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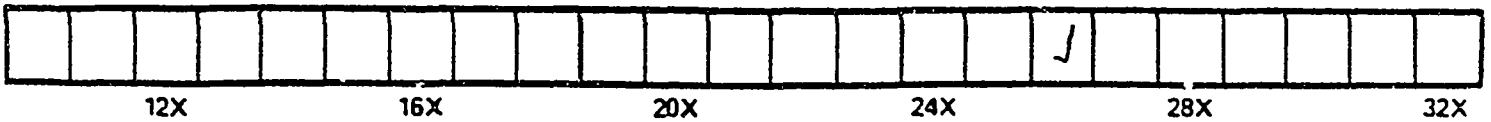

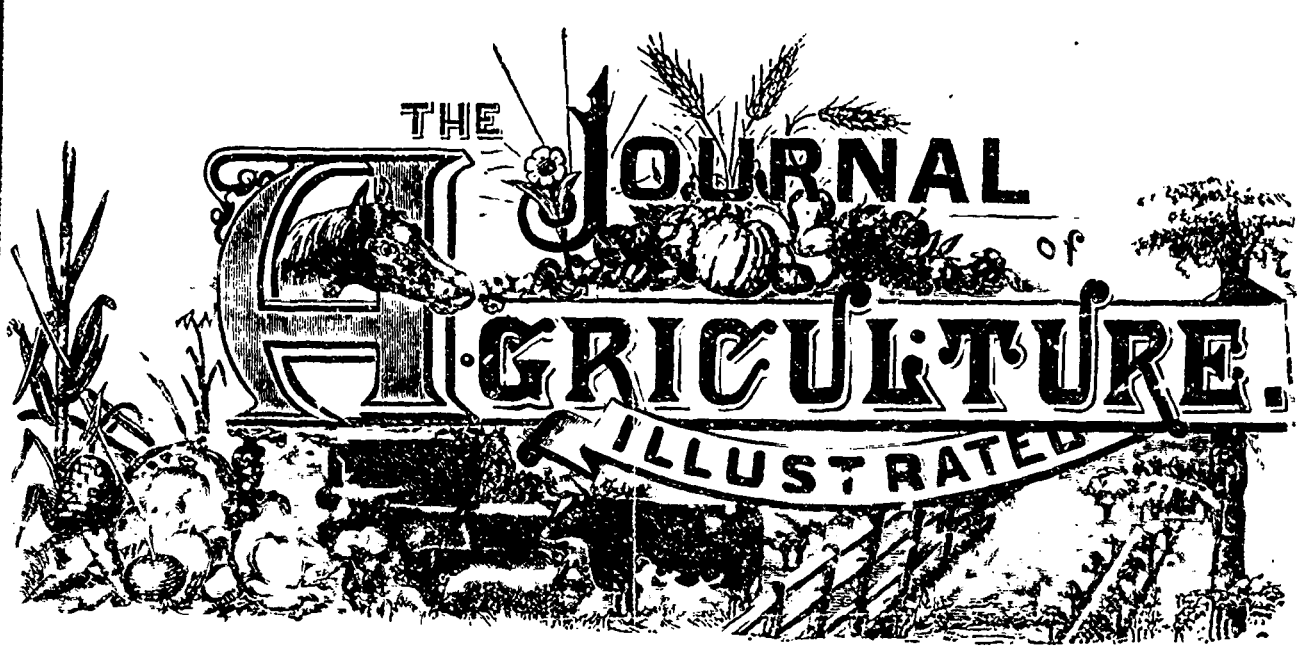

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NOTICE.—The subscription to the *Illustrated Journal of Agriculture*, for members of Agricultural and Horticultural Societies, as well as of Farmers Clubs, in the province of Quebec, is 30c annually, provided such subscription be forwarded through the secretaries of such societies.—EDITORIAL MATTER. All editorial matter should be addressed to A. R. Jenner Fust, P. O. Box 254, Sorel—or to the Director of Agriculture, Quebec.

OFFICIAL PART.

Table of Contents.

Deliberations of the Council of Agriculture of the Province of Quebec.

Approved by his Honor the Licutenant Governor in Council, December 10th, 1886.

Montreal, Nov. 17th, 1886.

Present:—The Hons. G. Ouimet, L. Archambault, E. Dionne; Messrs. Massue, Chas. Gibb, P. B. Benoît, J. Lemire, Ed. J. DeBlois, E. Casgrain, A. Casgrain, Dr. J. H. Martin, S. N. Blackwood, J. M. Browning, J. J. A. Marsan, and S. Lesage, the assistant-commissioner of agriculture.

M. L. H. Massue in the chair.

The minutes of the last meeting of the council were read and approved.

The Hon. L. Archambault, seconded by Mr. Blackwood, moved:

That Mr. L. H. Massue be chosen president of the Council for the ensuing year. (Carried.)

Mr. J. M. Browning, seconded by M. I. J. A. Marsan, moved:

That Mr. Chas. Gibb be chosen vice president for the ensuing year. (Carried.)

COMMITTEE ON THE HORTICULTURAL SOCIETIES.

Mr. J. M. Browning, seconded by M. A. Casavant, moved:

That the committee on Horticultural Societies be composed of the following gentlemen:

Mr. Charles Gibb, president, E. Casgrain, J. Lemire, and H. Lussier.

EXECUTIVE COMMITTEE.

M. Guilbault, seconded by Dr. Martin, moved:

That the executive committee be composed of the following gentlemen:

The Hon. L. Archambault, president, Messrs. J. M. Browning, I. J. A. Marsan, L. H. Massue, A. Casgrain, and A. Casavant.

VISITING COMMITTEE ON SCHOOLS.

The Hon. L. Archambault, seconded by Mr. J. M. Browning, moved:

That the visiting committee on schools be composed of the following gentlemen:

The Hon. G. Ouimet, president; Messrs. S. M. Blackwood, E. Casgrain, A. Casavant.

The report of M. L. A. Massue, on the visit to, and the

inspection of the books of, the agricultural society of the county of Rimouski, was then read.

The report of the visiting committee on schools on the agricultural schools at St. Anne's, Richmond, and L'Assomption, and the veterinary college at Montreal, was then read.

Mr Browning, seconded by Mr. Blackwood, moved :

That the report on the different agricultural schools be referred to the visiting committee on schools, to report on the same at the next meeting of the council.

The secretary was instructed to write to the Department of Agriculture at Quebec, requesting that a copy of the annual reports of the Hon. commissioner of agriculture be forwarded to each of the members of the council of agriculture.

And the council adjourned till 2 P. M.

SESSION OF 2 P. M.

The same members being present, the secretary read the report of the president of the committee on the Horticultural societies, relating the operations of the different horticultural societies of this province during the past year.

Mr. Browning, seconded by Mr. Blackwood, moved :

That the report of the president of the committee on the Horticultural societies be received : that this council observes with pleasure the efforts made by the different societies for the improvement of fruit growing, but more especially by the Abbotsford society through the excellent importations of foreign fruit-trees which it has distributed throughout the province : that the conditions laid down by the council having been obeyed by all the societies they are entitled to the annual grant. (Carried.)

Reading of a petition from Messrs. Senécal & Sons, the publishers of the *Journal of Agriculture*, requesting the council to suggest to the government the propriety of obliging each member of the agricultural societies to subscribe for a copy of the *Journal of Agriculture*, the cost of which should be retained by the secretary out of the grant, and be by him paid to the publishers, or to adopt any other method which the council, in its wisdom, shall judge to be efficacious.

M. Marsan, seconded by M. Casavant, moved :

That the petition of Messrs. Senécal & Sons be forwarded to the Hon. Commissioner of agriculture, the question of the *Journal of Agriculture* not concerning this council but the department of agriculture at Quebec, which alone is entrusted with its management, its superintendence, and its support. (Carried.)

The secretary submitted to the council the replies of several agricultural societies to questions which had been sent them in virtue of a resolution of the council, dated Feb. 3rd, 1886.

The Hon. L. Archambault, seconded by the Hon. E. Dionne, moved :

That a committee composed of Messrs. Marsan, president, Blackwood, and Casavant, be appointed to study the nature of the answers sent by the agricultural societies, and to report thereon at the next meeting. (Carried.)

The Hon. G. Ouimet, seconded by M. J. Lemire, moved :

That, in view of the proposed establishment of a national "Haras" (*stud*) in this province, a committee, composed of Messrs. Dionne, Lemire, and Massue, be charged with the duty of attentively studying the most proper means of assuring the establishment of a "haras" in this province, and to make a report on a subject of such great importance. (Carried.)

The Hon. G. Ouimet gave notice that, at the next meeting of the council, he will request the council to examine the report of M. J. C. Chapais, contained in the official report of the Department of Agriculture, 1884, and that no grant shall be allotted to any of the agricultural societies which shall not have complied with the orders of the Act of Agriculture.

Resolved : That the council accepts in advance the nomination of one or more persons whom the Hon. Commissioner of agriculture shall see fit to add to the commission appointed for the establishment of a herd-book for Canadian cattle, in virtue of p. 4, sect. 2, of act Victoria 48, chap. 7.

And the council adjourned.

Certified true copy.

Georges Leclère, Secretary.

Requisites for Cheese-factories.

Saint-Hyacinthe, December, 1886.

Sir,—I have the honour to inform you that I have opened, at St. Hyacinthe, an agency for all things required in cheese- and butter-factories, at the lowest Montreal prices. As I intend devoting myself to this branch of business, I can assure you that any orders you may kindly send me shall be executed with care and promptitude. Besides the ordinary requisites for cheese- and butter-factories, which I keep in stock, you can always obtain through me everything wanted for the establishment of a factory.

I beg to call your attention to the following special articles which I shall be in a position to deliver at an early date.

1. A new set of books for cheese-factories, by M. J. de L. Taché, secretary of the Dairymen's Association. This system of book keeping is very simple, and supplies a want which has existed up to the present time. It will be sold very cheap.

2. A new curd-mill, which, possessing all the advantages of those employed at present, unites with them the merit of only costing $13 to $14 ;—also, cheese-rakes.

3. The best brands of rennet, colouring materials, salt, and calicoes, of all sorts.

4. Cheese-boxes mounted or unmounted. The finished boxes will be delivered at the factories within a radius of 24 miles from Saint-Hugues, where they will be made, for $12.00. The boxes in the rough will be sold, in quantities of not less than a thousand, at the rate of $35 for the circles, and $65 for circles, bottoms, and covers, delivered on board the cars at Saint-Hugues or at the factories within the above radius. The boxes may be ordered at once, and they will be forwarded without delay.

5. Calico ready cut and fit to be used at once.

6. Cheese-moulds, Belleville presses, &c., &c.

7. An assortment of graduated glasses, tubes, lactometers, and thermometers. These last will be verified on demand at a very small charge.

I think I should add, that the exceptional facilities which Saint-Hyacinthe, as the seat of a school-factory, offers, enable me to sell all the above mentioned articles with a conscientious conviction that those who honour me with their confidence will not run the risk of paying more than their value for them.

I should feel obliged if you would give this circular either to your manager, to the president of your factory, or to any one else who may be interested in the matter.

You will shortly receive orders in blank, and my list of prices, which will keep you informed on the course of the market.

Waiting the honour of your orders,

I am, Sir, your obedient servant,

Jean P. Taché.

Office pro temp :

39, rue Sainte-Anne,

Chez J. de L. Taché, écuyer, notaire.

I hope every possible success may attend M. Taché's enterprise.

Arthur R. Jenner Fust.

DE OMNIBUS REBUS.

Box 254, Sorel, Que.—March 3rd, 1887.

A queer idea.—Looking over some ancient works on agriculture, I came upon the following droll statement: A farmer cannot cultivate a more beneficent crop than tares, from the ameliorating quality of *smothering*.—A. D. 1790. Does this refer to effects that tares have upon weeds in depriving them of air and light?

Vermont Watchman.—I regret to see that this paper has lost the services of my good friend Dr. Hoskins, who for some years has acted as agricultural editor of that well known journal.

Wheat after tares.—At Hove, Sussex, England, where I received my agricultural education, we always found that wheat sown after tares was a failure, unless we could insert a catch crop of turnips or rape between the tares and the wheat. Tares are a *leguminous* plant, and, as far as my experience goes, do not benefit the soil in any way.

Rash statements.—In a small pamphlet sent me the other day, I find that a certain J. L. A. declares that *plaster* has doubled his crop of pease, wheat, &c.! Now this is going a little too far. J. L. A. does not seem to have measured his crop, whether plastered or unplastered, and has evidently no idea how much damage these rash statements do.

Relative value of sheep—Exporters of cattle and sheep know by this time how very particular the Londoners are as to the size of the joints sent up to their table. As all animals sent by sea to any country are charged *per head*, it is clear that the cost of the exportation of a large beast or sheep is less per pound than the cost of small one, and therefore, quality being equal, it pays better to export large cattle and sheep than small ones. Now, taking the under mentioned prices of the London market as a list, I come to the conclusion that the most profitable sheep we can grow in this country are the Hampshire Downs:

	cents		
Southdowns 68 lb.....	17	a pound	= $11.56
Half-breds (Southdown and Leicester) 80 lbs.....	16	"	= 12 80
Hampshire Downs 88 lbs.....	15½	"	= 13 64
Lincolns 96 lbs.....	14	"	= 13.44
Kents 80 lbs	13½	"	= 10.80

A good, neat Hampshire Down of 72 lbs. would probably fetch as much as a Southdown of the same weight, but the joints of a full-sized Hampshire are rather too large for a small family. The above figures may be depended upon as correct.

The Ranches.—I hear, from all sides, sad reports of the ranches. One important company of English proprietors has already been obliged to reduce its capital by one-half; another is reported to have lost 15,000 head out of 60,000; and I fear this terribly rigorous winter, with its apparently unceasing falls of snow, will add to the tale of losses. M. Chevallier, a retired registrar of Sorel, informed me the other day that in all his experience he had never seen so severe a winter! And yet, according to the Vermont Watchman, the season in New England, has been mild and agreeable!

Lost Soil-fertility.—A very great deal of interest is taken in the United States to-day in this very important question, and, as usual, various are the opinions and theories about it. The well known Mr. Waldo Brown holds the simple and easy going opinion of our ancestors of the middle ages: "I do *not* believe that as we remove the important elements of plant-food—nitrogen, phosphoric acid and potash—from the soil, we are constantly reducing the amount of those elements." In the Rothamsted experiments of Lawes and Gilbert, on one plot of ground wheat has been sown for forty years consecutively with our manure. At the end of the forty years the yield was ten bushels an acre less than at the beginning.

On the other hand, the plot on which manure was used, at the rate of fourteen tons to the acre, every year, gave a yield at the expiration of the term larger than at the beginning; so that, as long as man cultivates the soil and removes the crop, he must return the abstracted elements to keep the land in a fertile condition for those who follow him.

Mr. Brown further says: "Our wisest experimenters do not as yet agree as to the source from which plants obtain their nitrogen." To which observation a correspondent of the Country Gentleman very sensibly replies. If the Rothamsted experiments are studied in their entirety, I think most common sense minds will arrive at the conclusion that the soil and the manure furnish the nitrogen that the crop contains; for the amount of the yield rises according to the amount of nitrogen furnished by the manure, and the yield shows that there was more nitrogen furnished than the crop consumed, leaving very little room for the idea that there are other sources of supply than those contained in the soil and the manure.

Arthur R. Jenner Fust.

Inspection of Farms.—No. V.

I arrived at Saint-Hyacinthe on the 29th of July, and was agreeably surprised at the vast improvement visible since I saw it last, in 1875. The apparently calamitous fire which took place subsequently has turned out a real blessing; the streets are wider and more airy, the houses are of a far superior quality both as regards their appearance and their convenience. A good water service and a well arranged fire-station showed that if ever another outburst of what reporters call "the destructive element" should occur, means will be at hand to combat it successfully. They say it is an "ill bird that fouls its own nest," but I must be forgiven if I say that Saint-Hyacinthe, which contains about the same population as Sorel, is as far superior to the latter town, in all that shows for the wealth and comfort of its inhabitants, as Sherbrooke is superior to Coaticoke.

What I, a perfect stranger to the inhabitants of Saint-Hyacinthe and its environs, should have done without the aid of M. J. de L. Taché I do not know. That gentleman was good enough to devote three whole days to my benefit, and I beg him to accept my most sincere thanks for his kindness.

My first visit was paid to M. Choquet, the amiable gaoler of the place, incited thereto by the advice of my friend, M. Mongeon, gaoler of Sorel. I beg that my readers will indulge in no injurious surmises on this subject: *As yet*, I have never come under the rule of any gentleman of the profession I have mentioned; still, it is always well to be on the safe side, and there is no telling what *may* happen.

M. Choquet has a large garden, attached to the gaol, which he cultivates in a very practical manner for market purposes. Gaolers seem fond of gardening, as our officer also has a market-garden, but truth compels me to say that one acre under M. Choquet's management would sell for as much as ten acres of M. Mongeon's. Grapes in abundance, cucumbers, melons, cauliflowers, all are of the best kinds and promise a large return. But M. Choquet's chief glory is in his bees. Nothing can be better arranged than this apiary. The most modern appliances are used, and the proprietor

seemed excessively proud of the centrifugal machine for the extraction of the liquid honey from the comb.

The much-abused Champion grape still persists in growing despite of all the attacks which have been made upon it. M. Choquet prizes it, not as a well-flavoured fruit, which it is not, but as a grape sure to ripen, which quality, in our climate, will ensure its continued cultivation.

M. Péloquin, another market gardener, has a farm on the other side of the Saint-François river. This gentleman, who did me the honour of visiting me at Sorel in the summer of 1884, is very successful in his system of cultivation. His celery was remarkably fine and very early, and his cabbages, cauliflowers, cucumbers and melons, left little to be desired. The Saint-Hyacinthe market presents a great contrast to our Sorel market, for M. Péloquin told me that he had sold that morning *three bushels* of cucumbers! I do not suppose that any *commerçant* of Sorel sell as much in a month at the time of year in question. I suppose it is the prosperous factories at Saint-Hyacinthe, that cause such sales. Here, there are but few operatives, navigation being the principal source of gain for our people, and, consequently, half the year they are unemployed.

M. Péloquin's land, after the côte is surmounted, falls back from the river, and, on that account, is difficult to drain. His intention is to make a deep cut towards the stream for a main drain, but I fear he has but little idea how deep it must be. I told him my poor thoughts about it, but as he had never had any experience in draining, he could not see the important effects of a *back-fall*, and will probably go on in his own fashion, making a costly job of what might be done at a comparatively trifling outlay.

Here, again, is a fair sized apiary—nearly a hundred hives—and, in assisting at the search for a queen-bee, I, to my excessive disgust, got stung twice, a thing that never before happened to me, though I have gone through half a hundred apiaries.

And the bees did not interfere with their proprietor, which made it still more provoking. Fortunately, I do not care the prick of a pin for the sting of a bee or a wasp, but I should like to know the reason why these, in particular, should have attacked me.

The Seminary, too, has a market-garden attached to the farm, under the management of a very intelligent Belgian, M. Coucke. Here, is a fair sized plantation of tobacco, the cultivation of which M. Coucke seems to understand perfectly. The obliging manager of the farms, M. l'abbé Chartier, was good enough to give me a sample, which was as good in the pipe as it looked in the bunch, all of one bright yellow colour, and well ripened. I cannot see why people here will try to grow the large-leaved sorts of tobacco. Sown, as the *habitant* generally sows, in the open air in the middle of May, these kinds never ripen, and, consequently, the usual smell from the labourer's pipe is rarely agreeable. The small Belgian sort and the *petit tabac Canadien* are the sort for such cultivation as is generally met with in the country parts. Where hot-beds and cold-frames are employed, the case is different; as, if good strong plants are set out by the tenth or twelfth of June, the summer of Canada is generally hot enough to ripen any tobacco.

I was surprised to see the tomatoes in the Seminary garden allowed to grow as nature wills. If they had been properly pruned they would have borne ripe fruit by the fifteenth of July, for they were on a lovely bank, with a southern exposure, and the soil was perfection.

The Seminary seems to farm on a large scale. At least, I call 30 arpents long by 2 arpents wide a pretty extensive occupation when multiplied by 6 farms. The only part of this that I saw was the farm attached to the college, and a useful piece of land it seemed to be, under the management of M. l'abbé Chartier, whose practical foreman is a M. Coulombe assisted by two of his sons. Here, I saw 4 acres of fodder corn intended to be ensiled, when the silo is built. There would be probably 20 tons of this crop to the acre. I could see very little to find fault with in the general cultivation of the land, except that the ditches were not "cleaned up"; but a pair of useful half-bred Clydes were working away at the ditch banks with a scraper, and the materials they were carrying over the field into all the hollow places. It is clear that if weeds and grass are allowed to grow up along the sides of a field, the circulation of air through the crops must be impeded, and the crops must suffer from the stagnation of the air.

The pair of horses I saw at work in the scraper were perfect models of what farm-horses ought to be. Weighing about 1,400 pounds each, they were well up to their work as far as condition goes, and put their weight into the collar at a word from their driver. Very little noise was made about the work, which was refreshing to ears accustomed to the yelling and shouting of this district. All the row I constantly hear on the Sorel farms does no good: it only puzzles the horses, makes them as nervous as chlorotic women, and generally ends in a fight between the poor beasts and their driver. We, in the South of England, are too noisy with our horses: you should hear the quiet way in which a Scots ploughman manages his team with his "Hup Jess," or his "Hie Captain," and nothing more except the universal "Wo"! Three pairs of horses are worked on the farm: all of a useful sort.

The course of cropping, as far as I could make out, was

Roots and fodder corn;
Grain;
Meadow;
Meadow;
Pasture;
Pasture;
Grain—generally, oats.

There were six arpents in mangels, which as they were some distance off, I did not see. The fodder corn was sown in rows and well horse-hoed. The ridges varied from 12 feet to 15 feet, and the grain was sown by a machine called the "Beaver-Sower," seven feet wide; so, I presume the seed was deposited across the ridges. As these farms require a good deal of grass-seed, I was not surprised to see seven arpents of a full crop of timothy left standing to perfect its seed.

All the land intended for grain and fallow-crops is broken up in the autumn, M. Chartier having great faith in the value of frost as a disintegrator of a ploughed surface, to say nothing of the desirability of getting work forward in our short seasons. Whenever I meet with a man who "does not believe in fall ploughing," I conclude, either that he has never tried it; that he is wanting in push; or that he is in the habit of using ploughs that lay the furrows over flat. The ploughs used here are made by Wilkinson, Ontario, something after the fashion of an ordinary Scots plough, but turning a furrow rather too flat. There is a rotary harrow, the second I have seen—I prefer the Acme.

The elder of the young Coulombes seems to be an ingenious young fellow. M. Taché informed me that he managed a binder-reaper last harvest, for the first time, with almost perfect success.

I saw hardly any stock about the place, as the cows and young ones were all out at grass some way off. The management of manure is excellent; the dung is drawn out in the winter into large square heaps, pressed down by the horses and sleighs, and in spring covered with a layer of earth.

The stallion is a half-bred Clyde and Saint Lawrence. Nothing wonderful about him, but a useful active beast enough.

M. Casavant's Farm – Saint-Dominique.

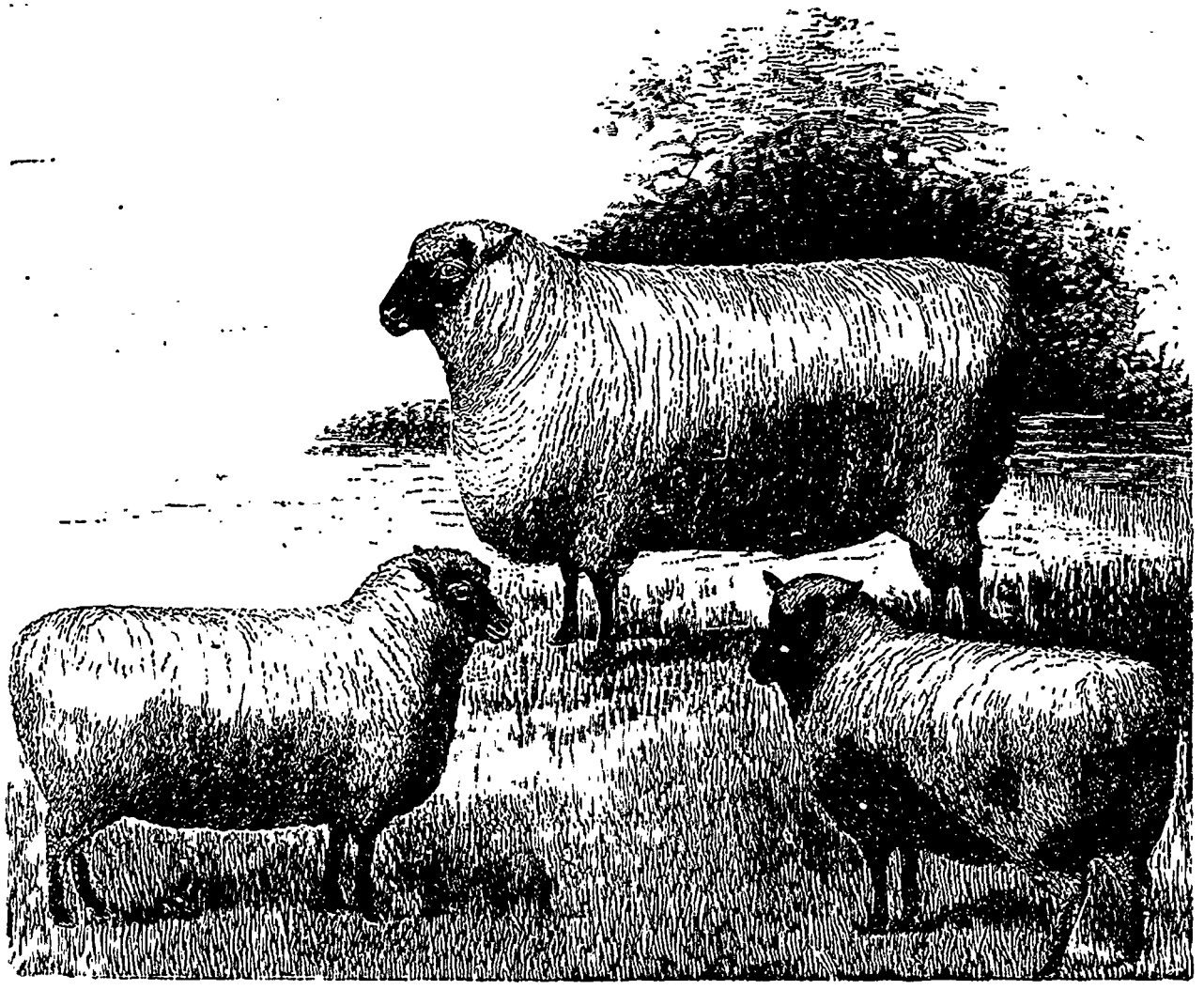
A charming place indeed. Situated on a limestone bottom, the soil is a good sandy loam, with plenty of shade for cattle, and a never-failing brook traverses the farm from one end to the other.

Unfortunately, M. Casavant was not at home, so I lost the advantage of his explanations. M. Casavant, père, however, did his best to answer my questions, and was good enough to walk over the farm with me.

The home-farm contains about 225 arpents = 190 acres, and is pleasantly varied by hill and dale. In fact, it is one of the loveliest spots I ever saw in this country, and, from its subsoil, limestone, perfectly adapted to sheep, of which kind of stock, however, I saw none — perhaps they were on the out-farm which is in the Savanne,—about 120 arpents = 101½ acres of black peaty soil, which, I should think from what I saw of it from the roadside, would grow rape four feet high with very little trouble, and unlimited crops of oats after the rape depastured by sheep. Well, if people will not try this system of cultivation on their fen-land I cannot help it. I have done my part towards the improvement of what is now the worst yielding of all our soils, and if I have failed in my object I am satisfied I have done my duty.

There was some draining going on, but I could get no information as to the *plan* of procedure. A main drain was being dug across a slope, but where or at what distances the side-drains were to enter it I could not find out. I understand that Mr. Casavant gave a lecture at the Dairymen's meeting at Three Rivers in January last, in which he explained his views on draining, and in that work, when it is published in the organ of the society, I shall probably be able to find something that will interest my readers.

This farm, I conclude, is kept principally with a view to dairying. A most useful herd of sixteen cross-bred cows, with a Shorthorn-Ayrshire bull. If M. Casavant would only try a thorough-bred Guernsey bull, from, say, The Hon. J. J. C. Abbott's herd, he would soon see a marked improvement in the quantity and quality of his dairy-produce. I must say, I was very much surprised to see a half-bred bull on a farm I had heard so much of. The young stock of heifers looked in good order, as they could not well help doing on land of so healthy a character; judging from which character I should imagine illness either of man or beast is almost unknown on this farm.



GROUP OF SOUTHDOWN SHEEP, OWNED BY D. W. SMITH, BATES, ILL.

There were about a score of pigs of all sizes, and of no particular breed, but good crosses. All pigs are more or less of a composite character, and, provided the boar is changed often enough, I do not think anything is gained by keeping to one breed, unless the object is to produce animals for sale as breeding-stock : still, I should always keep to a pure-bred boar. There is no doubt that rough-bred sows make the best mothers, and produce the most numerous litters.

Talking of sows, my friend, Senator Guèvremont, came to me yesterday with a woful face, saying that one of his sows had pigged, and in lying down had crushed four of her young ones to death ! I went and looked at the sty, and found it, as usual, without any side-rails ! There is nothing more simple : at a distance of, say, 9 inches from the sides of the sty, place a stiff rail, 3 inches in diameter, supported by stout posts, 9 inches high driven into the ground or firmly nailed to the flooring. These rails must run all round the sty, and when the sow, after littering, tries to lie down and the piglings find themselves in danger of being crushed by her weight, they will quickly avail themselves of the protection afforded them by the rail and escape the threatened danger. I began to use this rail in every pen where my breeding sows "lay in" somewhere about the year 1848, and it has always proved successful.

M. Casavant employs on his farm two pairs of horses, and a couple of neatish colts were running in the pastures.

The farm-buildings had been burned down some year or two previous to my visit, and I was given to understand that their restoration was not as yet completed. The present ones are well planned and convenient, and I was much struck with the arrangement of the manure cellar. This has a concrete or cement bottom, and the descent is laid at such a slope that it does not kill the horses to draw up the loaded carts, as is, I regret to say, the case with some manure-cellars in this immediate neighbourhood. I cannot say I am in love with manure cellars in general ; unless the descent, or rather ascent, is easy and the floor above impervious to the gasses of the heating dung, I would rather be without them. At any rate, great care should be taken to prevent any water from outside finding its way into the cellar. When emptying his dung-cellar last June, Senator Guèvremont found at least six inches of liquid manure all over the bottom, and the stink was awful. They are handy things enough, when constructed in a well thought-out fashion, and when only cow-dung goes into them ; but when such ammonia-producing stuff as horse-dung enters them, the fumes must be far from beneficial to the animals in the story above, particularly if hogs are kept there and allowed to rout up the manure on all sides.

The absence of all roots on this root-producing soil struck me very forcibly An attempt at growing mangels, however, had been made last summer, but M. Casavant Sr. told me they had proved an absolute failure, though from what cause I could not discover. The potato-crop looked well, though rather wide between the drills, and a piece of timothy left for seed promised a great yield. As a rule, the grain-crops were fairish, but one piece of wheat was fouler than I expected to see. From what I heard from his father, I suspect M. Casavant's frequent absences from home, since he was elected member for Bagot, have not conduced to the improvement of his cultivation. Well, he was in his duty when at Quebec, and "*non omnia possumus omnes.*"

A patch of lucerne looked as if it had done its work, and will, I presume, be broken up for oats shortly. It will not stand out long in this country, that is evident, but, with proper precaution, should be tried on all sound, dry, deep soils. My curiosity was gratified in one respect ; there was a piece of clover and lucerne mixed, and a good lesson it taught all who could take it in. The crop had been cut once, and now the clover was just starting to grow, while the lucerne was about 9 inches higher than the clover and just coming into bloom ! By the time the clover was fit to cut, the lucerne would have formed its seed, and be of no more value than so much wheat-straw. How often do we see early pease and late oats sown together for *gabourage* or *goudriole*. The fault is the same in both cases. If we must mix our crops, let us at all events mix sorts that ripen about the same time.

The course or shift practised on this farm seemed to be :

First year	.....	Potatoes, fodder-corn, &c.
Second "	.....	Wheat and oats.
Third "	.....	Grass, meadow.
Fourth "	.....	" "
Fifth "	.....	" " or pasture.
Sixth "	.....	Oats.

But this is merely guess-work.

The lands were from 12 feet to 15 feet in width ; the ploughs were of iron, and made at Granby, Eastern Townships. There was a drill and not a broadcast sower . the first I had seen in my tour.

Had I my choice, I should select M. Casavant's home-farm, for my own occupation, in preference to any I saw on my tour, and I should farm it, in connection with the out-farm, with sheep : growing rape, with bone-dust, on the latter, and converting all the higher land of the former into permanent sheep-walk On the left hand side of the road from Saint-Hyacinthe is a piece of old grass which lies too near the rock to have ever been broken up, and a finer piece of short, sweet sheep-pasture I never saw. The Downs of Sussex and Hampshire can show nothing to beat it. Two hundred breeding ewes might be kept here, and, if the proper sort were selected, a considerable profit might be derived from them, as for example : Two hundred Hampshire down ewes should produce, certainly, 250 lambs, and shear 7 pounds of washed wool annually : Supposing one fourth of the ewes were drafted yearly, and their place filled up by ewe lambs, we should have to sell.

200 lambs, 60 lbs. each at $4 00.....	$800 00
50 draft ewes, 88 lbs. each at $6.00.....	300.00
250 fleeces, washed wool, 7 lbs. each, at 30c	525.00
	$1625.00

Of course vetches, vetches mixed with rape, rape alone, and perhaps a few white turnips, must be grown to keep the sheep on the land up to the deep-snow. But there is no difficulty in this, as far as I can see, for in 1884 I had sheep feeding off rape where it grew on the 7th of December, and they did well up to the day on which they were taken into the butcher's yard to be slaughtered, ripe fat. All they had, in addition to the rape, was a pint a-piece of oats in which were a few, a very few, pease. As other evidence than mine is desirable, I refer my readers to a lecture on sheep given by Mr. Woods, of New York State, which will be found in the next number of the Journal.

On Sunday, August 1st. I lectured, at Saint-Hyacinthe to, I regret to say, a very small audience, though, as Mr. Crumles says, " a very taking one." I say a "taking audience," because they were all very attentive, and with a careless audience I lose all my nerve and facility. Grass, grain, roots, and dairy-cattle management, were the subjects I treated, and towards the close of my two hours speaking, I did not observe much impatience : from which agreeable fact I derived the idea that I had succeeded in interesting my audience.

After the lecture, M. l'abbé Chartier propounded three

questions; not that he himself required information on the subjects brought forward, but for the benefit of his companions:

1. "Would in-lambed ewes do well with a supplementary ration of roots, in addition to their usual ration of dry food?"

The answer, of course, was—"Yes, provided too many were not given them." In-lambed ewes require a fair proportion of nitrogenous food, such as clover-hay, pease, or oil-cake.

2. "Why is not more fall-wheat sown in the province of Quebec?"

To this, the answer was easy enough, and suggested by the Rev. Abbé himself, viz.; "Because the land is in want of thorough-drainage before it can support fall-wheat in the spring."

3 "Can ensilage be used for cattle as their sole food?"

Ans. "Decidedly not; if by ensilage is meant, as I presume it to be, *green* Indian corn ensiled. This is probably the very poorest of all cattle foods, even by analysis, to say nothing of practice. Compare it, for instance, with red clover:

	Water.	Ash.	Albuminoids.	Fibre	Other carbhydrates.	Fat.
Red-clover.	80.4	1.3	3.0	5.8	8.9	0.6
Green corn	84.0	1.0	1.4	4.7	8.4	0.5

And remember that the analysis of the clover was made on a sample that was in full bloom and had therefore lost a considerable portion of its albuminoids. Where corn has been allowed to partially ripen its grain, as I understand to be the case in Mr. Barnard's practice, the case is different. On ensiled clover alone, therefore, cattle may do well enough, but I should not like to try the experiment. The truth is, that a mixture of foods is so certain to do cattle more good than one sort alone, that no analysis, however correct it may be, can afford more than a very slight guidance to the feeder. I am prepared to hear it said that I am deaf to the teachings of science, but the fact is I have had too much practical experience to be led away by the theoretical propositions of unpractical men. Now, here is an example of the utter "bosh" we find in books: At page 156, of Stewart's book on "Feeding Animals," I find the following analysis and valuation of swedes and white-turnips.

	Water	Ash	Albuminoids	Fibre.	Other carbhydrates.	Fat	Value per 100 lbs
Swedes....	87.0	1.0	1.3	1.1	9.5	0.1	$0.15
Turnips ...	92.0	0.7	1.1	0.8	5.3	0.1	0.16

And, at the same page, mangel wurzel is valued at 14 cents per 100 lbs.: less by two cents than white-turnips, the poorest of all roots grown on the farm. Mr Stewart, or Dr. Wolff from whose book I believe these analyses were taken, must have been most unfortunate in his selection of specimens. The fact is, that unless the analyst is aware of one or two practical peculiarities in the habits of the roots, he is working in the dark. Up to the setting in of cold weather, the white-turnip is preferable to the swede or the mangel; from that time to the growth of the leaves, the swede is preferable to either the white-turnip or the mangel; and thenceforward, the mangel, having parted with much of its water, is preferable to both its rivals. In support of this I would instance an experiment I remember being carried out in England some 40 years ago: Eight lambs were penned on white-turnips, and eight on swedes, in the month of November. Both lots received as much as they liked to eat, and the same quantity of clover-chaff and cake was given to both pens. The lambs on white-turnips at the end of the month beat those on swedes by, I think it was, 2½ lbs. a head.

Talking of mangels, reminds me that I saw, in the Country Gentleman of last week, a statement by a lecturer on cattle feeding to the effect that mangels were injurious to stock if given before spring. This is not the case. I myself have used them, in England, before Xmas without arresting the progress of my fatting beasts, and Parry, farm-bailiff to Mr. Webb, Calcott, Reading, England, while preparing two Devon steers for the Smithfield Club Exhibition of 1855, gave them a fair allowance of mangels as early as October. He told me that he invariably found that they did fatting beasts much good, and in this case they did the Devon steers no harm, as they got the h. c., or "highly commended," in a very large and notoriously good class. Parry, who understood his business, was one of the best farmers I ever met, and afterwards went to Windsor to take the management of one of the Prince Consort's farms.

Lippens vs. Marsan.—In the February number of the *Journal d'agriculture*, Mr. Barnard writes as follows: "M. Marsan, at the meeting of the Dairymen's association at Three-Rivers in January last, stated publicly that he never meant to deny the law of the restitution to the soil of those elements which the crops carry off, and he acknowledged that the manure made by the cattle eating those crops is not sufficient to bring about such restitution. This, we presume, will end the controversy."

The following is, as nearly as possible, a literal translation of what M. Marsan did say in his lecture at the Quebec meeting of the Dairymen's association last April: "In the course of cropping, reserve a large part for forage plants, above all for the legumens which enjoy the singular property of assimilating nitrogen from the air and of returning to the soil, in their roots and waste matters, more than they extract from it. Give these forage plants to your cattle, which will furnish plenty of dung to be applied to your land. This abundance of manure will cause a constant improvement of the soil, AND AN EVER INCREASING AUGMENTATION OF ITS PRODUCTS. Forage plants, conjointly with the stock of the farm, supply the land with fertilising materials in sufficient abundance to preserve for an indefinite period the productive powers of arable land, AND EVEN TO INCREASE THEM BY DEGREES." (The small *caps* are mine. A. R. J. F.) Well, this ought to close the controversy, and I hope it will; but as we have the palinode of the pupil, M. Marsan, I should like to have the palinode of the teacher, M. Schmouth.

ARTHUR R. JENNER FUST.

OUR ENGRAVINGS.

Southdown Sheep.
Cross-bred Polled Heifer.
Bradford's butter-worker.

Cross-bred Polled Heifer.

A PRIZE ANIMAL.

There is probably no country in the world that, considering its area, excels England in the number of its agricultural shows, the value of the premiums offered, or in the efforts

put forth by the people to secure these prizes. The Birmingham, England, fat stock show was no exception to this rule, for the first prize for a fat animal of any breed was 100 guineas, equal to $511 of our money. This was won by the cross-bred Shorthorn-Angus-Aberdeen heifer owned by a Mr. Stephenson of Newcastle-upon-Tyne. The likeness of this fine animal, re-engraved from the London Live Stock Journal, is shown on this page. She was from an Aberdeen-Angus bull and a cross-bred Shorthorn cow. She was small in size, but for symmetry and beauty of form, thickness, levelness, and quality of flesh and general ripeness, she has seldom been equaled.

The Clydesdale Horse.

As the name indicates, this breed of horses was chiefly raised in the county of Lanark or Clydesdale. The soil in Lanarkshire, along the bank of the river Clyde, is of a deep loamy nature resting on a sandy subsoil. Before the county was opened up by railway enterprise, pastoral farming was in the ascendant, and rearing of young stock, but chiefly horses, formed the main feature of agriculture. The river banks and haughs, afforded magnificent pasturage, and young animals could be raised in great numbers at a comparatively trifling cost. What the original breed of the county may have been like, it is now almost impossible to say. One thing is certain: the native horses were always an active, weight-carrying breed. We read of Englishmen and Frenchmen purchasing them for war purposes, and the only kind that seem to have been imported were those of Flemish origin. That stallions of this breed were introduced into Lanarkshire from time to time, may now be accepted as an undoubted truth, the last occasion being in the last quarter of the seventeenth century. The main roads from Glasgow and Edinburgh to London pass through the county, and early portraits of the Scotch breed would lead us to conclude that the coach-horse had also something to do with making the Clydesdale the useful animal he has become.

We read that the first Agricultural Exhibition held in Scotland took place about the year 1786 in the Grassmarket, Edinburgh. A few horses were then shown, and several premiums awarded.

However, the main influence exerted on the improvement of the breed of Scotch draught-horses did not show itself till some years after 1826, when the Highland Society, now the Highland and Agricultural Society, began its system of visiting the important Scotch towns with its show every year in rotation. In 1826, it met at Glasgow, and was favoured with perhaps the best show of Clydesdales made in Scotland up to that time. After this, shows became common through-

CROSS-BRED POLLED HEIFER. (From a Photograph.)

out the country, until, now, there is scarcely a parish which has not its annual show of cattle and horses.

There is a gradation in the shows. First of all, there are parish shows, then district shows, then county shows, and lastly open shows. Animals which lead at the parish shows come out to those embracing a wider area, and so on. In this way, the best stock comes to the front, and a farmer need never be at a loss to have the merits of his stock tested. If he thinks he has a good animal, he takes it to the parish show. If it passes muster there, then he may hopefully take it to a district show, and if it does well there, then he may still further test its capabilities by taking it to the large open shows, such as Ayr, Glasgow, Aberdeen, or the great National Exhibition of the Highland and Agricultural Society. These shows are visited by large numbers of people. In the case of the Royal of England, and the Highland and Agricultural of Scotland, it is customary for the farmers of the district where it is held to give their servants a holiday during its progress, and in

this way,the educative influence of such gatherings is brought to bear on those whom it is most important to have taking a lively interest of the stock under their care.

Next to the influence of the frequent shows, is that exerted by the Scotch system of hiring stallions for service during the season. When this system began it is almost impossible to tell. Horse fanciers easily find their way by rail to the most remote parts of the country, and a really good stallion is never long unknown. The farmers in a district club together to secure the services of a stallion for a season, and no matter how good a sire he may be, he is never taken more than three seasons into one district. When freed from one district, of course he is open for another, and thus the same horse's stock will often be found in districts far apart. Previous to 1870, stallion shows used to be held,during the month of February, at different centres throughout the country. About that time, however, the Glasgow Agricultural Society proposed to undertake the management of a general stallion hiring fair in February, and the majority of the smaller societies gave up their meeting and came to the fair to select their horses. The only stipulation being that they get the first choice, stallions selected at this show in Glasgow are, as a rule, guaranteed a certain number of mares, usually eighty, and service fees, with an additional sum in the form of a premium ranging from £50 to £100. In addition to these there are usually a number of what are called *Poaching* horses, that is, horses that are travelled by their owners on chance, and they too make good seasons.

Between 1840 and 1850 the railway system opened up the mineral resources of Lanarkshire. As these were developed, towns arose with large populations offering a ready market for dairy produce, then large dairies began to be kept. Farmers farther removed from the centres of commerce seized this opportunity, bought up the best mares that could be got, and now you will find Clydesdales of the best strains of blood in almost any part of Scotland, particularly in the south of Scotland. Galloway, comprehending Wigton and Kirkcudbright, thus was eagerly admiring the Clydesdale breed of horses, and having excellent grazing farms with a little milder winter, they have succeeded admirably in developing the capabilities of the Clydesdale horse. (1) It was there the famous horse Victor (892) was bred. A Victor mare is always good Coming to the present day a Darnley (strain of blood) is considered the best in Scotland. When an old Scotch farmer speaks about a Clydesdale, he means an animal with good feet and legs, clean flat bones, good pasterns, oblique shoulders, intelligent eyes, well formed barrel and nicely rounded quarters.

Greasy heels, come from the other side of the border: Victor, or Darnley, stock are never heard of possessing that fault.

Coming to where we are more particularly interested, would it be considered egotism on our part to say this district is the Lanarkshire of Canada (2)? It is now quite a long time the farmers of this district have had the opportunity of raising the Clyde horse, and they have not been backward in taking advantage, and now we may claim to have the best low set strong limbed class of horses that are offered for sale in any part of America.

As we now have a register in this country where we can enter our stock, I would ask all breeders to take a special interest in this undertaking and we shall undoubtely reap the benefit. The first volume is out, and is a neat well got up book which must have taken a great deal of hard labour on the part of those who undertook its publishing. The secretary is Henry Wade, Esq, Toronto. *Com.*

(1) This sentence is obscure in the M. S. A. R. J. F.

(2) This article was written by the Vice President for the last meeting of the Huntingdon Dairy Association.

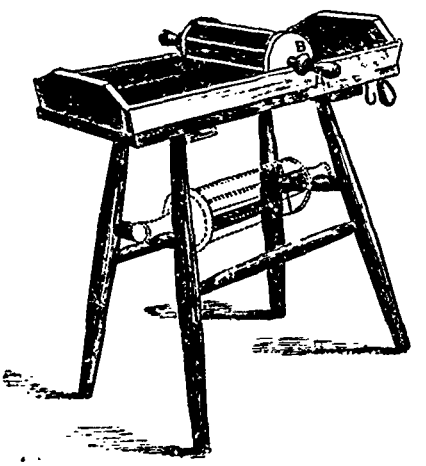
There is no doubt as to the excellence of the Clydesdale breed for all purposes of draught, but the writer of the above article must know very well that the breed has been crossed with the English Shire horse repeatedly, and not very long ago. As for the "greasy heels" coming from the other side of the border, that is an assertion which is easy to make but hard to prove.

Dr. McEachran says—v. Journal of Agriculture, vol. 3, p. 179—"It is a well known fact that some of the best Clyde-horses in Scotland, to-day, derive many of their good points from the blood of the English draught or Shire mares. It is well known that some of the most noted breeders in Scotland are in the habit of importing Shire-mares and crossing them with the best horses in the country, and in this way produce horses which are in many respects *improvements on what may be considered as pure Clydes.*" The whole of Dr. McEachran's article is worth reading. A. R. J. F.

Bradford's Butter Worker.

The "Alderney" and "Little Albany" are here figured.

In the "Alderney" the loose handle A (see drawing) is held to revolve the fluted roller, and the fast handle B is held to give the roller a sliding action to collect the butter into a lump for re-rolling.



When not in use as a butter worker, the fluted roller can be placed underneath the tray out of the way (as shown in the drawing), and the tray used for other purposes, such as making up butter, &c.

Hillhurst, P. Q., 26 Feb. 1887.

A. R. Jenner Fust, Esq, Sorel, P. Q.

Dear Sir,—I have decided to sell off my Shorthorns by auction in the spring and herewith enclose a copy of the advt. which I should like to have appear, if in time, in the March and April numbers of the *Journal of Agriculture*, and in both *English and French editions.* Will you kindly have it inserted? I shall probably offer a few Hereford and Aberdeen-Angus young bulls and heifers, and some grade heifers of the latter breed.

Yours very truly, M. H. Cochrane.

Sale at Hillhurst.

At the Hon. M. H. Cochran's sale on the 28th April,farmers will find a good opportunity of supplying themselves with breeding-stock of the grand meat-making breeds. It is quite unnecessary to state that all the Hillhurst animals are the

best of their respective breeds. The Shorthorns are of the hardy Scotch lines of blood, topped with Booth sires: a happier mixture could not be found. A. R. J. F.

A complete Steading.

At the request of several correspondents we give in the following engravings the range of buildings at the Experimental Farm of Three-Rivers as they will stand when completed.

The range has in view the requirements of a good dairy farmer who can manipulate the milk of several neighbours, say from 200 to 300 cows, making a speciality of butter making, and yet prepared to work a part, or the whole, of the milk into cheese, if needed.

Fig. 1. Shows a sectional view of the main building as it stands at present. On the right is the cow shed 50' long, with an additional 22' in length in the rear shed, partially seen at fig. 2 (No. 14) or 72' in all, giving standing room for 22 cows. At 1 is a water trough. The troughs are supplied with water by a system of pipes, the same running in front of all the cows, pipes bringing also steam, from the engine, to warm the water when needed. 2 is a light manger made exactly like a trough, and running the whole length of the stable. At 3 are seen two *wooden* rails on which the barrow containing prepared food is rolled from cow to cow. 4. Is a short beaten clay pavement on which the cows stand. This *pavement* is just the length of the cows when standing. The clay is kept in place by a huge log trough into which the whole of the manure—liquid and solid—is dropped, as it comes, from the cow. This manure trough is emptied twice a day into the manure cellar (15 A.) through doors at the side end of the barn. Unfortunately, this stable, which was built 27 years ago, was made 14 feet wide only, but would have been 16' wide, had the present arrangements been anticipated at the time.

On the left, is the horse and bull stables It is also 14' broad only. A covered trough (1) runs in front of the whole stable. At 12, is a common manger, but with a rack over the hay to prevent its being trodden under foot. At 12 is a plank floor on which the horses, &c., stand. An inch space is left open between each plank, so that the liquid manure finds its way at once into the manure cellar, running down on a beaten clay floor until it reaches the mass of manure at 4*a*, where it is finally absorbed.

Over the horse stable, at 17, is the hennery, not yet finished. It is to be fully lighted from the front and sides. The wooden floor, to be covered with a thick coating of dry muck and sand in which the food is *buried*, for the fowls to scratch up. This coating of earth is to be raked clean daily and finally dropped into the manure cellar and replaced by a fresh coating as often as necessary. At 10, is the poultry verandah, covered by the extended roof, and, at 11, the stairs by which the poultry ascend and descend. At B, is the barn, 50 feet broad and 36 long, as it now stands. 8 gives the top line of silos, dairy, and also of the proposed elevated road into the barn. Under this elevated road in the barn, will be the calf and pig pens, with grated floors, allowing *all* the manure, both liquid and solid, to drop down at once into the manure cellar below. This manure cellar is the full size of the barn. It has an inclined floor of beaten clay, so solid that the Kemp manure distributor has been backed into this cellar for two years, from end to end, until the whole of the manure, about 400 tons annually, had been carried away. And yet the wheels never sank over 2 inches or so into the beaten clay. A few hours always suffice to level off these ruts after the cellar was emptied and the whole floor appeared again as level and as water tight as ever. An experience of two full years has demonstrated that absolutely no liquid manure is absorbed into the subsoil. At 16, will be the new granary at the front end; the rear end, near the dairy, which can be easily warmed in winter from the waste heat from the steam engine in the dairy, will allow of a comfortable workshop, &c.—At 32, will be made the sky-light, lighting up the interior of the barn and serving as the main ventilating flue.

Fig. 2 shows a general (sectional) view of the steading when completed. At 34 is seen the proposed elevated roadway, with root-houses below communicating with the manure cellar, and also with a proposed shed (15) running along the whole frontage of the barn, some 78 feet long. This shed may possibly be roofed higher than shown in the engraving, in order to give a covered roadway into the barn at the centre (36). The barn would then be partially reduced to the height seen at 36 above this roadway. The calf stable to be under this roadway at 25-27, the pig sties at 26. On each side of the elevated roadway the bays would extend down to the present floor, as in fig. 1, below the dotted line at 50, which shows the breadth in feet of the barn. At 14 are the two silos, in the rear shed, 32' long in all, extending behind the horse and bull stable, as far as the outside line of the dairy.

The butter dairy is at 23. It is 20' long x 16' broad. An oval well 12' long and 5' broad, inside measure, is seen at 30, stoned all round, oval shape. Over the highest water mark is a moveable floor where the filled up butter firkins are stored until marketed. Here, the temperature never exceeds 54° F. The marketing being done weekly unless the market—a small one—is temporarily overstocked, which only happens partially and for a few weeks in the summer months only. Over this well is the butter making room. The large 200 lb, oblong square churn being driven, by a belt, from the engine above.

Above the butter room, at 28, is the Laval separator, milk receiving and heating (or cooling) metal reservoir, the cheese room, engine, steam pump, &c. The communication between both stories is from the wood shed, at 31. There is also a passage leading into the barn, from the upper flat of the engine room. The power is carried from the engine into the barn, for threshing, straw cutting, &c., by an inch manilla rope, which answers very well.

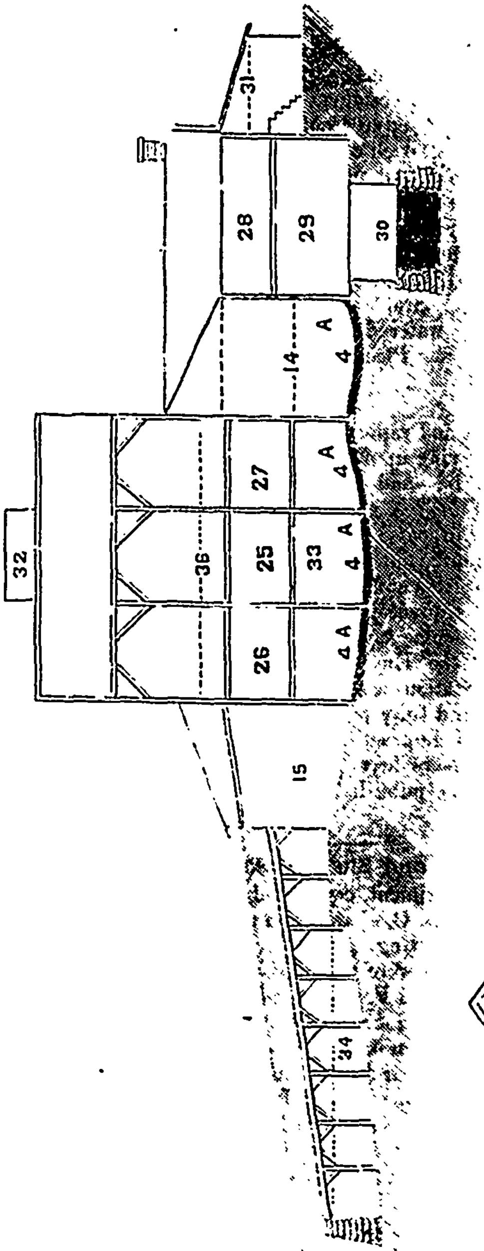
Fig. 3 shows the upper section, near the barn, of the proposed root cellar. 22 shows the gravel road-way, which of course will be sufficiently broad and rounded. 19 will be the passage way extending the whole length of root house; 20 and 21 will be the vegetable bins, the top BB, being reserved for seed roots, celery, &c., &c., thus giving two separate compartments in each bin. It will be seen (in fig. 2) that the cellar will be dug only in proportion to the required height; —7 feet clear in the passage way,—the earth being placed on the top as a frost proof covering, over a wooden roof made with splat, cedar logs hewn roughly into shallow troughs reversed, in order to shed perfectly such water as might percolate through the earth covering above.

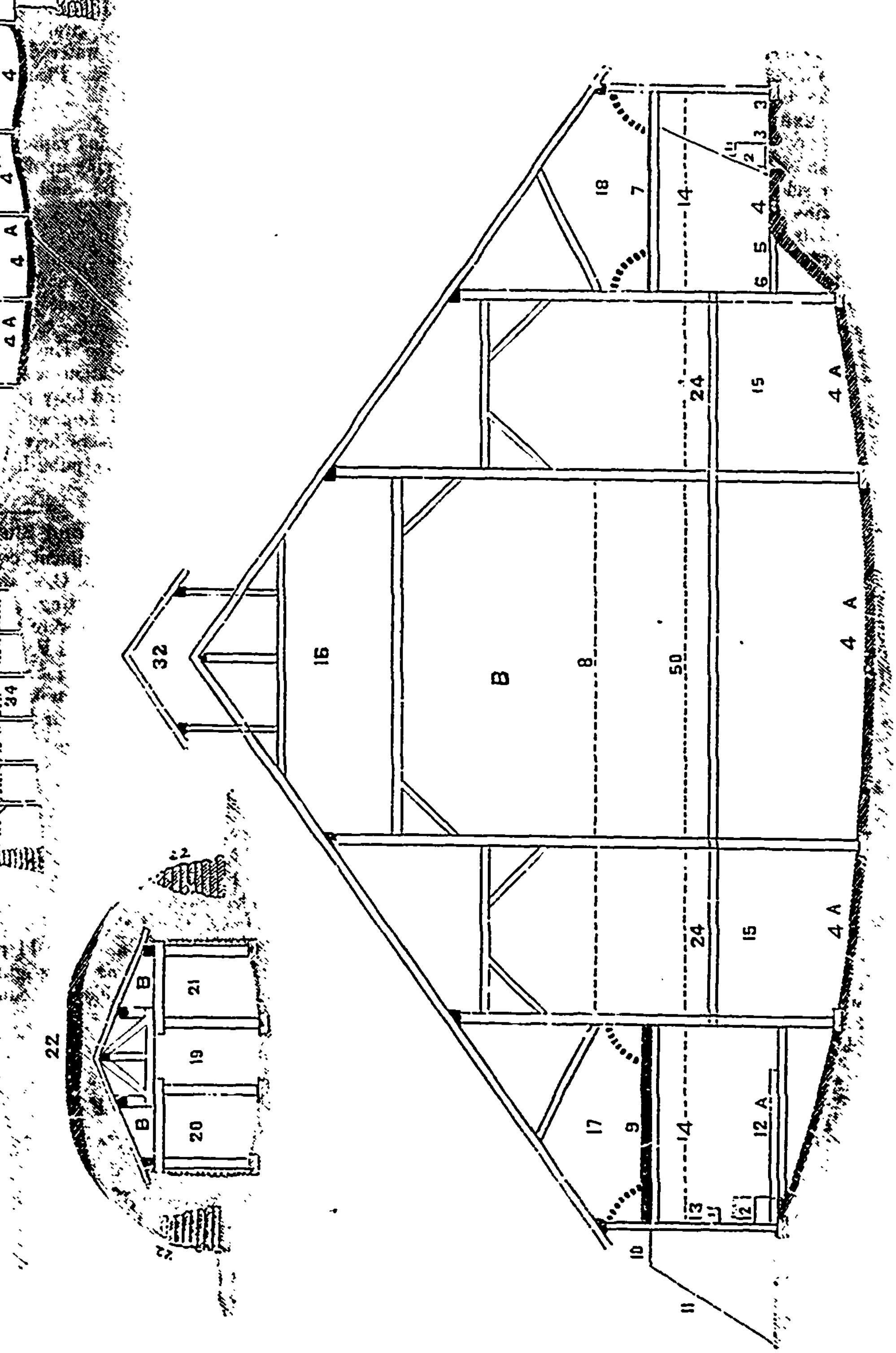
The silos have been already described particularly in the March number. We know of none as economically made. Any farmer can built them, with such material as he may command on his own premises. It will be seen that they communicate with the horse and bull stables on one side and with the cow stables on the other. Next season we shall, on opening the silo, remove the whole of the covering. We shall use this covering as a frost proof roof, for the silo, at a sufficient height to work under, the silo being then fed off from the whole of the top 13' x 15' instead of cutting down from the top to the bottom in narrow slices as generally done.

Ed. A. Barnard.

SOIL EXHAUSTION

In the March number of the *Journal*, I read a statement





of soil exhaustion cited by M. Lippens which I was surprised to see unchallenged. This subject is of such importance that I shall quote nearly the whole extract, as published. M. Pierre Lippens states: "For the last five years, I have cultivated the *Domaine de Rimouski*. I harvest on an average of years, 1300 bushels of potatoes, 500 bushels of turnips, 450 bushels of carrots, 600 pumpkins, &c. *Nearly half of these vegetables are consumed on the farm by the cattle.* I hardly grow 100 bushels of grain a year, *all of which is eaten by the cattle*, which have in addition, *all the hay grown on the farm and* 1000 *bundles of hay from the Islands* in the Rimouski river, which islands never need manure. *I haul, yearly,* 80 *loads of dung and ashes, and I use* 300 *bushels of fish for manure.* Every year *I buy* $50 *worth of bran and oil cake.* I take every possible care of the manure made on the farm. NOW ALL THESE RESOURCES TOGETHER ARE NOT ENOUGH TO MAINTAIN THE FERTILITY OF THE SOIL. THE SOIL YIELDS WELL, BUT IS VISIBLY GROWING POORER." I wish M. Lippens would explain how this can be? What is it he sells which so exhaust the soil? Evidently something remains unsaid—or he is greatly mistaken. (1)

I lately attended a Dairymen's Convention at Huntingdon. There the doctrine preached was the very reverse of the above. The Editor of an important Ontario Stock Journal informed us that by dairying and stock raising—where manure was properly saved and employed—the land grew constantly richer and in no wise needed additional fertilisers. This rather a broad statement, I took the liberty of challenging. A discussion ensued. A professor of dairying, also of Ontario, supported the *fertilising* theory of the soil by dairying. When asked whence the phosphoric acid and nitrogen carried away in the cheese and butter, as well as in the stock sold, he thought the soil, aided by the air, would supply such farms with an abundance for from 150 to 500 years to come! Unfortunately such erroneous doctrines seemed to prevail with most if not all of the audience? May the farmers of Huntingdon be blessed with such richness in the soil! However, my advice was *to try* even as early as next spring the effects of bone char on their pastures, or some really good superphosphate. I should be very much surprised if the older pastures of the district did not fully respond and testify to the usefulness of such application.

ED. A. BARNARD.

Milk Record—Ayrshire Herd of James Drummond, Cote Visitation.

Name.	Herd Book No.	Age of Cow.	When Calved	No. of days milked to Dec 31.	No. of lbs of Milk	Per Cent. Cream.
Viola	3822	4	4 Jan.	238	5235	15
Imp	2807	5	5 Feb.	308	5875	15
Maud	2356	9	1 Mar.	224	6007	14
Flora	1211	10	5 Mar.	210	5681	15
Ida	1181	11	12 Mar	301	7252	16
Effie	579	14	17 Mar	294	8650	17
Juno	1214	10	1 April	252	8045	17
May	3633	3	1 Aug.	147	4043	15
Bud	2228	10	16 Aug.	140	4545	16
Victoria	2931	5	18 Aug.	140	4746	14
Maggie	3627	5	19 Aug.	140	4208	17

(1) Since the above is in type, I have received a letter from Mr Lippens admitting that an error has been made. The explanation is that a given portion of the farm is of the worst kind of gravel, actually devouring the manure and carrying it down to unknown depths at each washing by heavy rains &c. ED. A. B.

REMARKS.

Commenced weighing the 1st of March. Did not weigh the cows' milk until a few days after calving, some cows longer than others; but this is the exact number of days of milking up to the 31st December. It is my intention to continue weighing, and to keep an account from the 1st of January to 31st of December of each cow for the year.

I may remark that last summer being dry the grass was short. I gave the cows about two lbs of ground feed per day, in the evening. In winter I feed on hay twice a day, and five lbs. of ground feed, six lbs. of bran and three lbs. of cut straw, all mixed and moistened with water, in two feeds, morning and night. Stable cleaned twice a day; comb the cows every day, and watered in stable on stormy days and in the yard on fine days. Plenty of straw for bedding.

JAMES DRUMMOND (1).

The late general and rapid failure in milk and butter, with the annual July drying up of the grass, moves us to enquire must this always be—and is there no way of avoiding the inconvenience and loss? A very few grow fodder-corn, vetches, or green pease and oats, and something of the sort is a valuable supplement; but is it not possible here, as in Europe, to grow rich grass sufficient for the whole season? Permanent pasture, as advocated by Professor Brown, professes to fill the bill, but some say it cannot be in this soil and climate. Doubtless the English formula would fail here, but an efficient modification might be adopted. And until the contrary is fairly and fully proved, we shall hold that permanent pasture is not impracticable in Ontario. Let some of our intelligent farmers leave the beaten track, and put it to the proof, and also publish the trials and results in the PACKET.

ORILLIA.

Deep and Shallow Setting.

The following experiment, conducted by me in 1881, may in part answer "H. L. C.'s" question as to the relative value of deep and shallow setting.

The two pans tested were a "Swartz" and one manufactured by Messrs. W and F. Richmond, in which the temperature can be rapidly reduced by allowing a stream of cold water to run under the milk.

Into each pan I had carefully measured 10 gallons of well-mixed milk from the same source. Ice was freely used by the exhibitors, and the milk was allowed to stand undisturbed for 18 hours, when the two pans were creamed and churned (in the same churn) by a thoroughly experienced dairyman. The butter obtained was as follows:—

From Swartz..... 2 lbs. 12½ oz.
From Richmond..... 3 lbs. 1½ oz.

The shallow setting system (using the Richmond pan) produced, therefore, nearly 5 oz. more butter from 10 gallons of milk or a gain of over 11 per cent.

That the difference in weight was not due to difference in composition of the butter produced will be evidenced by the following analyses:—

	Swartz.	Richmond.
Water	14 81	15 06
Fat	84 11	83 85
Casein and milk sugar	.90	.90
Ash	.18	.19
Totals	100.00	100.00

The verification did not stop here, however. I also analysed the samples of skim milk obtained in each instance, and found the difference in yield of butter practically accounted for.

(1) I needed hardly say that any statement from James Drummond may be taken as absolutely accurate. JENNER FUST.

SKIM-MILK.

	From Swartz.	From Richmond.
Water	90 49	90.67
Fatty matters	.64	.33
Casein, albumen, and milk sugar	8.08	8.21
Ash	.79	.79
Totals	100.00	100.00

Reckoning the skim-milk at 8½ gallons, the difference here accounted for would be 4⅓ oz, whereas the difference of actual fat found in the butter produced was 4 1-10 oz

It is not wise to generalise from limited experiments; but, under the conditions of the trial here recorded, there can be no doubt that the fat globules were enabled to rise with greater rapidity through the comparatively thin layer of milk in the shallow pan than through the deeper column of the Swartz.

The co-efficient of expansion of butter fat is greater than that of water, so that, theoretically, the higher the temperature the quicker will the cream separate. There are, however, many other considerations besides the rate of separation of the cream which render the use of a low temperature advisable. Generally speaking, it may be said that the lower the temperature at which milk is set the more satisfactory will be the result, both as regards the skim-milk and the quality of the butter.

The temperature to which "H. L. C." raises his cream previous to churning appears to me to be at least five deg. Fahr. too high. For cream-churning the temperature should not exceed 58 deg. Fahr. in summer, and 60 deg. Fahr. in winter; nor should the operation be hurried. By using a lower temperature, and thus increasing the time of churning, "H. L. C." will find that butter of better consistency and flavour will be obtained.—ALFRED SMETHAM, F.C.S., F.I.C., *Liverpool, November 11th.*

Sussex Bull, Goldsmith 391.

Of the various English breeds of cattle, the Short-horn, Hereford, Devon and Polled Norfolk and Suffolk are undoubtedly the best and most profitable, the first for beef and milk, the second for beef, the third for beef, milk and work, and the last for milk and beef, but of the other breeds, the Holderness and Long-horns, once so promising, are steadily disappearing; the Somerset, Lincoln, Glamorgan and Anglesea have never spread much beyond the countries from which they took their names, and even there, they are yielding place to better breeds; (1) but the Sussex cattle seem to hold their own, or even to be gaining a little in public favor. This breed holds an intermediate place between the Devon and Hereford, having much of the activity of the first, of the strength of the second, and of the propensity to lay on beautiful, fine grained flesh of both. In color, Sussex cattle are very like the Devon, a deep, rich, solid red, and in form too, they are much the same, except that they are somewhat coarser and less symmetrically proportioned. The fore quarters,(2) too, are more strongly developed, the bones are larger, the dewlap is more developed, as in the Hereford, and therefore there is a larger porportion of less valuable meat. The resemblance between the Devon and Sussex is, however, so great that there is little doubt that one is an offshoot of the other, or that both are descended from the same original British stock. Like the Devons, the Sussex have in the past been bred mainly for draft purposes; but of late years the breeding has tended more and more to beef and milk. While the southern breeds of cattle in England, like the Hereford and Devon, were formerly bred principally for work and beef, those of the more northern countries, like the Short-horn and Holderness, were bred chiefly for beef and milk, and breeding in this direction is now practised as the most profitable in all parts of the country; for although oxen are still extensively used for draft purposes in the southern and western counties, they are yearly becoming less valuable for this purpose; while the demand for milk and beef is constantly growing in the towns and cities.

The Sussex cow is a poor milker, however, and truly a poor beast in every way in comparison with the Sussex steer. Indeed, so inferior is she in appearance that one might easily suppose that she is of a different race. As in Youatt's day, she is so little valued for butter, milk and cheese that "almost every mongrel finds its way into the dairy in preference to her." She is used almost entirely for breeding purposes and for beef, for when dried off, she fattens more readily even than the steer. Great pains are now being taken to breed smaller bones and more flesh in Sussex cattle, and with such good results that while improvement in the other breeds has been hardly noticeable of late years, that in Sussex cattle has been really remarkable. True, no member of this breed has ever borne off the Blue Ribbon of the Smithfield Show, but if improvement continues at the late rate, one is pretty sure to do so one of these days.

Had the subject of our illustration, been made a steer, fattened for exhibition and shown at that great yearly contest of fat stock, he might have done so; for he is acknowledged to be "one of the finest bulls of the Sussex breed ever seen, being remarkable for wealth of flesh, usefulness and activity." This is Goldsmith 391, and he is now eight years old. The London Live Stock Journal (from one of whose fine series of animal portraits our illustration has been re engraved) says he was not exhibited at any show until he was nearly five years old, when he appeared at the Southern Counties' Show at Tunbridge Wells, and was placed third, but on meeting the same bulls at the Royal Show at Derby, he won the first prize, afterwards maintaining his position by being placed first in all competitions during 1882, 1883 and 1884, including two firsts at the Royal and the champion prize given for the best bull of any breed at the Royal Counties Show at Winchester. This year, at the Bath and West Show at Brighton, in the class for bull and progeny, of all breeds, he won the second prize, an honor of considerable value as the competition was very strong. He also made a good stand at Southampton against the champion Hereford bull. It is greatly to his credit that during his long show-yard career, and at present, he is as sure a stock-getter as any young bull. R N. Y.(1)

(1) But the North Welsh cattle, the "Castle Martins," have always been great favourites in the London market. We used to fat thousands of them in Kent, and better beef could not be. —A. R. J. F.

(2) In 1852, the fore quarters of the best bred Sussex were awful to behold. The improvement since then is wonderful. A. R. J. F.

Plowing under Clover for Manure.

EDS. COUNTRY GENTLEMAN—When I began farming on my own farm, about 25 years ago, my first hired man was a hired boy (if I may be excused the Irish "bull"). He was a jolly coal-black youth, who amused me much by his queer words and ways. He would not wear a cap (wanted *a hat*), for fear he should "get tanned," and drank lots of milk "to make him grow pale." One day he greatly amused me by saying: "I'clar' Mass' Cham'n yo' kin done change yo'r min' de dreffful quickers of any oder man I eber seen yit!" I had countermanded an order I had given him, before he had ever started on its execution. He did not see any cause for the change.

(1) The above should have appeared before; v. vol. VIII, p. 165. A. R. J. F.

My friend Mr. Terry sometimes reminds me of this remark. For years he was the manure king of Ohio; made hundreds of loads of it annually; preached it early and often; indeed was said to have "manure on the brain." Suddenly he stopped keeping stock, except work-horses and one cow; and stopped making, using or preaching manure, except in a small way. For years he did not believe in hedge-fences, or wheat drills, but has lately been converted to both. But the most remarkable conversion is on plowing under clover.

In Nov. 1885, under "Notes from a Rented Farm," I wrote for the COUNTRY GENTLEMAN an article arguing strongly the unwisdom of plowing under clover for manure, and the wisdom of first taking the "money value" from the clover seed or the hay, and then plowing under the "manure value," in the form of the "haulm" (threshed clover straw), or of the manure of the live-stock fed upon the clover hay. I argued from facts, analyses of constituents, and statistics of crops, to show that under our usual present prices of hay, grain and animal products, it was a waste of money to plow under clover; and I showed from facts and statistics that, though it was wise and common under the prices of 30 or 40 years ago, yet under our present prices the common sense of the vast majority of the farmers of the land had condemned and abandoned the practice. And I closed the article with quite a long quotation from an article by Mr. Terry, *written two years before*, for an Ohio paper, and showing in exact figures how he lost $100 of clean cash by plowing under 5½ acres of clover, instead of cutting it for seed or hay: lost that sum of "money value," and had no more left of the "manure value." He called it "a miserable little mistake," laughed at it, and kicked himself soundly for making it, confessed properly, and said: "This is my first mistake in that line, and will be my last," &c. See Ohio Farmer, page 414, June 9, 1883, COUNTRY GENTLEMAN, page 956, Nov. 26, 1885.

Well, the ink was not dry on my manuscript (I wrote in pencil), or rather the manuscript had actually not been mailed, when the mail brought the COUNTRY GENTLEMAN of Nov 5, 1885, with an article (page 896) by Mr. Terry, in which he mentioned, incidentally, that he was *going to plow under six acres of clover*, "heavy enough to make three big loads of hay to the acre." It almost took away my breath! I wrote a P. S. to my article, calling attention to the complete change of base, and asking Mr. Terry to "rise and explain" why he had reversed so recent and so emphatic an opinion. But after sending the article I wrote the editors not to print the P. S.; and I should probably never have referred to Mr. Terry's reversal of opinion, if he had not himself done so in his article of Aug. 26 (C G. page 639), on plowing under clover.

I have not before had time to notice that article; and should not do so now (though it seemed, from his allusions to myself, a direct challenge to debate) did I not think the subject a most important one, and that Mr. Terry was exactly right three years ago, and is therefore exactly wrong now. I think he has reasons for plowing under clover, which he has not stated, nor perhaps even suspected, and which, though sound in his case, are not applicable to the average farmer, in my opinion.

Let us first notice the reason he assigns, and show whether it is sound, and then notice what I deem to be the real, and in his case sufficient reason. He says (C. G., p. 639): "Years ago I could, and did, feed out hundreds of tons of hay to dairy cows and beef cattle, so as to make it pay. Milk and beef were very much higher than they are now. Even at the low prices of potatoes and wheat for the last two or three years, I am inclined to think that clover plowed under to manure these crops would be about as profitable as if fed out in the shape of hay." And again, in the same article (C. G., p. 640), he says: "My ideas on this subject *have not changed* since I wrote against plowing under clover for manure alone, some years ago [3 years], but times and prices of farm products *have changed materially*."

Let us see just how much they have changed, and in which direction. His article condemning plowing under clover appeared in June, 1883, and the one favoring it appeared Aug. 26, 1886. I give the Cleveland, O., highest wholesale quotations from the Ohio Farmer of the corresponding week for the two years. In each case they give prices of the same article or grade of goods, and the comparison are as absolutely fair as I know how to make them.

No.	*Article.*	*Price Aug. 25, 1883.*	*Price Aug. 28, 1886*	*Per cent. of gain.*	*Per cent. of loss.*
1.	Loose hay, per ton	$12 00	$18 00	50	.....
2.	Clover seed, per bu	7.00	6.50	.....	7
3.	Wheat, per bu	1 13	82	.....	27
4.	Potatoes, per bu	50	60	20	.....
5.	Ohio full cream cheese, per lb	9	9	.....	.....
6.	Ohio creamery butter, per lb	22	22	.....	.....
7.	Choice steers (Buffalo, N Y) per cwt.	6 00	5.12	.....	15

In the above table, Nos. 1 and 2 are the crops in regard to which we are inquiring whether it is wise to sacrifice their money value in order merely to make manure to produce any or all of Nos 3 to 7. Nos. 3 and 4 are direct vegetable products, and Nos. 5, 6 and 7 are animal products of Nos. 1 and 2.

Now from the above it seems that Mr. T. thought it very foolish, in 1883, to plow under hay at $12 to produce wheat at $1.13, but very wise in 1886 to plow under hay at $18 to produce wheat at $0.82 Both sets of figures are "dead against" his conclusions. The hay sacrificed as manure *is higher*, and the wheat produced by the manure *is lower*. Wheat, now, would have to be $1.69 per bushel, instead of $0.82, to make it *pay as well* to plow the clover under as it did three years ago, when he thought it very foolish to do it. Clover seed is 7 per cent. lower than three years ago, but wheat, the product, is 27 per cent. lower. These figures too are against his new conclusions. Butter and cheese are exactly the same price that they were the same week three years ago; so that here is no ground for change of opinion. Potatoes are 20 per cent. higher, but they could be produced equally well from the manure of the stock that saved the "money value" of the hay, or from the "haulm" from which the "money value" had been saved in the clover seed. Prime beef cattle are 15 per cent. lower, but there has hardly been a time in ten years when you could buy, in Northern Ohio, young beefy steers, heifers or cows at so good advantage to feed through the winter, and turn of fat in May or June at a profit, and get the money value off the clover hay.

In short, I cannot find that "times and prices of farm products have changed materially" in the three years, and certainly not in the direction to account for Mr. Terry's complete change of base. The thing that, in my opinion, makes it pay for *Mr. Terry* now to plow the clover under for manure, instead of working to save "its money value" by labor in cutting and threshing the seed, or feeding the hay in this — *his* time is worth more for something else. He can earn $1,000 a year, more or less, with his pen, writing, and with his voice, lecturing. But not one farmer in ten can do this. The vast majority must earn their money by wise work *on their own farms*, or not at all. For them Mr. Terry's present advice seems to me unwise, and his exactly opposite advice of three years ago seems eminently wise. Then he said: "I plowed under 6 acres of second-crop clover, * * * buried a lot of dol-

lars that might just as well have been in my pocket to-day. * * * There is no getting around it, I will have to own up that I *sunk* (his italics) an even $100 in that little operation. * * * With clover seed worth about $5, and hay about $13, it would pay about as well, net, to cut for hay as to save for seed, take one year with another, but there is another view to take of this matter. The cutting for hay, and feeding out and handling manure, takes more hand labor, and one might as well, perhaps, spend his time at this, getting good wages for it, as to spend it in some corner grocery or other place, arguing as to whether wheat ever turns to chess (cheat), or potatoes ever mix in the hill, or whether it makes any difference what time of the moon fence-posts are set."

Now, I should be slow to hint that farmers, as a rule, would be so engaged, but I do say that nearly all must *make their money on their farms*, not one in ten thousand having the chance, like Mr. Terry and myself, to make money perhaps faster outside of our farms. And I say that Mr. Terry and I should be very careful not to recommend as wise for the general farmer what may be wise for us, solely because of our double character, first as farmers, and second as something other than farmers.

After explaining (in his 1883 article) that the slight loss of "manure value" in clover seed, "was more than made good by the chance to put the haulm on the parts of the field that needed it most, * * * while if we plow under green clover, the richest portions having the heaviest crop on will get the most, and the poor spots the least," he closes with a statement so wholly sound in my opinion that I most quote it: "On my farm I think I do *just as well* [in point of 'manure value'] to plow under the haulm from the seed, or the manure from the hay, with the clover sod, after each acre *has deposited a handsome sum in my pocket*, as I would to plow under the growing crop before it has paid me any tribute."

For years Mr. Terry has been a power for good in agriculture. Most of his advice is excellent. Some of his more recent views seem to me not so wise as his earlier ones. He should not deem it unfair if his fellow writers point this out clearly and courteously. That seems the only way to reach the truth in a paper conducted on the excellent plan of the Country Gentleman, viz, that of letting the contributors largely edit and correct each other's articles.

W. I. Chamberlain.

THE DARK SIDE OF FARMING.

HENRY STEWART.

One of the greatest drawbacks to prosperity and pleasure in the business of farming is the want of stability and persistence in any chosen pursuit. Some men cannot even make up their minds as to how they should go about any necessary business, and consequently perform it in a most inefficient manner. They change their minds with every fancied reverse of fortune, and break up plans that have become settled by lapse of time, so that the breaking up is productive of loss and perhaps disaster. "Unstable as water thou shall not excel", might be said of many farmers who blame their chosen pursuit for their partial failures, instead of blaming their own mistakes. There is the man who begins business as a dairyman, let us say; he goes into it with a rush; perhaps he succeeds moderately well, but he finds it hard work, needing the closest application. While it is novel, he is interested, but as the novelty wears off and he finds he is only making a bare living and is not laying up money, or able to indulge in luxuries, he becomes dispirited and wants a change. He declares that the dairy is an unprofitable business; that bogus butter ruins it, and that something else pays a great deal better. There comes a boom in hops; the price goes up to a dollar a pound, and he gets rid of his cows at any sacrifice and buys hop roots and poles, and reads up hop-growing. By the time he has any hops to sell, spared through painful effort from the lice and mildew and the various other troubles incident to their culture, the price is down to eight or ten cents, and again he is discouraged and on the ragged edge which separates hope from despair. His hop yard is plowed up and he tries something else which is better, but always with the same result. He tires of it, or perhaps utterly fails, which is probably because of the unfortunate want of persistence, and losing at every change and turn, he is soon in distress and goes over to the dark side.

Perhaps there is no other cause of failure that is so prolific and common as this. If we examine into any special business in the grand industry of farming, we find the men entered it mostly of this class, and who have given up pursuits in which thousands of farmers live happily in sunny homes. We find the Florida orange groves *in futuro* (chiefly hoped for but not seen—as yet) occupied by many such men. Fancy-cattle men make money out of them. They are the chief purchasers of novelties in seeds, plants, implements, and all are restless, looking and hoping for some readier way of making money than persistent, effective work. The crowds of frauds, like parasites which live upon diseased matter, prey upon such misguided men and make victims of them, and every disappointment adds to their misery. Those persons who are in a position to know, the editors who receive so many urgent letters of inquiry about this new place, or that new pursuit, and which is best to be done under such circumstances as no stranger could possibly form an opinion of, know how many such unhappy, unstable, undetermined men there are existing, but not living, upon farms. A time comes to many of them at last when, like old Eneas, "tossed and driven by adverse fates," they are cast upon some shore, wrecked amid storms and clouds. Then a ray of light breaks through upon them; for they are where they cannot get away and must stick at least, and like men, go to work at whatever they are driven to, and persisting by force of adversity they finally find that they have been wasting a life in seeking. But it is thrust upon them in spite of themselves.

Many a man who has thus suffered, or who is now suffering, may look back in his childhood and see how his early training led to this instability and consequent failure. In his boyish pursuits many things were begun but none finished, and as he grew in years the habit grew, and became confirmed. This is a matter for parents to consider. They have the forming of the character of their children, and if any child has fallen into this habit they should correct it at once. To finish what has been begun, to adhere to a choice which has been made after mature and careful consideration, to persist and persevere, and never lose sight of the end in view or turn aside from its straight pursuit, are indispensable to success. Think of the men who have made a mark in the history of the time; of the leading farmers, stock-breeders, horticulturists, dairymen, all of whom are sought as advisers, leaders, teachers, examples, and what is their history? An unbroken course in pursuit of aims which they have reached, and of ends which have brought prosperity and success and honor to them.

The business of farming has two sides: one lies full in the glow of the warm bright sunlight; the other is on the shady side, buried in gloom and darkness. Every man can choose which side he will live upon. The path to each diverges from a plain road plainly, so that it cannot be mistaken. The business of farming is one in which no man can fail who uses common prudence, who is industrious, persevering, careful, foresighted, economical. It has the world's wants to supply.

The farmer feeds and clothes the world, and every product of the soil has its waiting consumers.

Country Gentleman.

More authorities on the legumen-nitrogen question. M. Ed. Solly, F. R. S., F. L. S, F. G. S., F. C. S., and a host of other initials, showing that he was a man of reputation, besides being professor of chemistry to the Royal Horticultural Society of London, England, and Lecturer on Chemistry in the Hon. East India Co.'s College at Addiscombe, says, in a work called "Rural Chemistry," published just 37 years ago: "There is no evidence to show that plants are able to absorb nitrogen from the air. It might have been supposed that plants would obtain the nitrogen which they require directly from the air, which contains nearly four-fifths of that gas; but there is very good reason to believe that this is not the case."

Forty-three years ago, Mr. James Johnston, professor of chemistry in the university of Durham, in his lectures on agricultural chemistry and geology, spoke as follows: "Nitrogen, though it forms a large part of the atmosphere, is not supposed to enter *directly* into plants in any considerable quantity; it enters into them chiefly, it is supposed, in the form of ammonia and nitric acid;" p. 14, ed. 1845.

A. R. J. F.

—Consuming Value.—I have, says a reader, this Martinmas entered to a farm, the lease of which binds me to take over on entry, and to leave on quitting, the turnip crop as it stands on the ground at a fair "consuming value." Does this mean feeding value? and what proportion does it bear to market value? ["Consuming" value and "feeding" value are not always synonymous; the "custom of the country" being usually held to decide this point. In some districts they are interpreted to mean one and the same thing; in others the consuming value is rated at about two-thirds or three-fourths of the feeding value, the difference professing to allow for the risk and labour of converting the crop into beef or mutton. Thus a ton of turnips is held to be capable of making 14 lbs. increase of live weight in the animal; and this, at say 6d. per lb., puts the feeding value at 7s. per ton. But where the incoming tenant is to get credit for converting the crop into meat, the consuming value would not be put at more than about 5s. 3d. per ton. "Market" value is a totally different thing. It is feeding value *plus* manurial value. In the case of turnips, the manurial value is commonly estimated at 4s. per ton. Adding this to the feeding value, we get 11s. per ton as the market value. The market price varies, however, with the price of meat, and with the scarcity, or otherwise, of turnips. The main thing is to distinguish aright between market value and feeding or consuming value. A crop of turnips with a yield of 20 tons per acre would on the above data have a market value of £11; but its feeding value would only be £7, and its consuming value not more, perhaps, than £6 5s. An ingoing tenant, then, who pays market value for a crop he is entitled to receive at feeding or consuming value, is a loser to the extent of £4 or £4 15s per acre.]—*Eng. Ag. Gazette.*

On page 465 the N. Y. Times is quoted as advising farmers to let law-making alone. We have heard this old story about farmers being the "salt of the earth" about long enough. It is getting stale. We have had our backs patted until they are sore. Such palaver does not make us forget that farmers have to carry the heaviest part of the burden of supporting these "law makers" and paying their junketing bills. We also have to bear the heaviest part of unwise legislation. We can't hide our property from the tax collector as the holders of stocks and bonds can. The question of law-making is not merely a question of morals and principles, but a question of finance as well. The farmer should devote as much attention to such questions as he does to any proposed expenditure of his capital. We shall always have those among us who will swallow anything in the line of political bait. We want to increase the number of those who will not forget the action of many legislators on railroad matters, oleomargarine, and the various questions directly affecting farmers. Extortionate charges for transportation and monopoly oppression, are legalized and made possible by these legal legislators. It is the direct business of the lawyer to make money, and he cannot help being the sworn friend of monopoly. I say do not follow the advice of the Times. If we did there would be no use in our going to the polls at all, unless to vote upon some question that affects farming directly. Let us rather take more interest in politics and protect our own rights.

R. N. Y.

Hog cholera visits this section quite frequently, yet I have never had a case among my hogs. In the majority of cases that have come under my observation, the hogs were in small pens, which, as a general thing, were not kept clean, or in places through which ran weak, dried up streams of water. Stagnant water is always unfit for hogs. Many persons bed their hogs in stable manure or under the straw stack. This does not pay me. If they are too hot in their beds and come right out into the frosty air, they are sure to suffer. A hog is a good deal like a man in his make-up.

R. N. Y.

Hillhurst Short-horns.

My readers will see by the advertisement that the whole herd of shorthorns belonging to the Hon. M. H. Cochrane will be sold by auction on April 28th, 1887.

The families of which the herd consists are of the *remarkably hardy* Scotch blood, topped by bulls of the Booth lines.

A. R. J. F.

NON-OFFICIAL PART.

The Benefits of Thorough Tillage.—Do farmers think enough of thorough tillage of the soil? We should say they do not, judging by the condition of their fields when they have sown the seed and completed the preparations for a crop. A farmer whose skill and success are well known, who is painstaking in all his work, fitted a field of rye by thorough working with the "ACME" Pulverizing Harrow, Clod Crusher and Leveler. A neighbor passing remarked that such work as that would not pay. "Why," said he, "we don't put as much work as that on our gardens." To-day, when the winter frosts have done their worst on the fall grain, this field shows that it does pay to take all this care and expend work upon even a field of rye for the grain has an even stand over the field, and the grass and clover have made a perfect catch. With this implement a field may be made to look as well as a garden, and yield as good a crop as any garden could. See advertisement.