ought to be. They are wanting, says he, in compactness, or as we should say, they are loosely built. Long backs and length in the loin are what has been aimed at, instead of well coupled, well ribbed up forms. They are too long in the leg and too slight in the carcass—too tucked up, in English stable-language. (1) Such horses can never do a really hard day's work; at the end of four or five hours they are weary of life, and when they reach the stable, they won't grub. Consequently, they are fit for nothing the next day.

Now a really useful farmer's beast should, as M. Couture says, as nearly as possible conform to the following type: of an average height, neither high nor low, but of the two, rather inclining to the latter; the forehead broad, the eyes very large and placed at the side of the head. The neck (*encolure*) very thick where it joins the body, and along the sides, but fine above and below; the breast as wide and muscular as possible; the shoulder long and muscular; the forehead and thighs big, big, big: no limit to the bulk of these parts.

(1) *Herring-gulled.*

The more a horse girts, the better. Built in such a way he will be full of health and able to do a better day's work at 20 than a slight, flimsy thing at 6 years old.

M. Couture is evidently not in favour of ponies for farmers' work, for he says: your horses ought not to exceed 15 hands $1\frac{1}{2}$ to 2 inches in height, but they should weigh from 1,000 lbs. to 1,100 lbs.

"War to the knife against *trotters*. They are neither fit for the plough, for the carriage, the saddle, nor the cart. They ruin the morals as well as the property of our people: they must be trained; the owner drinks; he runs about to the races; bets and loses; and he dies a drunkard."

A. R. J. F.

1891.

The past year has been a remarkable one. I never remember a season that began so badly as regards our farm crops and yet ended by giving us a plentiful yield of every thing except hay. Navigation began early enough, a tug having arrived in Montreal from Repentigny on the 17th April, on which day the thermometer indicated 60° F. in the shade, though there was a white-frost in the morning, say 30° F. This was followed by a sweet, warm rain on the 18th and 19th, which brought out the soft-maple bloom on the 20th. Wednesday 22nd, 67° F., the wind turning to the East on the 24th, with sharp frost, snow and hail on that and the following day. Monday 27th heat again—71° F.; on the 29th 6 degrees of frost, and 65° F. on the 1st May. Snow, rain, and hail on the 6th; 78° F. on the 10th induced many market-gardeners to set out their tomatoes the following week, for which confidence they paid dearly as they were all killed on the 19th, when there were 3° of frost in the suburbs of Montreal.

Sowing began fairly early, but the long drought throughout the summer, only broken in this district by a couple of thunder showers—not storms—lasted till the 4th July, when a rainy time began that utterly changed the appearance of all the crops in a very few days. In fact, when I visited Sorel on the 14th the land was surcharged with moisture, and my friend M. Séraphin Guèvremont was getting nervous about his potato-crop.

The hay was very poor on even such well farmed lands as Mr. Jas. Drummond's, Mr. Irving's, &c.; but oats, corn, and roots did well after the rain began.

A wonderful autumn! The very mildest I ever recollect. No frost to injure cucumbers till the 9th October! A sharpish couple of days on the 29th and 30th November, the thermometer at the City-hall falling as low as—4° F.

The last three days, December 1st, 2nd and 3rd, have been very mild. The little ice on the St. Lawrence is all gone, and the sparrows are chirruping away as if the spring had arrived.

Well, if the winter is not to be found at the mouth of the sack, it is sure to be in the bottom. So we must look out for a late spring.

A. R. J. F.

DE OMNIBUS REBUS.

Hungarian grass.—The only drawback to this very useful plant is that it *must* be cut very early or else the cattle, particularly the horses, will not touch it. I have always found it best to mow as soon as the flowers are on the point of bursting.

Nitrate of soda.—Owing to the abominable folly of the Chilians, whence come our supplies of the above invaluable manure, the price has risen in the Liverpool market up to \$45.00 a ton.

Maize.—With the largest crop of maize the States ever

grew—2,000,000,000 bushels, I believe—the gamblers at Chicago managed to corner the market on the 1st December, and I hear corn went up to 75 cents a bushel!

Molasses.—Sweets of any kind tempt the appetite of all animals. How a pet pony nuzzles up to one for a lump of sugar! In England, since the duty on sugar was abolished—1874—farmers have been using sweets, in the form of molasses, to a considerable extent. Herein lies the reason why sugar-beets are so much more fattening than mangels; not per acre, of course, but per ton. Molasses will induce cattle to eat rough stuff, such as inferior hay, &c., that they would refuse in its natural state. The flesh of pigs (small porkers of 60 lbs.) fed partly on molasses or sugar is wonderfully good and tender. Now Barbadoes treacle (molasses) averages 60 % of saccharum, and can be had in puncheons at the warehouse of Messrs. Lightbound and Ralston, McGill St. Montreal, for 31 cents a gallon. A pint of this dissolved in water, and sprinkled over chaffed straw, pea-haulm, or any other coarse provenders, will induce stock of all kinds to eat what they would otherwise reject, that is to eat a great deal more than they otherwise would. It would be as well to turn over the sweetened heap of chaff once or twice, and to allow it to remain to soak for a few hours before giving it to the cattle.

Some two or three years ago, Mr. Vernon, of Compton, the well known breeder of Herefords, wrote to me about molasses, but the price then was so high that I could not recommend its use.

Cotton-cake.—Sir John Lawes estimates that 4 lbs. of cotton-cake and 3½ lbs. of bran would furnish about as much nitrogenous and non-nitrogenous substances as would produce 30 lbs of milk. That may be, but in a butter-dairy, the butter-value of the milk, and not the quantity, can alone determine the proper regulation of the food.

Basic slag.—Something ought to be done, during this season of preparation, about this new form of phosphoric acid. Basic-slag contains from 16 to 19 per cent of phosphoric acid, equal to from 35 to 41 per cent of phosphate of lime, and the price is very low at present—only 34s. a ton of 2,240 lbs. in Liverpool = \$7 20 per 2,000 lbs. The slag is guaranteed to be very finely ground.

Like potash, I should advise any one who tries it to sow it broadcast as early in the season as possible; indeed, it would do better if sown in the fall, where the land is not subject to washing, as all combinations of phosphoric acid and iron are much less soluble than phosphates of lime.

Experiments have been tried with this manure, in duplicate with superphosphate, on a field of light, thin, chalky soil in Wiltshire, and at Ferryhill, Durham, on deep, heavy, clay soil, destitute of lime, on which no manure had been applied for several years. The results was that on the chalk 448 lbs of the slag was inferior to an equal weight of *mineral superphosphate*; on clays it was equal or superior to it. It was shown to be superior to *undissolved coprolites* on both soils. On poor grass land, of which there is so much in this province, it may be expected to bring about a heavy growth of clover. In order to complete the dressing on grass land I should sow, with the slag, a few bushels of ashes, or 200 lbs. of kaint, a barrel of plaster, and, later in the season, 120 lbs of nitrate of soda, or 100 lbs. of sulphate of ammonia.

Kainit.—This source of potash is now worth about ten dollars a ton at Liverpool.

Manitoba wheat.—A wonderful yield of wheat in Manitoba, if all we hear be true, but, as far as I can make out,

40 % of it has suffered from the frost. By the bye, what on earth induces the flour-inspectors to classify the frosted wheat as "No. 1 Regular; No. 2 Regular"? Surely, they do not want to make out that frozen wheat is the normal condition of the grain! This sort of dodge never pays in the long run.

Hampshire-downs.—see by the French edition of the Journal that people are beginning to inquire after this breed of sheep. I am rejoiced to hear it, and I do not despair of seeing an importation of them from the Wiltshire downs before long. Mr. Wrightson, principal of the agricultural college of Downton, near Salisbury, would be a good man to apply to. And, Oh, if they could be accompanied in their voyage by a small herd of real *dairy-shorthorns*! say 12 heifers, and a couple of yearling bulls!

Poultry.—No more full crops of poultry in the markets, at all events none in the Montreal market, as the 21 sect. of bye law 131, by which a fine of \$20 is inflicted on any one bringing to market poultry with food in their crops, is to be strictly enforced. (1)

Chrysanthemums.—A lovely show of these superb flowers in the Windsor Hall. Why retain the name, which signifies "gold-coloured flower," now there are plants producing white, brown and other blooms? However, the exhibition was magnificent. Mr. Kirkwood took an almost unfair share of the prizes, e. g.:

- Best 12 plants.
- Best 6 do
- Best 3 do
- Best 3 standards.
- Best 1 standard.
- Best 1 not a standard.

Swedes—A wonderful swede was exhibited in the window of the Star Office, St. James Street, Montreal. It weighed 42½ lbs., I was told: a monstrous weight, indeed. I went, about the middle of October, to Mr. Evans' seed-shop to see it, and his man was kind enough to put it on the scales for me: it weighed just 22½ lbs.! It had three tops, and roots enough for two or three plants. What it had lost in weight was of course water, but the swede was clearly a monstrosity and by no means a desirable root to grow. I dare say the owner was proud enough of it, and I should not mind a few hundred acres of land like his; but I prefer a close crop of swedes weighing from 4 to 6 pounds to any exaggerated specimens like the one in question. I fancy it came from Deux-Montagnes.

Price of wheat in England.—The English farmer is hard to beat. Even this year, with oceans of rain and terrible winds, his energetic mode of harvesting his crops has been rewarded with a return of rather over an average crop of wheat. A very small proportion of the stacks will be fit to thresh before the frosts of winter and the drying winds of March have penetrated to their very hearts. Still, there are wealthy men among them even now, and those who kept back a few stacks of the rare crop of 1890, have found their benefit in it, for, whereas the price of ordinary '91 wheat on November 14th was only 42s. a quarter fine old ('90) white wheat fetched on the same day, at Reading, 52s. Now it is fair to conclude that, as quantity always goes with quality, the seller of the latter sample grew at least 5 quarters to the

(1) My daughter says that, as a rule, she finds the Montreal market-women very frank and truthful.

acre; 5 quarters, then, at 10s = £2.10 an acre extra return, which would go far to pay the rent, tithes, and rates on the best arable land in the neighbourhood of Reading. It is curious to see how irregular the yield of the crops has been in England this season. Norfolk varies in yield of wheat from 16 to 60 bushels an acre. One farmer, in that country has grown 116 bushels of oats to the acre!

Sanding the streets.—I have the very highest respect for Mr. St. George, the earnest, indefatigable surveyor of roads at Montreal; but, when he says: "There is really no danger on the streets for any except those who do not know how to drive," I must beg to differ from him. I was put on pony-back at 4 years old, I have hunted with 24 different packs of hounds; I have driven single, tandem, and four-in-hand, and I never felt nervous except on the wood- or asphalt-roads in London. You can't help your horse, and you feel impatient the moment his legs begin to spread.

to return to a system which had been almost given up, I mean the fattening of bullocks. M. Bousquet's address to the shareholders of the bank of which he is the worthy manager must have forcibly struck many of us.

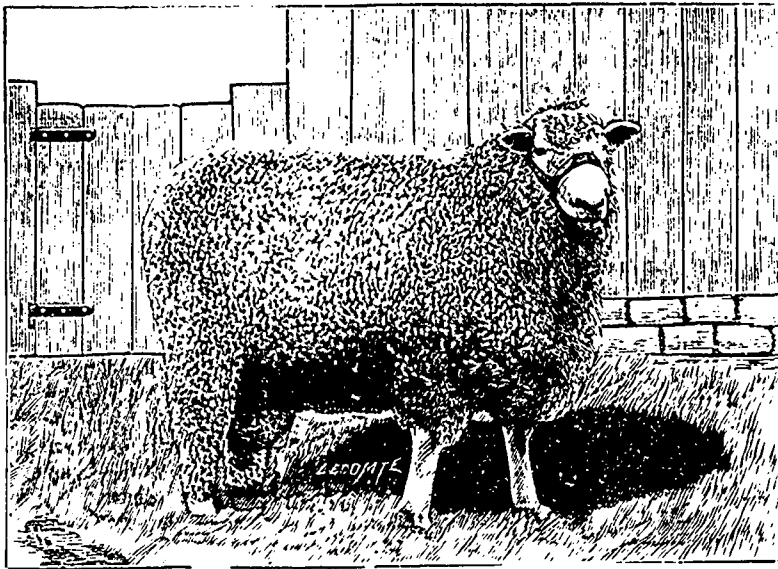
I observe, in the papers, that several farmers have bought "stockers" in Montreal that were intended for the British market, and taken them home to fatten them. Now hay is so cheap, and the American markets are closed to us, some means must be employed to use our surplus stock of that food, and, combined with roots, ensilage, meal, &c., I am inclined to think meat-making with it will not be found so unprofitable a business as we have heretofore supposed it to be.

More on this subject in the February number.

OUR ENGRAVINGS.

Construction of a silo.—See page 5.

A good take off.—Probably as bad a take off as can well



A LINCOLN RAM.

Butcher's prices.—A fairly fatted bullock will yield about 58% of meat to live weight, therefore, one weighing on foot 1200 lbs. would give, as the weight of its four quarters, 696 lbs., and this beast would be worth, at present Montreal prices, 4 cents a pound live-weight, \$48.00. The hide would probably weigh some 65 lbs.—at 8 cents a pound \$5.20

The fat—65 lbs. at 4 cents..... 2.60
Tongue, head, &c—say..... 2.00

\$9.80

Thus, the cost to the butcher of the four quarters is reduced to about \$38.00, and yet butchers are now charging their customers here 12½ cents for the best joints!

As for the tax now \$100 a year, for the shops, that does not amount to much per pound of meat. Suppose a butcher kills only 3 beasts, 20 sheep, and 2 calves a week throughout the year, taking these at the usual weight, the whole will amount to about 159,120 lbs., the tax on each pound of which cannot be of much consequence.

The truth is, the butcher gets too much profit and the farmer too little.

Judging from an article that appeared in the December No. of this periodical, and which was sent me from the department of agriculture, it would seem that there is a desire

to be imagined. The horse has got much too near the fence before rising; the man's seat is absurd; and the reins are held so tight that the odds are the horse will be checked and thrown down on landing. The cut must have been taken from some ridiculous old book on "The Manège." The sensation of the rider going over a jump on a good fencer is like that of sitting in a swing. The horse takes off some distance before he arrives at the fence, and covers more ground than one net used to it would easily believe. Vanguard, in the Great Liverpool steeple-chase, in 1839, in going over the wall, covered 37 feet, from the mark of his fore-feet in taking off to the mark of his hind-feet on landing.

Wheat in England.—Sir John Bennett Lawes, the eminent English agricultural chemist, who produced a revolution in the science of agriculture in England by the introduction of superphosphate of lime, has made his usual annual estimate of the yield of wheat in the British Isles in 1891. Adopting thirty bushels to the acre as an average, the bushel weighing sixty pounds, and estimating the requirements of consumers at about 29,500,000 quarters, an importation of twenty million quarters of foreign wheat will be necessary.—Ex.

Agricultural Colleges.—Dr Hoskins has a very neat way

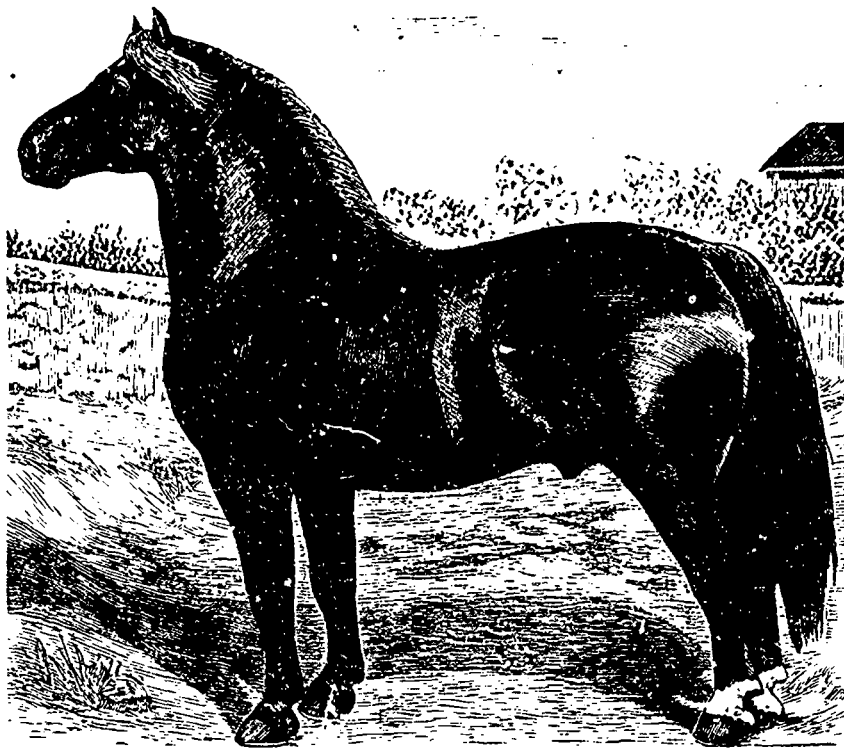
of putting things. It is impossible to misunderstand what he means. I perfectly agree with the following positions :

There never will be any successful industrial college maintained in close connection with a literary college. The example is all against it ; the influence is all against it. The subtle atmosphere of the one will permeate and vitiate the other. It is impossible to reconcile the two. And with the feeling among the instructors, and the pretensions of the classes in the literary department, the industrial students will inevitably be driven off—if any should be temporarily gathered there.

Weight of barley.—A very common error prevails here, that barley for malting purposes is valuable in proportion to its weight. No English maltster or brewer ever dreams of weighing barley, for an expert can tell at a glance whether a sample will pay the buyer or not. If I recollect, the increase

such time as they were made to do it. It would be objectionable to sell barley at a greater weight than it was naturally. Sixteen-stone barley did not exist in some sections, and if it did it was of a coarse inferior description : whereas grain fit for malting would in all probability weigh two or three pounds less. Then would come the question whether they would not be done out of those two or three pounds—they grew the best malting barley in England. (16 st. = 56 lbs. bushel.)

The copper mixture.—Accounts vary as to the benefits to be derived from the application of the Bordeaux mixture to the potato-crop, but, on the whole, I think we may feel pretty confident that a remedy for the dire disease that has now for nearly 50 years affected one of our most important farm-products, has been discovered. The Cardington experiment seems to have been successful, the undressed plot having had



FIRST-PRIZE MATURE PERCHERON STALLION AT CHICAGO SHOW.

reckoned upon by the government here is 8^o/₁₀, that is, one hundred bushels of barley should give 108 bushels of malt. In England, it does more—I have heard of,—though not seen—an increase of 15^o/₁₀. Mr. Clare Sewell Read, a Norfolk tenant-farmer, formerly M. P. for East Norfolk, speaks as follows on his subject :

In reference to the question of corn sales, Mr. C. S. Read, at the dinner of the North Walsham Association, said that as far as regarded wheat and oats, they were already sold by weight, and probably it was about the best way of disposing of that grain. With regard to barley, he held in his hand a Government return which showed, generally speaking, the wonderful inaccuracy of the information that was placed before Parliament. It stated that they sold their barley in measure weight, 16 stone. He had never sold a single bushel of barley by weight in his life, and he believed a good many other farmers would say the same thing. The majority of farmers said they did not wish to do so, and would not until

26 times as many diseased tubers as the one treated with the mixture.

MESSRS. VEITCH AND SON, in a letter to the *Times*, give an interesting account of their experiments in the prevention of potato disease. They divided a crop consisting of several varieties in three parts across the drills, one part being dressed with the Bordeaux mixture, the middle portion not dealt with at all, and the third treated under the JENSEN system of high mounding. Disease had appeared when the treatment began, and yet the effect of the mixture was so great that the tops were green and vigorous for more than a month after the tops of the two other portions of the crop had died off. The results were that the yields of sound tubers were in the proportions of 8 on the Bordeaux mixture plot, 4 on the Jensen plot, and 3 on the untreated portion of the field. The ingredients of the mixture were 3 lb. of sulphate of copper and 1 lb. of quicklime to 20 gallons of water, 140 to 150 gallons

per acre being applied. The cost of the ingredients was 5s. an acre. The mixture was applied only once, on July 24th. Messrs. VERRILL recommend two applications. Only 2 1/4 per cent of the tubers were diseased, however, where the mixture was used.

Potato Disease Experiments.

It may interest your readers to know the result of the experiment upon the R.A.S.E. plot at Sittingbourne. When weighed, dressed potatoes showed an increase of over three tons to the acre over untreated, with less than one quarter per cent diseased. At Cardington the treated plot had only one half per cent. diseased, the undressed 13 per cent. Mr. Chancellor has kindly sent me figures of his experiments, which I give below :—

	Total Weight for acre		Diseased		Sound	
	Tons	Cwt.	Tons	Cwt.	Tons	Cwt.
Beauty of Hebron, no treatment..	8	6	1	12	6	14
Beauty of Hebron, one dressing, 2 1/4 per cent. July 10th	9	3	2	5	6	18
Beauty of Hebron, two dressings, July 10th, and August 2nd, 2 1/4 per cent.	9	11	1	4	8	7
Jeanie Deans, no treatment	9	0	6	3	2	17
Jeanie Deans, 3 1/2 per cent of mixture... August 1st	12	2	1	17	10	5

Practical men.—I do not know Mr. 'John' McMillan, nor do I understand why his Christian name should be put between inverted commas, but I should like to know if he calls Professor Robertson a "practical man" or not.

"Supply, was the next order called, and when the agricultural items were taken up, Hon. John Carling sat placidly in the Senator's gallery and watched "proxy," Mr. Haggart, try to satisfy the queries of the farmer members. "John" McMillan made a slashing attack on the Experimental Farm, declaring that there was not a thoroughly practical man about the institution; all of which highly edified Farmer *pro tem* Haggart."—*Star*.

Ensilage vs. roots.—M. Beaubien in his address to the Dairymen's Association at Sorel, said "With an arpent of land in silage you can winter 5 heads of cattle. Do you think that can be done with an arpent of roots?"

Of course, M. Beaubien does not mean that silage alone will do for cattle-food. But it seems to me that, in this country, it is as easy to grow 20 tons of swedes as 20 tons of silage-corn, and I feel convinced that a ton of swedes is worth quite as much for cattle-food as a ton of silage-maize. The horse-and hand-hoe, too, can be kept going much longer in the swede-crop than in the maize, and consequently, the land will get much more cultivation, which is a matter of far greater importance than our people seem to think.

Is it not high time that some skilled experimenter should take in hand the determination of the relative values of corn-and clover silage. The theoretical values have been settled this year, and, as my readers will recollect, the clover-silage sample was considered by far the most valuable of all those shown at the Sorel meeting of the Dairymen's Association, 1890.—The committee observing in their report that M. J. Damien Leclair's sample of clover-silage was *perfect*, we found that it contained much more nutriment than any of the other samples exhibited. Its only fault was that it

had not been passed through the chaff-utter before ensilage.

If the first crop of clover were out as soon as the blossom comes out in the majority of plants, there would always be a second, and, on well farmed, fairly good land, in most seasons, a third crop. How many tons would the three cuts weigh to the acre? I should say from 15 to 25 tons. I saw, last year even, lots of fields that promised 2 1/2 tons of hay to the acre, for the first crop alone, and that would certainly indicate tons before drying.

Again, it was said, at Sorel: We can never contend with the products of the West: maize, wheat, barley, oats, pease. You will have to give up the cultivation of these cereals, for they will always be purchasable at so low a price that you cannot compete with their producers.

And yet within 6 months of the day on which this statement was made, oats were selling in Montreal for 5 1/4 cents a bushel!

Lastly, the same gentleman said: We no longer want hay, I don't make any; I grow no more grain, I prefer buying straw at \$3 the 100 bundles delivered.

But if no grain is to be grown, whence are we to get our straw at \$3 the 100 bundles?

Weather predictions.—I suppose some people are to be found who believe in the predictions of the weather prophets! Did any one of them predict this wonderful autumn? I was in hopes when Vennor died, that the trade had died with him, but I see, even now, occasional letters in the papers laying claim to successful predictions. I keep a regular journal of the weather as well as of other things, and I can safely assure my readers that "there is nothing in it." Now and then, the predictions "come true," and, now and then, the hog killed in the decrease of the moon will not take the salt. But the moon has as much to do with pork as the prophet with the weather.

Mr. Perrin, whose indications I give below, is more diffuse than his brethren in general:

STORMS PREDICTED.—*Sir*,—As important storms are now approaching the North American continent, and the Government authorities do not make mention of them in their report to-day, I take it upon myself to warn the public that an area of low pressure is now approaching the Southwest and Western States which promises to cause heavy rain, accompanied by hail and dangerous wind storms, reaching Kansas, Nebraska, Iowa, Missouri and adjacent States about Thursday or Friday next; the Lake region on or about Friday; the St. Lawrence section and extending to the Middle Atlantic coast on Saturday or Sunday, reaching Eastern Canada and the New England coast about Monday next. The most important part will likely sweep over the southern section of the Lake region Pennsylvania, New York and New England States. Indications are that the storms will be followed by low temperatures causing frosts in many sections from the Western States to the Atlantic
JNO PERRIN.

September 9, 1891.

Now, the weather that really followed these predictions was not at all what it ought to have been:

- Saturday, 12th, a bright, pleasant day.
- Sunday, 13th, cooler, a little rain, A. M.; fine, P. M.
- Monday 14th, " dull and rawish.
- Tuesday, 15th, much cooler, 62° F., 40° F.

No frost, to do any harm, but, as every one knows, marvellous weather up to Friday, October 9th, when a triling chcek's was experienced. I had fresh-gathered cucumbers for dinner on October 13th!

The "Government authorities" did not mention these storms in their report and quite right they were.

Butter.—I have paid as much as 35 cents a pound for butter this autumn and very bad it was! The Edinburgh paper from which I cut the following is a good authority, and a perfectly unbiassed judge. A writer in one of the Montreal papers, who signs himself "The Farmer," is of the same opinion as the editor of the Scotsman:

Canadian eggs in England.—The McKinley tariff, although it has had many bad, has at least had one good effect in this country. It has opened up a new source of supply for eggs. Canadian eggs are now reaching England in large quantities, and, it appears, with satisfactory results to the exporters, one shipper having made a thousand pounds on a recent consignment. Most of the eggs which now come here would have gone into the States, but the McKinley tax of 2½d. per dozen effectually excludes them from the American market. To those interested in the question of transit charges, it will be surprising to hear that eggs can be brought from Canada to Great Britain at one penny less freight per dozen than from France—a difference which, no doubt, has contributed largely to the demand by the dealers for Canadian supply. Possibly the success of the egg trade may induce some of the Dominion farmers to try their hands at butter. Some experimental shipments were formerly made, but the quality was so abominably bad that the butter was almost unmarketable. What is wanted in Canada is an extension of the creamery system, by co-operation or otherwise. Without it there is not much hope of farmers obtaining a large market for dairy produce in this country.—*Edinburgh Scotsman.*

Creameries for the Province of Quebec.

To the Editor of the STAB:

Sir,—The great interest taken in Canada at the present time with regard to her trade relations with foreign countries and the great desire to develop new and profitable markets, has been caused to a great extent by the McKinley tariff. The putting into force of that act has been more injurious to the farmers than perhaps any other class of men in the Dominion, and as the farmers of the Province of Quebec depended to a great extent on the demand of the New England States for their produce, they felt the effects at once. Ontario, with her splendid system of cheese factories, and the North-West Territories, with her grain farms and cattle ranches, are already in a position to cater for the English or other distant markets, but Quebec, with no regular system of farming, is in a sad position. If she develops the same system as Ontario it will have a tendency to lower the price of cheese by over-production. She cannot compete against the North-West in either grain or beef, so butter seems to be the only article remaining for which there is a good demand. As the distance from markets increases, the object to be attained by the farmer is to get the greatest value into the least bulk. Butter answers the purpose, and for uniformly good butter there is an unlimited demand, but at present our butter is uniformly bad. To-day the shipments of butter to England from the United States is far ahead of Canada, and it is entirely owing to the uniformity of their creamery butter. Now, if Canada produced an equally good article, England would give her colony the preference. (1)

Lecture by M. A. Dellicour. (1)

Gentlemen,—It is not sufficient to recall to your remembrance, these general data on the manufacture of butter: you are acquainted with them already, and have practised them for many a day. Your efforts are specially exerted to insure their penetration into the daily practice of your people as soon as possible. And it is in the hopes of contributing to this work, so eminently useful, that I also propose to indulge myself in giving a concise account of some of the measures taken in Belgium to improve the cultivation of the country, and to increase its riches.

Associations—For a long time it has been recognised that the advice, even the example of intelligent farmers, could not succeed in securing promptly enough the diffusion of improvement realised in practice.

The desire for improvement was not guided by a well combined uniformity. The need of a general association made itself felt, and, before long each of our nine provinces had its agricultural society, which, united to a central body, supported the requests of agriculture with the government.

The Central Agricultural Association, as it is called, concerns itself with the more important matters, while the provincial clubs study the same problems from a more confined point of view.

These latter societies are composed of the Presidents and delegates of the local clubs which comprise within the sphere of their action several parishes. It is to the last of these that chiefly falls the duty of treating the special subjects relating to the different branches of regional cultivation.

All these societies of farmers, properly so called, and of persons who interest themselves in this pursuit, so ancient and yet so novel, enjoy favours from the government, as well as numerous subsidies granted by the provinces and by the communes.

It is owing to these committees, so powerful by the influence of their members, that we possess so many agricultural papers; it is owing to them that we have our competitions, our meetings, and, generally speaking, all the measures that have raised our country to the first rank in agriculture.

Progress does not stand still; our societies understand that; they have not fallen asleep over their early laurels, and they continue to seek by every means to extend agricultural instruction. When they are unable by their own unaided strength to succeed, they betake themselves to the higher quarters, and by persevering, succeed in loosening the strings of the common purse, and, with state-assistance, obtain the desired solution of their difficulties.

To these proceedings, Gentlemen, we have been peculiarly indebted latterly for the creation of 1. the body of "State-agronomes," 2. of dairy- and state-schools; 3. of practical and theoretical lectures.

Agronomes.—The agronomes at l'Etat, as they are called, are functionaries almost invariably selected from engineers who have passed through our agricultural universities. To their scientific acquirements must be joined thorough practical skill.

Appointed to the number of 2 or 3, according to the importance of the region assigned to them, their duty is to aid farmers with their advice, either in private conversations, or by letter; to direct the experiment-fields established everywhere, to define the value of fertilisers, their efficiency, their suitability to different soils, to superintend the choice of seed, and the introduction of new species, to watch the improvement and development of the different breeds of stock, to facilitate the introduction of select breeding stock, to promote

1. The effects of good training will soon change all this v. p. 3, 197a A. R. J. F

(1) N. B.—This lecture is the second part of an essay written by M. A. Dellicour for the Dairymen's convention at Sorel, 1890.

the application of methods recognised as the best ; in a word, to do all and everything that can concern the advancement of agriculture with the circle of their operations. (1)

The agronomer must deliver numerous lectures on the different systems accepted as the most necessary in, and the best adapted to, his district. Among his functions also enter the superintendence of fertilisers sold, in which he is aided by numerous agricultural laboratories ; and the repression of fraud, as well as the punishment of the guilty.

These numerous and useful officers who are under the direct control of the Department of Agriculture meet frequently together, to communicate their ideas, relate their labours, the results of their researches ; to consult on the means to be put into operation for the worthy fulfilment of their charge, to maintain themselves at a level with the knowledge and progress realised elsewhere ; in a word, to place themselves in a position to be of the greatest possible use to the farmers of their district.

Although it has only been in existence 5 or 6 years, this body of active diffusers of progress has been of the greatest use to our farmers, both small and great, in enabling them to pass through the agricultural crisis of these later times.

And I do not hesitate to say, that similar institutions would have everywhere rapid and successful issues ; but an enterprise of this kind can only be asked for and countenanced by the agricultural societies : the state must found it.

SCHOOLS.—Alongside of the two principal establishments for higher education, exist, under the protecting wing of the state, a station for experimental research and many laboratories.

In different districts, local schools, more or less special in their object, have been established, and in every primary-school an elementary course of agriculture is given.

Belgium, where almost every kind of crop is grown, includes three grazing districts properly so called, one of which is particularly noted for its butter and cheese. I was born in this latter district, and it is on account of what is being done there for the improvement of the dairy-industry, that I am delivering this address.

The dairy school of the Downs of Herve, established only last year, by government, with the aid of the local clubs, is not only temporary, but is transferred from parish to parish.

The staff comprises :

1. A dairy-professor, who has the direction of the general studies and work. This year, these functions were naturally entrusted to a Belgian, a specialist in this subject, M. Chevure, professor at the Royal Agricultural Institute at Gembloux, and one of its oldest members. He is, besides, the real promoter of these schools.

2. A veterinary surgeon, lecturing on the elements of physiology.

3. A professor of pastoral cultivation.

4. Two dairy-instructors (*women*) for teaching and practice. The first were young women sent by the government to France and Denmark, where they took their diplomas of capability in the celebrated establishments of the two countries.

The instruction is given in such a way that science always marches side by side with practice.

The courses, which are entirely free, last for three months, and comprise theoretical lessons, tuition, and practical work.

During the practical application of the lessons, only the most perfect apparatus is used, novelties which may be presented are tried, and a just estimation of their value is made. The last improvements in the methods of making butter and

cheese are put into practice ; cheeses are made of those kinds which are not produced in the district, but which are thought to be the most advantageous, as much as regards their selling value as the economical employment of full or of skim milk.

The studies close with an examination, both theoretical and practical, and the girls who receive their diplomas may then disperse themselves over the country, and carry with them everywhere the good seed of improvement.

During the course, the school is open to any farmer introduced by a superintending member of the agricultural committees ; (1) they can inspect its working, judge of what is done and learnt there, and even be present at the practical lessons.

By thus throwing open the schools to all those interested in them, it often happens that even those who have only taken advantage of this privilege with the view of satisfying their curiosity, if not with preconceived prejudices, become their most earnest supporters and their warmest defenders.

Lectures.—These schools are not within the reach of all, therefore, means have been sought for to remedy the impediment ; our societies wishing to cause instruction to find its way into the most remote corners. To attain this end, courses of addresses on cultivation have been established in the form of weekly lectures.

Intermittent (*détachées*) lectures are also delivered by specialists at different places named by the department of agriculture in accordance with the reports of its agronomes, and the requests of the local clubs. In these numerous assemblies, after developing his subject, the speaker takes part in a familiar discussion, devotes particular pains to reply to any objection that may be offered, discusses the ideas brought forward, and does his best to cause his hearers to thoroughly discern those points and details which they have not sufficiently understood.

Here, Gentlemen, are springs from which everybody can freely draw the water of knowledge. But, unfortunately, it happens that even they who have most need find pretexts for neglect, and do not evince all the ardour for instruction that might be expected. Still, by their number and frequency of meeting in the same places, these assemblies always have some effect. Those who attend them reflect afterward on what they have heard, they chat about them, at the *café*, in the *vallee*, (2) in the bosom of their families, at meals, and even the simple farm-labourers profit by the lecture delivered on the previous Sunday.

If the good advice is not immediately applied, its effects are observed in the neighbour's farm, he being more enterprising and less a slave to routine ; certain jealousies and emulation become established, trials are made by the incredulous one very often without his appearing to be doing so, and without having much confidence in their results, the operations of husbandry are more carefully conducted, the cattle better fed, and better treated. What happens ? Before long, improvement has penetrated as far as the spot where old routine had been used to reign as absolute mistress for time out of mind.

Local agricultural clubs.—I know by your former report and by the lecture of M. Dalaire, that it is not in the presence of such an audience that I ought to try to prove the happy influence of local clubs and of the lectures they cause to be given. But I cannot insist too strongly on their usefulness, because they are of greater importance here than in our older countries.

(1) *Comices* is evidently the Latin *comitia*, or assembly of the people. A. R. J. F.

(2) For *café* read *lavern*, and for *vallee*, *evening visit*.

(1) As there is not the thing or office in England, so there is not the word to express it. Sir John Bennett Lawes, Bart. is perhaps the only *agronome* in that country. A. R. J. F.

You have not those meetings at the *café* on Sundays after service, where one hears both young and old talking of farming, stating their opinions, relating what they have done, seen, or read during the week; discussing the operations of the season, describing the results of their personal experiments or of those obtained in the experiment fields of the parish, chatting about the prices of goods, of the yield of crops, of the markets, in one word of all things that are interesting to the local agriculturist.

It is not, Gentlemen, from a desire to ask for the opening of new bar-rooms or that they should be opened on Sunday that I speak, but allow me to tell you that nearly allied to evil may often be found some little good.

Practical lectures.—Lectures, in spite of the good they produce, do not yield all the fruit we have a right to expect from them. They have often the defect of being too theoretical, and are not sufficiently attractive to common minds. So it has been attempted to attract to them larger audiences, by endeavouring to put something palpable before the very eyes of the audience. Milk is tested, the difference in quality of various samples is compared, mechanical skimming is done by means of a separator worked by hand-power, cream is churned, and experiments tried with the most celebrated butter-presses.

It is to the agricultural syndicates of Verviers that the honour is due of being the first to institute these practical lectures of such indisputable utility.

Agricultural syndicates.—These syndicates, founded outside the local clubs, were established, like many others however, to extend the trade in butter, to elevate it, to put a stop to the frauds so common since the invention of *margarine*, and especially to perfect the making of butter in order to be able to contend with advantage with foreign competition.

It at first pursued its object by publishing periodically the names of its adherents in order to introduce to the buyers, especially to strangers, those who made pure butter of the best quality. The pats sold by its members must bear the stamp of the association and the mark of the seller. This measure aimed at permitting the purchaser to apply to an expert taster or to a chemist, and that at the expense of the association, to obtain assurance of the quality and purity of the butter purchased. Heavy penalties, besides those inflicted by law, punished those who contravened these social statutes.

But this intervention, although a beneficent one, did not sufficiently hinder the diminution in the sales, and the lowness of the prices. In a word, the reputation of Herve was diminishing more and more abroad: a situation very near akin to that of Canada.

The syndicate, which recoils before no obstacle to obtain its object, has placed itself in accord with the agricultural societies of the district, and has instituted the system of practical lectures called *volantes*, flying.

Practical flying lectures.—This is how its delegates work at present. Each lecture is divided into three distinct lessons which are given on the farms.

The 1st, on a Sunday, perhaps, comprises the testing of milk, general instruction, and separator-skimming.

The 2nd, on the following Wednesday, on churning and the working of the butter. The 3rd, on the Sunday following the first lesson, on the examination of the advantages resulting from the employment of modern appliances compared with the old methods.

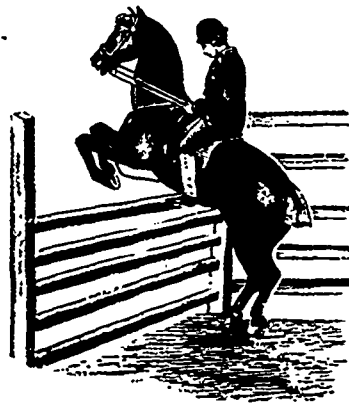
A woman-assistant, one of the best ex-pupils of the dairy-school, acts as *aide* to the lecturer in the manual lesson.

It seems to me that with such means within the reach of every one and of every one's purse, since it is perfectly free, all that is needed is that a little earnestness should be displayed on the part of those interested.

The weather, the time occupied, the difficulty of change of place, distance, a party of pleasure, and other motives, if others there can be, all must infallibly fall before such persistence on the part of these devoted promoters of progress. There is no doubt that success must recompense the expenditure of so much pain and perseverance.

I do not know, Gentlemen, if you will find in this description any information useful and applicable to this country.

Although you have only very lately entered on the lofty march of progress, you have already done everything for the advancement of your national agriculture. You have founded clubs that are producing immense good. You are multiplying lectures, you are sending out to all places inspectors and special agents charged with the duty of instructing the farmers and of aiding them with their advice. The sentiment of union is innate in you, and it has produced numerous and prosperous cooperative associations. Experiment-farms are setting a good example; with their help, the improvement of practical agriculture is not doubtful. You are searching for new markets for your products. In a word, you have in a very short time covered the first stages of the long and involved road of progress.



NEW YORK HORSE SHOW—A GOOD TAKE OFF.

But that first success must not suffice, you must continue to march in front. You have the moral and financial support of the public means. Never cease then from demanding the establishment of a central and superior school of agriculture, conducted by competent, *but above all, by practical men*. Press for the creation of this nursery in which shall be formed the future leaders of your agricultural industries. Multiply your model-farms. Found new clubs, open numerous schools. Teach your masters to instil into their pupils, with the first elements of agriculture, a love for labour and for a free life in the fields. Select lecturers able to support their knowledge of the theory of farming by a practical acquaintance with everyday work. Form syndicates for the sale of your products, and for the purchase of any nutritive or fertilising materials you may require in your business. Never cease uniting your efforts to produce better crops and more of them. Profit by the results obtained at your experiment-farms. Be yourselves an example to your neighbours, and lastly, let no opportunity escape of promoting the improvement of your agriculture and of thereby increasing the prosperity of your fellow-citizens.

In conclusion Gentlemen, I thank you for the kind attention you have paid to my address, and I pray you to excuse me for having trespassed so long on your precious time.

A Lincoln Ram Much Admired in New-Zealand.

This fine sheep was bred by J. R. & R. B. Kirkham, Bischof House, Lincolnshire, Eng., and taken by William

Wilson to New-Zealand, where he won this year the champion (or, as we should say, the sweepstakes) prize at the Wangani exhibition. The portrait is reengraved for the COUNTRY GENTLEMEN from the London Live-Stock Journal.

Prevention of Potato Disease.

I have now before me the last six issues of the AGRICULTURAL GAZETTE, in which are inserted several notices on potato blight and Bouillie Bordelaise. I venture to send a few additional notes on that topic, in the hope that they may be of some practical usefulness to your readers.

The application of the aforesaid mixture to potatoes, with a view of lessening the damage done by the potato blight, is very commonly carried out in our country. In the county of West Flanders, especially, a large area has been treated with the bouillie, and next year one-third of the total acreage planted with potatoes will receive the dressings. In some districts half the acreage has been dressed this very year. This is enough to show how unquestionable the benefits of these dressings must be. Our farmers are just as reluctant to adopt new devices as the most stubborn ones of any other country, and they adopt only what is clearly and undoubtedly profitable to their interests. The method has been in use here for more than two years, and has always and in every case given good results, provided the dressing was well applied.

And here I must state that I am of the same opinion as your correspondent Mr. Charles Plowright, who thinks that the astonishing results of Messrs. Sutton's experiments were caused by a defect in the manner of making the bouillie. This year, in one instance, having used lime of bad quality that was carbonated by long exposure to the air, I had the leaves of the dressed potato plants injured, but I provided better material for the next dressing and the leaves remained healthy, as they always did and do in the whole country.

Experience has shown that the dressing must be repeated three times to give the full extent of the obtainable benefits—the first to be given in the first fortnight of June, the second a fortnight thereafter, and the third on July 15th. For very early potatoes the dressings must begin in May, and be repeated three or four times every ten days, as these kinds are very subject to the blight. The results of such treatment are splendid. (1)

The quantities of copper-salt and lime used are the following, for one dressing and per acre:—

- Sulphate of copper..... 8 lb.
- Lime..... 4 lb.
- Water.....62 gallons.

The second dressing requires more mixture, as the foliage is then broader.

Mr. Proost, the inspector of our Agricultural Department, who has introduced the treatment into the country through his corps of State's agronomes, prescribes the following proportion:—

- 4 lb. copper salt } in 22 gallons of water.
- 2 lb. lime

One must take care, first, to dissolve the salt in nearly 2 gallons of hot water; then to dilute to solution by the addition of 18 to 19 gallons of cold water. In the meantime the lime has been gently sprinkled with water, and when cooled, diluted with a gallon of water, completely stirred, and purged of stones, &c., that could obstruct the pipes of the pulverisator. The lime is then poured through a copper sieve into the solution of sulphate: the whole is well stirred, and the mixture is ready. When the bouillie is prepared in that way

(1) I have found it just the reverse. With me the early, in-light-sprouted potatoes hardly ever rot. A. R. J. F.

you may be sure of the result. The mixture must be well stirred before pouring it in the apparatus.

I see that one of your readers speaks of using the Strawsoniser for these dressings. I examined that implement at the Doncaster meeting, and, if I recollect well, saw that the tank and the whole apparatus is an iron one. That would not do for the bouillie, which does not admit of coming in contact with any iron whatever. This is to be carefully borne in mind when preparing the solution. No iron pails should be used, nor iron rods to stir the water.

I will add that the fear of introducing copper into the potatoes is wholly frivolous. On the contrary, on our Belgian markets the potatoes that have been dressed are paid 1s. more per 200 lb. than the non-dressed.

An ordinary farmer's servant will dress 3 acres a day in June, and 2 in July.

Here are three of the differences that I obtained by the dressings. You will see that the matter is worth a trial; and no one who has tried will ever leave off:—

No.	Dressed.	Non-dressed.	Difference per acre
	lb.	lb	lb
1	9,144	7,128	2,016
2	19,840	9,320	6,480
3	22,792	16,920	9,832

I shall ever be delighted to give any desired particulars on the dressings. They are undoubtedly the most precious application of science to agricultural purpose that has been discovered for years.

EDMOND LEPLAE,
Engineer in the State Agricultural Service,
Courtra (Belgium).

Laying Out Farms.

All farms which are worked by mixed husbandry must be divided into fields which may be cultivated separately. The only exception is where all domestic animals are kept in stables or yards. This, however, would be scarcely practicable with modern farming. To keep cattle of all kinds, sheep and other animals, shut up the year round would be attended with serious objections.

The only exceptions would be where nearly the whole farm

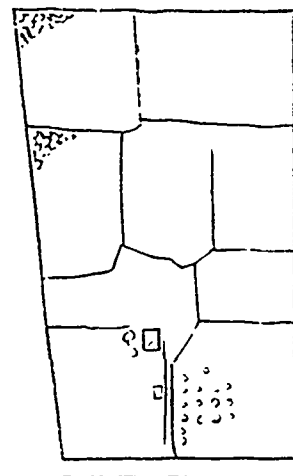


Fig. 1.—Badly laid out.

is devoted to some special crop. The owner who raises nothing for market but potatoes or onions or broom corn, and who has a special soil particularly adapted to either of these crops, and who always keeps his working horses in stables, has no need of division fences, but these are rare exceptions. We have known the owner of a large meadow bordering a small river, whose annual revenue came from the sale of the hay which grew on this meadow, and which he could sell at a handsome profit before cutting. No team was required for driving the mowing machine; and no manure was needed for top-dressing the land, as the whole was annually flooded and thus top-dressed with the washings from the fertile country above, and for nearly half a century there had been no deterioration. But such special exceptions are not one in a thousand, and are not to be expected.

In common practice, farms require more or less division into fields. It will however, make a great difference whether

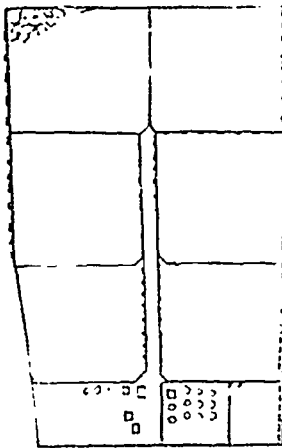


Fig. 2.—Laid out better.

this division is awkwardly accomplished, or the arrangement is effected so as to afford the greatest practical convenience in all the operations of the year. A single awkward turn in a lane, to be passed a hundred times in the year, should be carefully prevented; and hence the importance of avoiding the many awkward turns which may be seen in a badly laid-out farm.

Among the many ill-shaped farms which we have seen, a single specimen is given in fig. 1. There are enough fields for the adaptation of a good rotation; but some of them are so remote from the barn that it is nearly impracticable to reach them with the manure wagon, in the absence of a good farm road. To reach the rear fields, and to draw the harvested crops from them, two other fields must be entered, one a corn field and the other a meadow; and in another case a wheat field was injured by driving a small herd of cattle through it. Fig. 2 represents the plan of this farm after being newly laid out, in doing which the first thing was to provide a good farm road, which was afterwards made hard, smooth, and as nearly level as the ground would admit. Every field had an entrance from this road through a self-shutting and self-fastening gate. When manure was to be applied to any field, it was easily driven over this good road, and deposited in the required field without interfering with any other. With the same convenience the harvested crops were conveyed from the field to the barn.

Sometimes farms have irregular boundaries, and have an irregular surface to the ground. Some skill is needed in such cases to take advantage of the irregularities. Fig. 3 repre-

sents such a farm before it was regularly laid out; and fig. 4 the same arranged with several fields. The dwelling and farm buildings, situated near one corner, are at the same time placed so as to be easily reached from every field. The woodland in the rear corner lot, standing on high ground, gives a curve to the road so as to approach it by a gradual ascent.

Much has been written of late years by way of objecting to "useless fences," to which no one will object who has to pay their large cost, and the inconveniences they impose in occupying ground where they are not wanted. But other

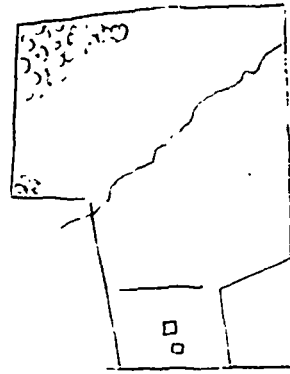


Fig. 3.—Rough farm.

than by feeding animals wholly by soiling, the writers do not point out the better way. We give a plan applicable to small farms (fig. 5), where a system of rotation is adopted with half the number of fields, or less, usually employed in the course. We may suppose the course to be corn, oats, wheat, young grass, meadow and pasture. Instead of six or eight fields, there will be only three or four. The essential part of the course consists in placing two crops in one field, and keeping the pastured animals in a single or double field, so that they will not disturb the cultivated or growing crops. These may be, in a farm of 80 cultivated acres.

- 1.—10 acres of corn, and
10 acres of oats and barley, in one field.
- 2.—10 acres of wheat, and
10 acres of new meadow in the second field.

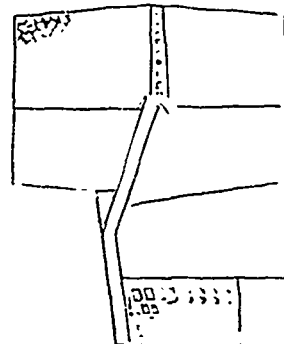


Fig. 4.—The same laid out.

- 3.—20 acres of pasture in the third field.
- 4.—20 acres of meadow in the fourth.

These four fields, and their crops, may be regularly changed in position annually. It will make little difference how the three cultivated fields are re-arranged yearly, but it is essential that the two pasture lots be included in one field, in order that the animals may be within their proper bounds, and not damage other crops.

The second year all these crops are moved on one double crop ahead, the first year with wheat and new meadow, the second with pasture, the third with meadow, and the fourth with corn and oats. A similar change will take place the third and subsequent years.

If a less amount of pasture and meadow is needed, with more arable land, three main fields will be sufficient, fig. 5. All that will be necessary to observe is to place the plowed fields and meadows beyond the reach of the animals in the pasture.

This may be effected with a single temporary and movable fence between the pasture and other crops, or by soiling a part of the season, but the four-field system is best. We have witnessed a successful adoption of this plan for many years the main peculiarity and one easily arranged, is always to

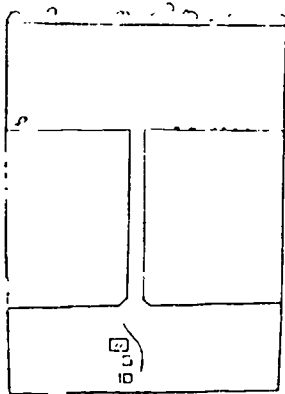


Fig. 5.—Few fields.

occupy one field with two crops, either both cultivated, or both in pasture. It possesses the combined advantages of saving cost of fencing, saving often the inconvenience of turning the team when plowing, saving a valuable strip of land, and preventing the spread of briars, burdocks and bushes along the foot of a boundary fence.

Orchards and fruit gardens, if cultivated and sprayed, need no special boundary fence; but if sheep and swine run in them (which for best culture cannot be safely omitted) then they must be specially fenced. For an eighty-acre farm there should be three or four acres of ensilage fodder, which may occupy any portion of one of the cultivated fields of corn. There is no reason why this plan cannot be adopted for a larger farm or one containing two or three hundred acres.

If widely and successfully adopted, it would save a vast amount of expenditure to the farming community generally. The fences and fencing of the farms of the United States have been estimated at a cost of a thousand million dollars. The cancelling of only one quarter of this vast sum by thus lessening the boundaries of the fields would be a most important improvement.

Twelve Years with Ensilage.

EDS. COUNTRY GENTLEMAN—In 1880, I built a 300 ton stone silo, in two compartments, and afterward a smaller one of wood. As a result of my experience, have reached the following conclusions: That stone, for a permanent silo, where the conditions are such that the cost is not excessive, is the more economical. That in a stone, cement-lined silo not a pound of ensilage need waste or deteriorate. That a covering of trash, closely packed, deep enough to take up the mold, i. e. as deep as the air penetrates, is better than weighting, I discontinued weighting years ago. That, be the time for growth long or short, southern white is the best corn to plant,

because of its quick growth and great productiveness. That, if cut at an early stage of growth, the ensilage is more acid but is relished by cattle and is excellent food. That the best period for cutting is the roasting-ear stage. Last year much of my corn stood until the kernel shrank and hardened, with the result that a large proportion of the kernels were voided whole, and, reasoning from analogy, I think it a fair inference that the stalk is less digestible after hardening than when in its more succulent state. That the best distances for planting are about four feet apart for the rows, and one foot for kernels in the row. This will give full-sized stalks and ears, many of the ears stand nine feet from the ground where I am now cutting. That it is dangerous to feed finely-cut cornstalks, whether dry cured or ensiled, to horses or mules

New-Haven County, Conn., Sept. 14. A. J. COE.

NON-OFFICIAL PART.

What's the Reason?

The causes of summer complaint, diarrhoea, dysentery, cholera morbus, &c., are the excessive heat, eating green fruit, over-exertion, impure water and sudden chill. Dr. Fowler's Wild Strawberry is an infallible and prompt cure for all bowel complaints from whatever cause.

For Over Fifty Years.

AN OLD AND WELL-TRIED REMEDY.—Mrs. Winslow's Soothing Syrup has been used for over fifty years by millions of mothers for their children while teething, with perfect success. It soothes the child, softens the gums, allays all pain, cures wind colic, and is the best remedy for Diarrhoea. Is pleasant to the taste. Sold by Druggists in every part of the world. Twenty-five cents a bottle. Its value is incalculable. Be sure and ask for Mrs. Winslow's Soothing Syrup, and take no other kind.

Consult your Neighbor.

Any one may find out just what Burdock Blood Bitters is and does by asking a neighbor who has tried it. It rarely fails in making a complete cure of dyspepsia, constipation, sickheadache, biliousness and diseases of the stomach, liver, bowels and blood.

CONSUMPTION CURED.

An old physician, retired from practice, had placed in his hands by an East India missionary the formula of a simple vegetable remedy for the speedy and permanent cure of Consumption, Bronchitis, Catarrh, Asthma and all Throat and Lung Affections, also a positive and radical cure for Nervous Debility and all Nervous Complaints. Having tested its wonderful curative powers in thousands of cases, and desiring to relieve human suffering, I will send free of charge to all who wish it, this recipe in German, French or English, with full directions for preparing and using. Sent by mail, by addressing, with stamp, naming this paper, W. A. NOYES, 820 Powers' Block, Rochester, N. Y.

Nicolet Notes

"I suffered continual pain from canker of the stomach and my face and body were almost covered with pimples. I tried Burdock Blood Bitters, the first dose occasioned slight pain, but I soon found relief, and after taking 5 bottles I became completely cured. I think B. B. B. the most powerful remedy known to science."—Stephen Edge, Nicolet, P. Q.

Since Childhood's Days.

"I have been bothered with neuralgic pains in the head and face since childhood and have tried all possible remedies. A friend persuaded me to try Burdock Blood Bitters, and after having used it I obtained instant relief, and thoroughly recommend B. B. B."—Jas. Inglis, Breckenbury, Assa.