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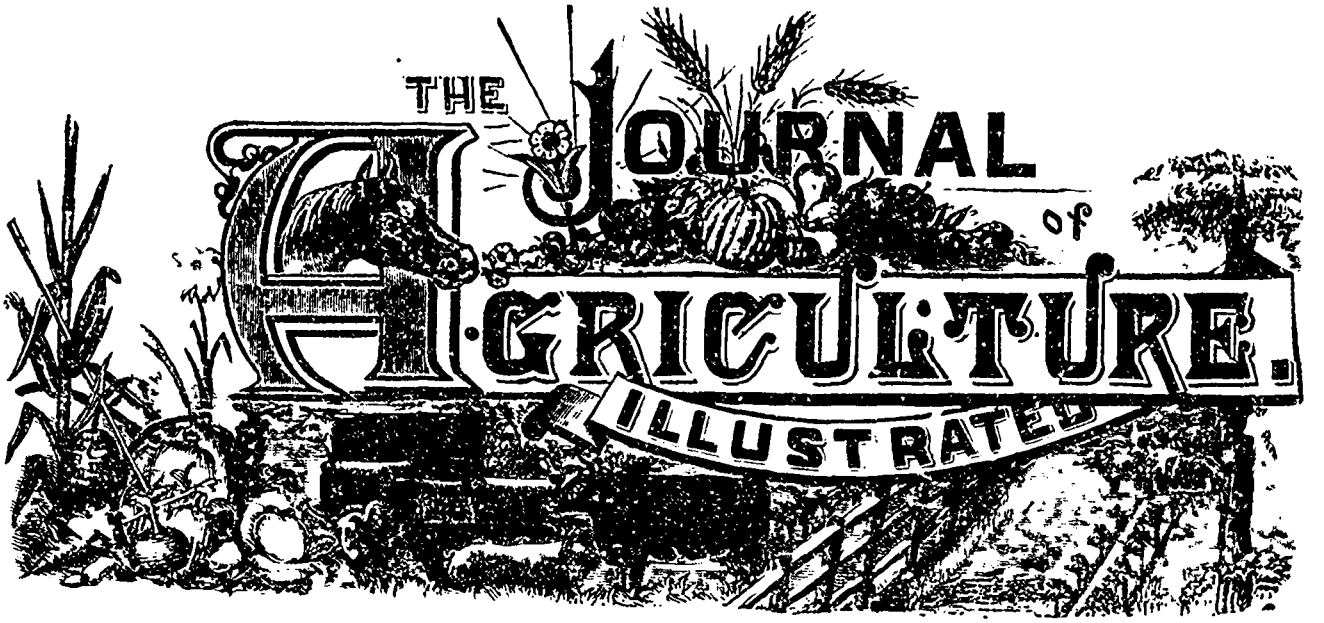

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OFFICIAL PART.

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INSPECTION OF FARMS; I.

Box 23, Sorel, Que.—Sep. 6th, 1886

Having been requested by the Department of Agriculture of the Province to visit the farms of the three counties of De Rouville, Saint-Hyacinthe, and Bagot, I started from Sorel by the South-Eastern railroad on Saturday morning, July 24th, with the intention of making Saint-Césaire my head-quarters for the first few days. My time was limited to six days, and six days they were of very awkward weather—rainy, muggy, and oppressive. However, by dint of sticking to it, I managed to get through a good deal of work and returned home on Monday, August 2nd, with a pretty good notion of the changes that had taken place since my last *tournée d'inspection* through part of the same district, in July, 1880.

Amongst other instructions, I was desired by the Department to restrict my visits to those farms which were in the occupation of men who earned their living from the land alone. This I took to mean, that I was not to inspect the farms of wealthy proprietors, whose means were in the main derived from other sources than agriculture. Consequently, though I should dearly have liked to see them, I passed by such establishments as the farm and orchards of Mr. Charles Gibb, at Abbotsford, and, though I saw it in the distance, I paid no attention to the great institution at Rougemont. By the bye, in Scotland they call a farm and its dependencies *the toun*, as: "*there's nae luck aboot the toun;*" and the Whitfield homestead, with its innumerable stables and barns, really does look like a good sized village at least. Well, I hope, at any rate, that there will be good luck "aboot that toun"; for I have a very pleasant recollection of the frequent hospitality I received there some five or six years ago.

Everywhere in my trip I was received with an obliging courtesy, for which I shall always feel grateful. All my questions were answered freely and without reserve, and every opportunity was offered me for the inspection of both stock and crops. I am particularly indebted to the kind attention of M. J. de L. Taché, Secretary to the Dairymen's association at Saint-Hyacinthe. This gentleman was so good as to place himself at my disposal for the better part of three days, and to him I am obliged for an immense fund of information which, without his assistance, most ungrudgingly afforded, I should have found it hard to come by. My hosts, M. Robidoux, at Saint-Césaire, and M. Perrault, of the Yamaska Hotel, Saint-Hyacinthe, paid every attention to my

comfort, and I would especially advise every body, whose pleasure it may be to visit the last mentioned place, to instal themselves in M. Perreault's most comfortable house. The rooms are airy, clean, and comfortable, and the *cuisine* of a very superior class. I can't say much for the beer, though!

The first link of my journey was from Sorel to Abbotsford. Till I came to Saint-Hugues, I saw nothing to speak of in the way of farming. The soil is of an inferior quality—a great proportion of it light sand—and, except the buckwheat, nothing to strike one as out of the common. No roots; small patches of wheat; a little maize in the neighbourhood of the farm-buildings; the hay a thin crop, and as for the pastures, well, the less said about them the better. I really do not know what the unhappy cows are expected to do during the month of August on these bare *pacages*. They evidently get nothing but what they can pick up—weeds and grass-roots—and for a good reason: there is nothing else to give them. I saw several herds, numbering from ten to fourteen cows apiece, and could not help wishing that the proprietors of the same could see the cattle of Senator Guèvremont here, rejoicing, as they do, in a rich feast, twice a day, of oats, maize, tares, pease, and rape, all sown together, and standing so thickly that the scythe can only just manage to cut through the crop. Don't the cows fight to see which shall get hold of the rape first!

At Saint-David, I was told, the wheat was terribly mangled by the wireworm. Many of the fields were almost devoured by this pest, the only parts on which a sufficient plant was left being the headlands and a small space at the end of the ridges. Now herein lies the whole secret of the cause of these ravages. Why were these spots unmolested? The reason is clear: the horses in the ploughs and the harrows turn on these spots; they tramp down the land firmly, and, in consequence the little mischievous beast cannot travel. And it is for this cause that so much use is made in Britain of Crosskill's clod crusher, and Cambridge's wheel-roller. By the bye, I see Miss Ormerod, the entomologist to the Royal Agricultural Society of England, says that rape-cake is not a poison to the wireworm. Perhaps this lady tried it in powder: that is no use: it must be in pieces as big as a hazel-nut. The wireworm will gorge itself with the cake and soon die of repletion; at any rate, it will not work the young roots of the wheat any more. The original promulgator of this remedy—to whom I offer my kindest remembrances—Mr. John Charnock, of Lennoxville, is still alive and active, though in his eighty fifth year. How little did I think when I read his words on the subject, some forty years ago, that I should ever have the pleasure of making his acquaintance.

However, as rape-cake is not likely to be met with here, I recommend every farmer the moment he sees any signs of his young grain-crops turning yellow, to roll the piece immediately with the heaviest roller he can get. It will very probably arrest the traffic of the wireworm, and will certainly do nothing but good to the crop. Though during my tour I saw many good heavy rollers in the farmers' sheds, I was surprised and distressed to see, by the lumpy state of the meadows, how very little use was made of them. I should as soon think of leaving my grain unharrowed as unrolled. I am happy to say that here in the neighbourhood of Sorel, an unrolled piece of grain is the exception, not the rule. I have done that much good, at all events, as, when I came to live here, two years ago last April, the roller, even where there was one, seldom left the shed from one year's end to another.

As the train neared Saint-Hugues, a great change in the appearance of the crops was visible. Every one has heard of the quality of the land in that parish. A rich heavy clay, full of natural fertility, capable of producing heavy crops of wheat, oats, and hay. Not pleasant land to farm; except where, on the slopes of the Yamaska river, the clay is tempered by the sand into an easily cultivated sandy loam, fit for roots, pease, and barley, though rather too light for wheat. As the train was delayed at Saint-Hugues for some little time, I availed myself of the opportunity of making a cursory inspection of M. Timothé Brodeur's farm, which lies on each side of the station. The crops were most flourishing as regards the grain, but a piece of mangels—the first I had seen since starting from Sorel—was full of grass, and looked as if it wanted draining. Some four or five acres of maize looked full of growth, but, not to say too promising, as the greater part of it was shortish for the season and none too thick. I was in such a hurry, to avoid missing the train, that I do not like to speak positively, but I fancy some of the maize was of small *canadien* kind. Now during the whole of my investigation I met with but one response to my question: Which kind of maize do you sow for fodder? *The large Western maize, of course.* I saw the two kinds tried side by side, with exactly the same treatment as regards cultivation and manure: the Western corn was eleven feet high; the Canadian six feet; and the bulky growth of leaves and stem of the former, would exceed the puny growth of the latter in the ratio of at least two and a half to one. Nobody denies for a moment that, where ripened grain is the desideratum, the Canadian corn is to be preferred, but where a vast quantity of green-fodder is demanded, give me the Western. Now M. Brodeur is building a silo to contain about one hundred tons of ensilage, and he, like all the most intelligent men I met on my route, will, for the future, act wisely in striving after the most luxuriant crop for that purpose. I make my compliments to M. Brodeur, whom I was not fortunate enough to see, and, beg to congratulate him on being one of the first of his countrymen to embark on this new voyage. From what I heard everywhere I went, I am sure that a great number of silos will be built during the ensuing year, and, thus, the energetic example set by such men as M. Brodeur, M. Archambault of Saint-Hyacinthe, and the Revd. the *procureur* of the College of Saint-Hyacinthe, will have had their legitimate effect on the slower minds of their neighbours, and the gratitude of the beneficiaries will follow them for many a day.

Passing through the parish of Saint-Simon, I observed many good pieces of grain, especially several of Tartarian oats, whether black or white I cannot say, as they were too far off to discriminate the colour of the grain, though the habit of growth—all the grains on one side of the rachis—indicated the species clearly enough. It is strange, too, to see how very much the bearded wheats have gone out of fashion. After the experience of last year, when the bearded wheat was laid as flat as a pancake, while the Manitoba wheat by the side of it, with exactly the same treatment, was bolt upright, I am glad to see the alteration. The beards can't help retaining the drops of dew or rain, and being surcharged with moisture, must, in a rainy season like 1885, necessarily go down, if there is any thing like a heavy crop. Still no roots, and, which suprised me more, hardly any tobacco! I should have thought Saint-Hugues and Saint-Simon would had produced large yields of the "noxious weed." Noxious, indeed! I like the impertinence of some of the scribbers in the papers!

By the bye, as a very old smoker, I would advise my younger friends not to smoke just before meals. It must, to a certain extent, take away the appetite, and, to that extent, be injurious to health. I think every farmer might, with advantage, grow an acre of tobacco. It is just like hop-growing, no one should go into it rashly or on too large a scale. The more irons we have in the fire, in a general way, the better the farm will pay us. An acre should, if properly cul-

tivated, turn out about sixteen hundred pounds of tobacco, which, at ten cents a pound, would give the farmer one hundred and sixty dollars, a pleasant little *étrenne* for the *jour de l'an*.

At Saint-Simon, all the crops were looking well, except the hay which was not quite up to its usual mark. A number of acres in Tartarian oats, though of course I could not see of what colour. Not that the colour signifies much, as we always found, in England, that the yield was about the same, or, perhaps, that the white Tartars yielded a little more than the black.

I mentioned in the last number of the Journal that Mr. Gylling's oats, grown on the Fosbrooke farm, were black oats but not Tartars. Now, this is a curious thing, as I never before saw black oats growing on both sides of the stem, like potato oats. The loss in yield will be very great, as instead of from 72 to 76 bushels which I fully expected they would turn out, there will not be more than 60 at most.

From Saint-Hyacinthe to Saint-Paul d'Abbotsford the crops were poor on both sides of the rail. Except two pieces of barley, I did not see one good field of grain, and the hay was miserable. Two or three patches of Mellilot—*trèfle odoriférant*—were visible, and I am told they were sown for fodder! Well, if cut very young, cattle may eat it, but except for bees, I should think some other plant would pay better, even buckwheat, of which, strange to say, I did not see one good crop all the way from Saint-Guillaume to Abbotsford.

From Abbotsford to Saint-Césaire the land seems good, but the farming poor. At the foot of the mountain a useful sand, fit for roots—of which I saw none—and barley. The man who drove me said that he sowed three bushels an acre of barley; I fear from what I saw that he did not get much for his pains. Certainly not twenty bushels an acre. There goes something more than plenty of seed to produce a crop. There was one first-rate piece of oats on the right of the road, but in general the spaces between the ridges were far too wide: in some cases there was, I am sure, one-tenth of the land bare. Of course, this arises from the neglect of ploughing out the *crumb-furrow* properly, as I pointed out in the August number, p. 120.

From all I could learn on the spot, the farmers of the Saint-Césaire district have determined to devote their land entirely to the production of hay for the supply of the market of the United States. They sold off all their stock last year, at most ridiculous prices; cows, heifers and all, and I did not see a single sheep anywhere along the vale. "Every body knows his own business best" is a very old saying, and in some cases it may be a true one, but certainly not in this case. It seems to me utter madness to trust, even in our climate, to one crop for the whole profits of the farm. Wages are high, it is true, and labourers not very trustworthy, but time and immigration will cure those defects, and any one can see with half an eye that, good as may be the vale, it cannot go on producing hay for long without manure. The time will come, and that quickly, when the meadows, consisting of nothing but timothy, will wear out, and then the stock must be replaced at an expense as great as the price at which the farm was denuded of stock was small. Besides, the Great West is sending immense quantities of hay into the Eastern markets, and I fear the prices for the only article the farmers I speak of have for sale will not long be satisfactory.

On my arrival at Saint-Césaire, I had a long chat with M. l'abbé Provençal, the curé of the parish. It is to this gentleman, aided by M. Aries and some other men of earnest minds, that the establishment of the Cercle Agricole is due.

The venerable curé seemed a good deal discouraged by the want of interest displayed by the farmers in this most useful institution. He complained that it was difficult to attract them to the meetings of the club, and bewailed, in touching terms, the general apathy that possessed them. Well, I could only counsel him to persevere in so good a road, though I must say that where farmers have given themselves up to the slothful practice of growing hay as their sole crop, it would be hopeless to look for any energetic support from them for even so useful and cheap an assistant as an agricultural club. It does not become me to say that the lectures read before these *cercles* are of any great advantage to the audience, but of one thing I am sure: the friction that goes on between mind and mind at the monthly meetings must inevitably sooner or later strike out some sparks of light. If agricultural clubs and their periodical meetings do good in countries like England and Scotland, where agriculture is so far advanced, still more good must flow from them in a country so very backward as is the province of Quebec.

But I must not depreciate the *cercle agricole* of Saint-Césaire: it would be an act of great ingratitude on my part to do so. On Sunday, after High Mass, I lectured to that body, and to my astonishment found not less than 350 gentlemen assembled in the town-hall to greet me. Now, really, I never expected to see an audience exceeding by one hundred at least, the, to my mind, enormous audience which did me the honour to listen to me at Sainte-Ursule last Spring. It was very satisfactory, and encouraged me greatly, but I wish some of the farmers had asked a few questions. The part of the lecture which seemed to interest them most was, as I anticipated, the part describing the practice of growing rape to be fed off by sheep. The Hon. J. Chaffee, who is the proprietor of about 600 acres of first-rate land close to the village, seemed particularly struck with the idea, and before I left Saint-Césaire I had a long chat with him on the subject. I made a model of the hurdles used to fold the sheep—such a model! my fingers, except in fly-fishing, fencing, billiards, cricket, &c., are all thumbs – and I do not doubt but that next summer will see twenty or thirty acres of rape grown in the neighbourhood. It is rape land, every inch of it, and where it is in good heart will grow that vegetable without manure, though six or eight bushels of bone-dust, or four bushels with one hundred pounds of sulphate of ammonia, would doubtless, add greatly to the produce. I rather envy Mr. Chaffee his fine estate. He cultivates two farms himself, and the rest he lets out to tenants on shares. But of this more anon. In my next I shall proceed to describe, as well as I can, the system of cultivation pursued on some of the more remarkable farms of the neighbourhood.

Arthur R. Jenner Fust.

DE OMNIBUS REBUS.

Mutton.—As there is a good deal of interest being taken just now, in the United-States, in the quality of the mutton yielded by different breeds of sheep, I note the following from one of my English exchanges:

At Canterbury, it was determined by the farmer's club to slaughter three picked specimens of each of the three principal short-woolled breeds of sheep, for the purpose of ascertaining which breed gave the best quality and the greatest proportion of meat. The three breeds to be experimented upon are the Hampshire-down, the South-down, and the Shropshire-down.

A very interesting experiment, and one well worth trying. Here, in the province of Quebec, we really do not know what *good* mutton means. The sheep slaughtered for consumption are either long-wools, or the little Canadian sheep. The former are coarse, over-fat along the back, and dry, in the lean parts; the latter so lean, hard and flavourless, that one might

as well be eating the flap of an old saddle. Besides the lambs of the year, the males of which are never castrated, the only mutton one sees in the country-towns is the carcases of old ewes, or of rams in the spring. No wonder people declare against mutton. If, however, they could once taste a short-woolled wether of, say, eighteen months old, they would quickly change their ideas of the palatability of the meat. Nothing finer can be eaten; it is succulent, full of flavour, fat enough for all purposes, and tender. In England, instead of being cheaper than beef, as it is here, short-woolled mutton invariably fetches from three to four cents a pound more than the best Scots, Herefords, and Welsh beef. As my friend Mr. William Hale of Sherbrooke announces his intention of "going in for" Hampshire downs, my readers in the Townships will have an opportunity of judging for themselves as to the value of this particular breed. As to the Shropshire-downs, they all, or most of them, must have seen Mr. Cochrane's fine flock at Hillhurst, as well as his Oxfords. The latter breed are certainly magnificent sheep, but to a regular *Down man* they look too much like long-wools to be favourites, retaining very largely the proportions, coat, and colour of their Cotswold progenitors. If Mr. Hale has not yet acquired a Hampshire ram, I recommend him strongly to pay a visit to Mr. Wood of Mount Kisco, New York, portraits of some of whose sheep appeared in a late number of the Journal.

Prosperity of Agriculture. — What queer ideas some people have of what constitutes prosperity in farming. The Graphic, of London, says, in a recent number: Agriculture shows little signs of taking fresh hope. Wages are lower, rents are lower, prices of fat beasts and fat sheep are higher.

From which statements I deduce the following conclusion, viz., that the Graphic looks at the question of agricultural prosperity from a purely landlord's point of view. For, if what the farmer has to buy—land and labour—is cheap, and what he has to sell—beef and mutton—is dear, it must be clear to every one that he must be doing well. What nonsensical rubbish even such papers as the Graphic do admit into their columns.

Potatoes.—All the potatoes in this neighbourhood gave up growing by the second week in August. Lots of small tubers but none of any size. Land, in consequence, very foul, as the absolute absence of the shade afforded by the tops, gave full liberty to the weeds to spread as they pleased. Well, the horse-hoeing *between* the rows is now fairly attended to by most of our farmers, and I do not despair, with time, of persuading them to give a little attention to hand hoeing *in* the rows. At present, they won't hear of it, and almost boast of neglecting it.

Too much land.—If a man has a couple of islands to look after, an off-lying farm, in hay, to manage, besides his own home-farm of 180 acres; is it likely all the three can be well done by?

Such is the case of one of my friends here, and the consequence is that during the proprietor's absence—haymaking—at the two off-farms, the root-crops on the home-farm were neglected. The growth of weeds during the three first weeks of August exceeded anything I ever saw; and the cost of eradicating them was about double what it would have been had the attack been made when they were in their infant state.

Cheese.—Cheese in England, at the end of August, was worth $9\frac{1}{16}$ cents, and in Montreal 9 cents. Would $\frac{1}{16}$ of a cent pay c. f. and i. to say nothing of commission and profit?

Superphosphate.—This manure is cheaper and cheaper still in England, but the price here remains unchanged.

English superphos., guaranteed, 26 %...$10.60 per 2000 lbs.
Canadian do not guaranteed, 26 %... 26.00

Balance..... .....$15.40

Well, if the manufacturer can get such a price I do not blame them for making such a charge; only it seems to me an absurd weakness on the part of the farmers to go on paying it. The truth is, I suppose, that so little is used that it is not worth while bothering about it.

Prickly Comfrey again:—A gentleman of good repute writes me word from Edenbridge, Kent, Eng., that he has succeeded well with this much abused crop. Will Mr. William Hale kindly let my readers know how his comfrey has turned out? I know he was growing it in 1880, but I have heard nothing about it since.

ARTHUR R. JENNER FUST.

FEEDING CALVES.

Prof. W. A. Henry, of the University of Wisconsin, gives the following summary of the results of elaborate experiments carried on by him in calf-feeding:

In a study of these tables we note that the young calves made the largest gains for the food consumed, which is in accordance with established facts.

To ascertain the value of the milk fed it is assumed that each pound of growth is worth four cents, and that hay is worth $8, oil meal $25 bran $12 and ensilage $3 per ton, and oats 32 cents per bushel, or a cent a pound. Charging these prices for all that the calves ate, we get the value of the food other than the milk consumed. By substracting this sum from the value of the increased weight at four cents per pound, we have left the sum to the credit of the skim-milk. In the last column we have the value of the skim-milk per 100 quarts as returned by each calf in accordance with the above assumptions. This it will be seen varies from less than nothing with the last calf, in the second trial, to 71 cents per 100 quarts with the fourth calf in the first trial.

Two of the calves were sold before the expiration of the trial, so that the average period is in fact twenty-one weeks instead of twenty-two.

The average return from the six calves for the whole period of twenty-one weeks, after allowing for all other food articles consumed at the prices before named, is 48 cents per 100 quarts of skim-milk, or about 24 cents per 100 pounds.

Whether the assumptions that lead to the above conclusion are correct or not, each reader can easily settle in his own mind; the prices allowed for the food articles are certainly high enough, and a gain of 100 pounds in the weight of a calf would seem low enough at $4. If the value of these several articles is reduced, then the value of the skim-milk rises proportionally. I am confident from experiments made that 100 pounds of growth cannot be made for $4 when the calf is allowed to suck the cow. Twenty-four cents for 100 pounds may not seem a very high price for skim-milk; yet with the present prices for cheese, full-milk at the factory can scarcely realize over 50 cents per 100 pounds to the producer.

These six calves together gained 1,544 pounds, or over three-quarters of a ton in twenty one weeks, being an average of over 12 pounds each per week.

The first three of the calves stood in a basement barn, where it seldom froze during the coldest weather. The last three stood in a barn only partly occupied by stock, and where it froze almost as hard as out of doors. The conditions were certainly no better than the average farmer can give to young stock.

We have had both good and poor results from feeding skim milk, and as a summary of experience offer the following hints:

Feed skim-milk lightly. Eight to nine quarts in three feeds is sufficient to make a thrifty calf gain from 12 to 14 pounds a week.

More calves are killed by over-feeding than under-feeding.

Feed three times a day if you wish good results.

Never let the milk go into the calf's stomach colder than 98°, Fahrenheit. Use the thermometer regularly in determining the warmth of the milk.

Make lime water by putting a lump of lime the size of a hen's egg into a jug of water and shaking. When the water is clear it is ready for use. Keep the jug corked tight at all times. A tablespoonful of the clear lime water may be given with each feed if the calf shows any signs of scours. If scouring occurs reduce the amount of milk at once. An egg stirred in the milk and parched flour are both excellent remedies. Over-feeding, not feeding often enough, irregularity, and cold milk are the principal causes of scouring.

Teach the calf to eat whole oats by the time it is three weeks or a month old by slipping a few small handfuls into its mouth just after it has drunk milk. When it has learned to eat them keep a supply before it in a little box. If you haven't oats enough for the horses and calves both, let the horses go without, rather than the calves. Don't waste time grinding the oats. Bran, oil meal and other articles are good but oats is the most satisfactory of all. I never knew of a calf eating too many. While young, keep each calf tied by itself and if the flies are troublesome darken the stable. Don't put the young things out into the hot sun with the idea that the little grass they may eat will compensate for the blood sucked by the myriads of flies that pester them. We have had less trouble and better results with winter calves than with those that come in the spring.

Dismiss all prejudice that a skim-milk calf must be a stunted, unsightly thing. We are making as great advancement in calf rearing as in butter or cheese-making, and old ideas must be put away. (1)

PREPARING LAND FOR WHEAT.

Eds. Country Gentleman—The profit of the wheat crop depends upon the product, a yield of ten or fifteen bushels being made at a loss, while one of thirty or more bushels gives a very fair profit as times go. Moreover, the yield depends very much upon the manner of preparing the land, and it is in this particular point that farmers, for the most part, fail. The common rotation which brings wheat after oats or corn is, I think, faulty, because the most exacting crop of all that are grown follows one that is almost as exhaustive of the soil as regards every element of fertility in the soil. The following table will exemplify this point:

COMPOSITION OF WHEAT AND OATS.

Per cent of	*Nitrogen.*	*Potash (of the ash).*	*Phosphoric acid (of the ash).*
Wheat, grain.....	2.4	22.04	50.01
straw.	0.4	9.00	3.00
chaff.....	1.0	9.00	4.03
Oats, grain.....	2.9	17 08	26.05
straw.....	0.4	29.00	
chaff	1.0	13 00	6.03
Wheat, entire ears...	2.1	12.57	17.16
Oats, do.	2.7	13.51	13.60

(1) Pretty much what I have often said in this Journal.—A. R. J. F.

I know this is contrary to the general belief that oats are easy on the land, but I remember stating my experience in opposition to this general belief in an article in the Country Gentleman about twenty years ago, and several readers then corroborated my views. Since then continuous observation and study have confirmed my opinion that it is a bad practice to follow oats with wheat. (I ought to say that the above figures are calculated from analyses given in Stephens & Seller's Physiology of the Farm.) Consequently I would urge a change in the rotation, so that either clover should be sown with the oats, or the oat stubble be plowed immediately after harvest and clover sown as a special crop, and become intermediate between the oats and wheat, so that the second growth of clover should be plowed under as a preparation for the wheat, aided by a liberal dressing of good manure spread upon the clover as soon as the hay has been taken off. This will make a preliminary fitting for the wheat crop, and one in every way so excellent that it has given me a yield of very nearly forty bushels per acre, while after oats I never got more than twenty-five bushels, with every care in preparing the land.

The preparation of the land for wheat should be consistent with the character of the soil and the habits of the crop. Wheat requires a deeply worked soil, with an abundance of plant food mingled deeply with it, so as to encourage the roots to go down where they ought to go. (1) Top-dressing is a bad practice, because it keeps the roots near the surface, where they are destroyed during the winter. The most thorough tillage is indispensable. I would strongly advocate the early plowing of the land, oat stubble or otherwise, and all the more particularly if it is oat stubble, as soon as the oats are off, and before the soil becomes hardened and baked, so that the plow-share cannot be got deep enough, and the land is turned up in clods. As soon as the plowing is done, the harrow should be got to work and kept at work until the soil is perfectly mellow and thoroughly compacted. A good test is to go over the field with a walking-cane and push it into the soil. If it goes easily six inches—or more, if the soil is rich to that depth—without meeting with any obstruction anywhere, and the soil bears up the foot moderately well, it is in good condition for wheat. Harrowing is rarely done well, and yet it is equally as important as the plowing. Merely to level the surface and make it smooth, is covering a multitude of evils with a coat of useless polish. I would rather have the surface lumpy, so that the subsoil is fine, and the seed can find a safe and congenial bed for its germination, and in which every rootlet can find food and safe contact with moist earth. Otherwise the seed falls into the numerous cavities between clods, and there sprouting and pushing out its spire and roots, fails to get a hold upon the soil and dries and withers.

The roller is a useful implement to secure this mellowness and compactness of the soil required by this crop. But it should be used between the harrowings, and never so as to encrust the soil with a hard, firm "soab" over the seed, which is exceedingly injurious, by depriving the soil of moisture and air, and forming an obstacle to the passage of the spire through the surface. (2) The last operation in preparing

(1) Quite right. The seed of fall-wheat should be deposited at least three inches deep. A. R. J. F.

(2) Very good Next month I shall publish a letter from an opponent of Mr, Stewart's views, q. v. A. R. J. F.

the soil should be a final harrowing; and this should be done so as to secure the passage of the teeth to their full depth in the soil, by which any remaining lumps are brought to the surface, and the fine earth is worked down under them to form the seed bed. At the same time, the manure is most intimately distributed so that every plant can have its share. and the too common sight of a luxuriant bunch or stool of wheat among a lot of poor weak plants may not be seen. This is of course waste; for the weak plants die for want of nutrjment, and the luxuriant perish from plethora.

The sowing of the seed is necessarily done consistently with this preparation. The seed bed being three or four inches below the surface, the seed ought to go there, but it cannot get there by being sown broadcast, and merely harrowed in. Drilling or working it in with a cultivator only can do this. Plowing it in is a slow and costly process, and does not cover the seed evenly. Every farmer who grows ten acres of wheat every year should use a drill; it saves half a bushel of seed per acre; saves some time, and will increase the crop sufficiently to pay the whole cost of the drill each year on ten acres. The common reversible tooth cultivator, run to the full depth of the teeth, covers the seed moderately well, and much better than the harrow, because while a few are covered too deeply, none are left on the surface. The Acme harrow is better than the cultivator, and takes a wide sweep, doing the work in every way exceedingly well, and a light boy can ride and drive it. No roller should be used after sowing the seed. (1) If it can do any good at all, it is untimely, because its good work should have been done before, when the good of it would be useful. After the seed is in the ground, I do not know of any kind of soil that can be helped by rolling, and most will be injured. I would make an exception on hard clay soil, which is difficult to break fine, and in favor of the roller with **V** shaped discs, which is incomparably better than a flat, smooth roller. This roller is made of a number of discs of 2-inch plank laid double, crossing the grain and sharpening the edges all around They are fastened on a strong shaft, in sections three feet long each, so as to facilitate turning of the roller. The sections are mounted in a frame in the usual manner. This roller does really effective service, crushing lumps and leaving the surface corrugated, so that it does not bake, but is kept mellow by the gradual wearing down of the ridges; and this keeps the growing wheat earthed up and protected.(2)

HENRY STEWART.

STOCK AT GRASS

The story, often quoted, of the English farmer who, stepping into his meadow to take his lunch, threw down his walking stick, and upon hunting for it afterwards could not find it, because the grass had completely overgrown it, was not new when told; but it is a poor story that will not gain something by being re told. The original story relates that once upon a time a Roman was walking home through the richest piece of land in ancient Italy, one evening in the early spring, and, sitting down to rest a moment, laid aside his walking-stick and forgot it. Upon returning for it early in the morning, it could not be found, and was not until after harvest. The grass had grown so much in a single night as to completely cover it from sight. If this be true, there were good meadows in the old Roman times, but the historian perhaps did not allow a slight embellishment to stand in the way of a good story. (1)

The quantity of stock that can be fed on any defined quantity of pasture depends upon such a variety of circumstances, that it is impossible to give anything like a fair average. The quality of the soil, the situation in which it lies, the state of its cultivation, the condition in which it was laid down, the nature of the climate, and many other circumstances have powerful effects on its value, and there is such diversity in all these respects, that no correct estimate can be formed upon two subjects which everyone will admit to be extremely intricate.

It is stated in the Berwickshire report that rich feeding land will produce 224 lb. of beef per statute acre. We are also told that an acre of grass at 40s rent should give 200 lb. of mutton, or at the rate of 5 lb. for 1s. rent; but these proportions would now need to be considerably altered. An acre of grass, consumed by milch cows kept for dairy husbandry, will make a return of higher value; but then it must be considered that there are many expenses in the one case which are not incurred in the other.

The leading principle in this business is never to stock in such a manner as to restrict the animals in the least, as it is by their being enabled to fill themselves quickly and to lie down much that the greatest progress and advancement in fattening is made. Another circumstance is necessary to be attended to, in order to bring grazing stock properly forward in the pastures, and that is changing them frequently, also there should be a full bite on the pastures before stocking. Sheep pastures, however, should be eaten bare. (2)

Rich grazing land should be stocked with at least both cattle and sheep, if not horses too, so that the grass may be eaten clean off, otherwise much loss ensues. Each of these animals prefer, as most palatable food, some grasses which the others are less fond of, and none of them will bite near their own dung, though they may near that of others; and thus mixed stocking contributes to keep the pasture level. By one part being left higher than another, the long grass keeps increasing in patches, and the animals will not eat it. Then, by leaving the sort of grasses the animals refuse from year to year, the land increases in useless plants, and diminishes in usefulness, as the seed of the former continually drops, and the useful ones are prevented seeding by the cattle eating them. If such pastures were resown in these places it would give the useful plants a chance to grow.

Instead of grazing stock mixed, some prefer a rotation of pastures—having, say, four fields—the cows in one, the horses in a second, and sheep in a third, while the fourth is vacant; then changing the stock each shift to the spare field, the cows the second round following the horses, the horses the sheep, and so on. The change of the different kinds of stock from one pasture to another could be at the expiration of one week of growing weather, or every two weeks in time of drought. The same purpose is served, however, where stock is grazed on the mixed system, by having the pastures divided, and keeping always a fresh field or two in reserve, laying up the fields alternately every week or fortnight, as is most convenient.

If any part of the pasture be getting into bents, or higher grass than it ought to be, and the animals begin to neglect it, mow immediately, and as near the ground as possible, for the closer you cut down such coarse parts the sweeter and the quicker will the grass spring up in the place. As the nearer the bone the sweeter the meat, so, the nearer the ground the

(1) Certainly not. No English farmer ever rolls any wheat land in the fall, except the clover-leys when the seed is to be dibbled.
A. R. J. F.

(2) Mr. Stewart has evidently seen English farming and profited by what he saw. There is no objection to pressing, or rolling with a Crosskill or Cambridge wheel-roller. It is the smooth surface left by the ordinary roller that makes a dangerous skin on the land.
A. R. J. F.

(1) According to the Leicestershire version, ate his luncheon and smoked one pipe. A. R. J F.

(2) How often have I insisted upon this? A. R. J. F.

sweeter the grass. It is not so much the quantity as the quality of the food that must be attended to. The further proof of the advantage of hard stocking, it is observed that it is a common complaint, that the land is good in spring, but it goes off. Is this to be wondered at, when one-third, or perhaps one-half, of the field is become so rank that no one animal in the pasture will bite a mouthful of it? Suffer the very best piece of grass land, entirely free from weeds, to be without either eating off the grass, or mowing it, and in a few years it will be overrun with weeds, have very little useful grass in it—in fact, be little better than rubbish. There can be little doubt of the beneficial consequences of hard or close stocking on the older sorts of grazing land; but on the new lays it should probably be seldom attempted, as injury may be done to such lands.

By hard stocking we do not of course mean overstocking, but merely the periodical feeding bare of the pastures. Old Tusser's warning should be kept well in mind:—

For coveting much over-stock not thy ground,
And then shall thy cattle be lusty and sound;
But pinch them of pasture, while summer doth last,
And lift at their tails ere a winter be past. (1)

A Grand Guernsey Cow.

We doubt if we have ever seen a better dairy cow than the one represented above. She was calved July 19, 1883, was bred on the Island of Guernsey by James James, and was imported this summer expressly for Mr. I. J. Clapp, of Kenosha, whose large and valuable herd of Guernseys has been heretofore noticed in these columns. She is very large for a cow of her age, although she now has her second calf by her side, and has all the marks of a rich, deep milker. Her skin is of that rich orange color so characteristic of the Guernsey breed, and her shape is very nearly that of the model milch cow. Our artist has succeeded in presenting a very faithful likeness of her in every particular, as she stands with her calf lying by her side. She cost her present owner a large sum, and is regarded by him as well as by many other experts as the very best cow of the breed in America. She has never been tested for a milk or butter record, but it is Mr. Clapp's purpose to give her a test at an early day. She has been repeatedly shown, and we believe has never been beaten. We saw her at the late Kenosha Fair, where she was universally admired.

OUR ENGRAVINGS.

Guernsey cow.—See article on this page.

Aberdeen-Angus cows.—See page 157.

Tomatoes.—These tomatoes were photographed, but not too clearly. The cut shows the single stem plan of growing this crop. Though I planted them late, the fruit began to ripen the last week in July. The greatest number of tomatoes on one plant was seventy-four; a pretty fair yield for the very poorest land on the Sorel sand. A. R. J. F.

"General purpose cow!" The expression is a nonsensical one. Every "Jack-of-all trades" is more of a nuisance than a convenience. Milk and beef qualities are as far apart as trotting and draft qualities are in the horse. Old Patchem did his trotting about as a dray horse pulls a load, by main strength, but I never knew of another like him. I never knew a typical Short-horn to make a good milker, and I never saw a milking Short-horn that would lay on flesh. The farmer does not want one of these "general purpose" cows at all. To care for either a milk dairy or a herd of fat cattle is all one man wants to do. I am a dairy farmer. Now and then I have to sell an old cow or a cripple for beef, but I never calculate upon it. I claim that my milch cows do so well that when their milking days are over I can afford to give them a decent burial and still be ahead. This keeping a cow for eight or 10 years and then being obliged to sell her for beef, in order to come out whole, looks to me like very poor business. We don't need any "general purpose" cows; aim at the bull's eye, and not at the whole target. Decide upon what you want—beef, milk or butter—and then breed for that special purpose. Have a definite purpose and a steady aim.

R. N. Yorker, Auburn, N. Y. D. P. H. (1)

(1) A most sensible article. Here, the pastures are all in one piece, and the cattle by the 20th July are in a wretched state. A. R. J. F.

(1) What a wasteful person D. P. H. must be! And the poor to whom cheap and plentiful meat is such a blessing, what are are they to do? A man who says that he never saw a "milking shorthorn" lay on flesh, is a man whose experience in shorthorns must be very limited. An assertion like the above will not, I hope, delude any of my readers. A. R. J. F

(2) Any mild skim-cheese will do. First-chop. A. R. J. F.

(3) Nothing easier.

Veal cutlets are a delicious change from the ordinary methods, when prepared as follows: Trim some cutlets into a neat and uniform shape, and dip them in melted butter, them into bread-crumbs, to which grated *Parmesan* cheese (2) has been added in the proportion of two tablespoonfuls of the cheese to six of the crumbs; the mixture should be salted and peppered. Dip again in beaten egg and again in the mixture of cheese and crumbs, and fry brown. Boil a small quantity of maccaroni, about a quarter of a pound to eight or ten pieces of the cutlets; when done, drain it and pour over two tablespoonfuls of melted butter, two of grated Parmesan cheese, and half a cup of tomato sauce, to which has been added the well-beaten yelk of an egg. Place this maccaroni in a pile in the center of a dish, and the cutlets in a circle around it. In the preparation of the maccaroni no mention was made of seasoning, but it must be boiled in salted water and salt and pepper be added with the butter, cheese and tomato sauce.

CLOVER AS A FERTILIZER.

WALDO F. BROWN.

Objections to clover hay; ten years' experiment; a two years' rotation; worth of clover turned under per acre, how to avoid failures in clover; when to sow clover; evil of pasturing clover in the Fall and early in the Spring; Mammoth Clover most profitable.

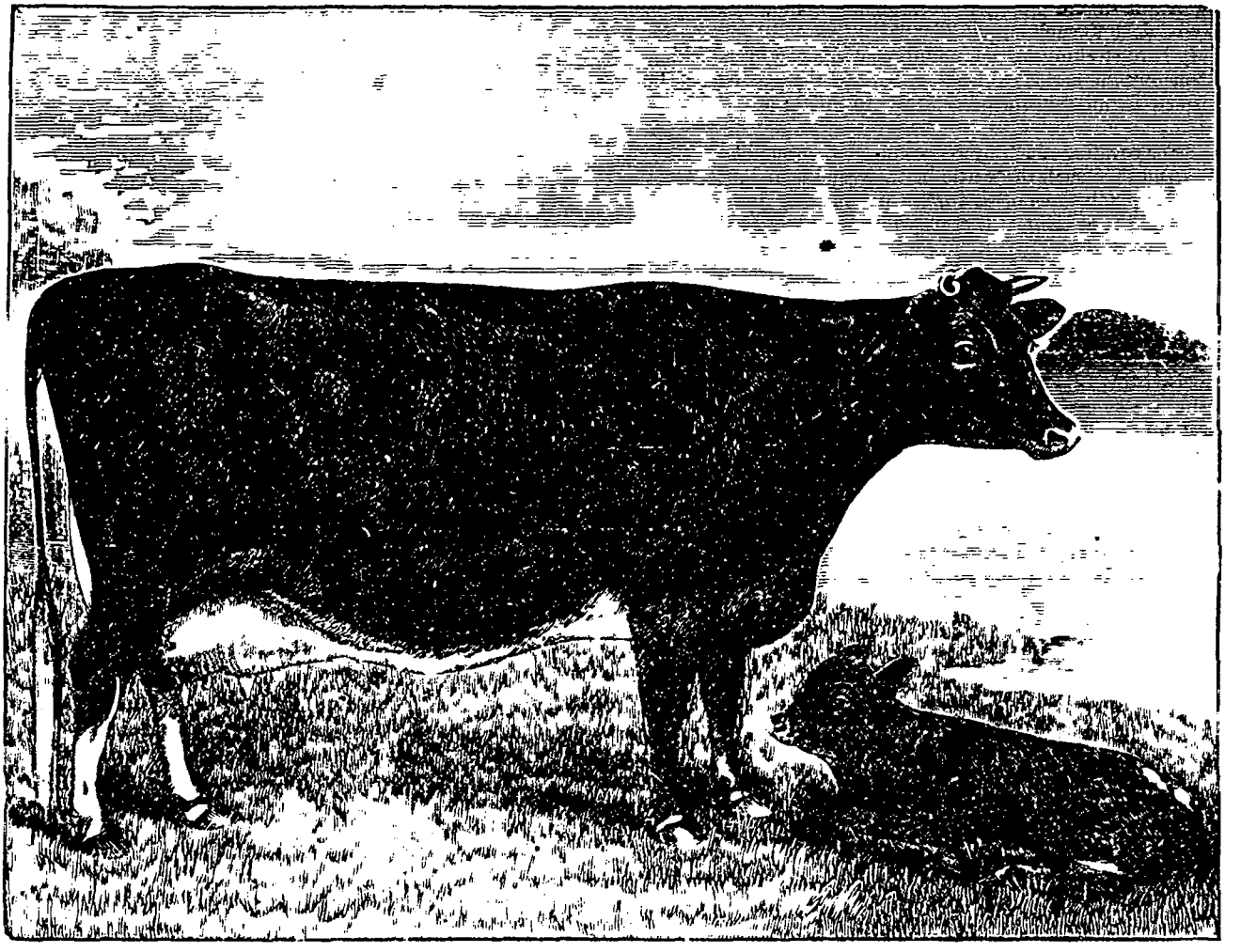
For more than a quarter of a century I have followed the rule of sowing clover on all small grain, and yet, except when I cut it for seed, I make but little use of the crop except as a fertilizer. In the system of farming followed in our Miami Valley we need but little hay, for every farmer has each year a large straw stack and abundant supply of corn fodder, which enable him to winter his stock well without hay, if he so desires. My objections to clover hay are: first, the difficulty in curing it well,(3) ripening as it does with us early in June before the heat of Summer has come to dry the land thoroughly and give us good hay weather, and, second, that the work of cutting and curing comes at the busiest season of the year when our corn and other cultivated crops need all our attention in order that we may have them clean and in good condition before wheat harvest.

For the first fifteen years in which I managed the farm I now own, I bought a large amount of manure at the village two miles distant, to keep my land up to a high state of fer-

tility. As I noticed from year to year the fertilizing effect of clover, and compared it with manure, I became convinced that I could keep my land up as well with clover as by the purchase of manure and with much less cost and labor. Ten years ago I set apart twenty acres of my best land for an experimental plot, to determine whether I could grow a crop of grain every year and keep up the fertility with clover. I adopted a two years' rotation, begining with wheat with which clover was sown, the latter being allowed to make all the growth it would after harvest, being neither pastured nor cut but plowed down either in the Fall or the next Spring. I find that unless the season proves very dry, I can grow a crop of clover to its full development, after harvest, and I have never failed to grow enough to be of great benefit in fertilising the soil. Our wheat was cut this year between the 21st and 27th of June: at this date (Aug. 2,) the clover has entirely overtopped the stubble and is blooming freely and on the richer parts of the field it is laborious to walk through it, the growth is so rank and tall.

Have I made my rotation clear? Half of this land is in wheat every year, and the other half in corn or potatoes. Then the part in corn or potatoes is sown in wheat, and that which was in wheat has a heavy growth of clover which is plowed down, and this part is planted in corn or potatoes. Thus you will see that I grow three crops in two years, two grain or root crops, and one fertilizing crop. (1)

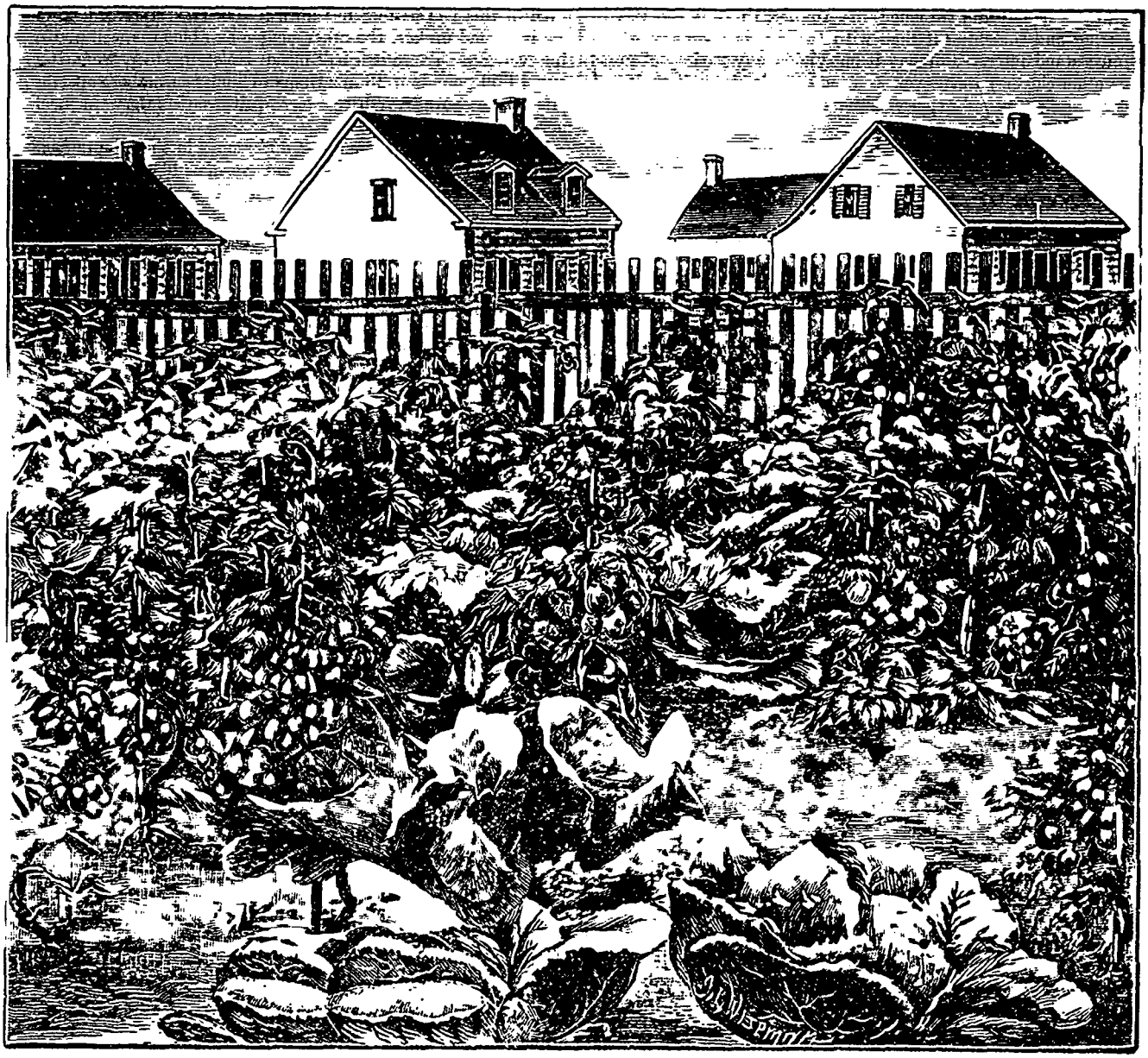
When I take a man out to show him what a growth of clover there is on my stubble fields I am usually asked, "Can you afford to use all this clover for the land? Why don't you cut it?" I smile as I reply, "Before I adopted this plan I put twelve loads of manure on an acre, which cost me $9 in money and three days of hard work with a team, while this clover has cost me only the outlay for seed and sowing, which is rarely $1 per acre. My land is cleaner and more easily worked than if I used manure, and I believe that under this plan I get $15 for one, for I value my clover crop at that for fertilising. By this plan I can fertilize as many acres as I choose each year, while if I depend on manure it is often impossible for me to get half what I need, or to find time to draw it if I could get it. In a wet time, when the fields are soft, I cannot wagon over them at all; but that is just the weather when my clover makes the most rapid growth. Understand, I do not depreciate the value of the manure we save, and I apply all I can get at home; but I no longer buy and draw it from the village.



IMP. GUERNSEY COW, ROSEBUD OF LES VAUXBELETS 4TH.

(1) In a short time Mr. Brown will find that his land will absolutely refuse to grow clover at all. At present it is "*Athanasius* (Brown) *contra mundum*," and *mundus* is right. A. R. J. F.

"But what do you do when you fail to get a stand of clover?" I hear some old farmer ask. Well, to tell the truth, that would seriously interfere with my rotation; but I don't have failures. "How do I avoid them?" First—I make sure that I have good fresh seed, by either growing it at home or buying it of a neighbor (usually the latter); but if I buy from the stores I test it. Second—I sow early on a bright, clear morning, when the ground is frozen sharp and



TOMATOES.

I am sure of a rapid thaw before noon. This covers the seed thoroughly and it is sure to grow, and not till the right time. It will not sprout as quickly when covered in this way as it would if lying on the surface, and if it does sprout, the earth protects it when another freeze comes, and if the weather is dry and the sun hot it does not perish as it would if lying on the surface. "But you lose the fall pasture?" Yes; and it is a loss greatly to my gain. A large percentage of the clover of the country is permanently injured by pasturing after harvest, when the plants are tender and much of the land sown in clover receives little or no benefit because of this, and turning on it too early in Spring. (1) One great benefit clover imparts to the soil is by its dense shade, under which chemical action is induced and nitrates are formed, and plant food in the soil is rendered available, and fields which are closely pastured fail to get this benefit. (2) My plan of utilizing clover also saves all injury by tramping, which on clay lands is considerable and cannot be avoided if the clover is fed off. Incidentally also you will notice the saving of fences, for I have done away with division fences on 60 acres of my 90-acre farm.

(1) True enough! *Oh, si sic omnia.* A. R. J. F.

(2) Mr Brown "lays it down pretty positive, he does," as Mrs. Gamp would say. I should like to see some proof that "chemical action is induced, and nitrates formed, under the benefits clover imparts to the soil by its dense shade."

Six years ago I sowed the Mammoth or Sapling Clover, on four acres as an experiment, and every year since I have had a field of it. I think it more profitable for most, if not for all purposes, than the common Red Clover, and think that hereafter I shall sow nothing but the Mammoth. It makes a much larger growth and shades the land more thoroughly. It is about a month later, and usually the weather is hotter and the land drier, so that it is more easily cured if cut for hay. It yields more seed, and as it seeds in the first crop and can be cut and threshed in August, there is less risk in curing and thrashing it than with the common variety which must stand later. For hay it out-yields any variety of grass or other clover I have ever seen, and stock do well on it. I can from six years' experience heartily recommend farmers to give it a trial. (1)

IN FAVOR OF THE "GENERAL-PURPOSE" COW.

PROFESSOR G. E. MORROW.

I am not able to agree with much that is being written and published in favor of the position that it is absurd and ridiculous to attempt to breed any class of animals for more than one purpose. Especial argument, ridicule and sarcasm have been directed against efforts to secure a good degree of merit as beef-makers and milk-givers in any breed of cows. None the less do I believe that it is desirable and practicable to secure this result: that for a large percentage of the farms of the United States cows of this class — "general-purpose" cows, if you please—would be better adapted than those with marked excellence for the one purpose, coupled with inferiority for the other, and that there are vast numbers of cows which do combine in a satisfactory degree good size, form and aptitude to lay on flesh, with ability to give a good quantity of good milk. I have seen many such cows.

Beef-making and milk-giving are natural functions of the cow. It is not contrary to the principles of breeding and is in accord with experience that these functions should be well developed in the same animal. It is unusual to find them both developed to a remarkable degree. In regard to these qualities, as well as to many others, the breeder may make his choice between efforts to reach remarkable excellence in one point or a fair degree of merit in two or more. It is clearly true that in many cases the latter effort is the wiser.

Urging all breeders to select some one point, and seek to develop that to the greatest degree, is not wise. There is a demand for animals so developed—for horses with special fitness for heavy draught, or for fast trotting; for cattle especially fitted for beef or for milk; for sheep remarkably developed in the way of either mutton or wool production; but the largest number of users of either class desire animals reasonably well adapted for more than one purpose. The horse best suited to the needs of farmers generally, or for most business purposes, is neither a heavy draught nor a typical roadster, and so of the other classes of animals, even to the hog, in breeding which too exclusive attention may be given to early maturity or to ability to lay on flesh.

Aside from the farmers who keep cattle with almost sole reference to beef-making, and the special dairymen, there is a vast number who know what they are about when they insist on having cattle satisfactory, both as meat-makers and milk-givers. Unquestionably its merit in this double capacity has been a great cause of the widespread popularity of the Short-horn both in Great Britain and in this country. It is amazing that men will continue to deny or ignore the fact that there are many thousands of pure-bred or high-grade Short-horn cows which are in a satisfactory degree, what it is denied there can possibly be, good general-purpose cows. There are many Short-horn cows that are not good milkers, many that are not good beef animals, and many that are both. The same is true in some herds of cattle of a number of other breeds. On the University Farm there is to-day abundant proof of this fact as to Short-horns. Of two Hereford cows one is a good milker, the other not; a half-blood is well above the average. There is a half-blood Holstein steer, weighing over 1,650 pounds at 28 months, and a beef animal of superior quality; a pure Ayrshire steer quite satisfactory in beef merit.

I recognize fully the marked differences in the adaptations of different breeds and of different animals belonging to the same breed, but dissent from the position that it is impracticable or always unwise to secure development in more than one direction in one breed or one animal. (1)

University of Illinois, Champaign, Ill.

(1) At Rougemont, I was told that the farmers did not sow Rawdon clover because the crop was "difficult to make on account of its bulkiness.' I think my informant must have been "larking" me!
A. R. J. F.

(1) I need hardly say that I agree with every word that Professor Morrow says. Compare his note with the article written by D. P. H. v. p 151, and say, my readers, which of the two is the more consonant with reason. If the general purpose cow were not of some value—be she Short-horn, or be she Devon—would every English dairyman and farmer keep general-purpose cows? *pas si bêtes!*
A. R. J. F.

Pleuro-Pneumonia.

A most distressing attack of this grievous disease appears to have broken out among the valuable imported stock in quarantine at Quebec. I had heard of outbreak of the kind in England, and the Scotch papers were quite silent about it! However, the energetic treatment adopted by the Veterinary surgeon in charge of the quarantine, M. Couture, will it is hoped and expected check any spread of the contagion. I speak feelingly on this subject, for in 1849, when the disease first made its appearance in England, an unlucky purchase at Smithfield introduced the scourge into my herd, and I lost nine cows, five heifers, and eighty or ninety pigs in less than six weeks.
A. R. J. F.

Flavoring the Pasturage.

In conversation with a *Mail and Express* reporter, an authority at Fulton Market to-day said: "The superior flavor of Welsh or Highland mutton is beyond all doubt due to the aromatic plants which abound on the pasturage of these hills, and on which the sheep feed. The hills in Wales are thickly covered with wild thyme, while those in the Highlands are full of lady's mantle and other aromatic herbs which are seldom, if ever, found in other pastures. This is a hint of nature's own giving, which the farmer who goes in for sheep raising or dairying cannot afford to despise in these times of hard competition. The aromatic herbs may be no less nutritious than clover or rye grass, but they are just as needful to the formation of a perfect pasturage as the other varieties of plants. For this reason they should be grown in all pasturages. They are easy of cultivation, and will grow in the worst ground, but some are of course better suited to certain kinds of soil than others. Parsley, lovage, cumin, coriander, carraway, angelica and wild fennel delight in loamy soils, wild thyme, rock rose, hyssop, sage, savory and horehound, in dry, poor soils, and peppermint in moist soil. All these plants are obtainable, and all of them are easily propagated from seeds.—*New York Mail and Express.*

The above extract from an exchange is another specimen of the utter trash that gets into respectable papers. The *potherbs* mentioned require, each of them, peculiar soils in which to develop themselves, and I doubt if an acre of land could be sown down with them for less than one hundred and fifty dollars at the lowest computation.

Cattle-boxes.—I observe that Mr. Clarke, in the Country Gentleman, propounds the theory, that many of the diseases to which cattle are subject derive their origin from the practice of feeding cattle in boxes. As few probably of my readers have ever seen this plan of fatting cattle, I may as well describe the mode of carrying it out.

The boxes, as they are called, consist of several railed in spaces under one roof, generally in a double row with a gangway between them for the feeder to supply the food. Each box intended for cattle of the size usually found in this part of the world,should be about eight feet square, and sunk in the ground to a depth of two feet: the sides may be boarded or bricked up to the original level of the ground. The gangway will of course remain untouched. The trough out of which the animal takes its food is made to move up and down between two posts, according as the bedding becomes high by accumulation, or low by the removal of the dung. Litter is added when required, and the cattle are at liberty to walk round and round the box as they please. The boxes are separated from each other by strong bars, with sufficient intervals between them to admit of the cattle passing their heads through and withdrawing them with perfect ease. This should be carefully attended to, for I well remember, somewhere about 1850, losing a fine shorthorn bullock—nearly fat too—by his choking himself between the bars of his box.

Mr. Stephens, in his Book of the Farm, objects to the limited space allotted to each head of cattle; but, from long experience, I can safely state, that in no other form of confinement do fatting beasts ripen so quickly. The dampness, of which Mr. Stephens dreads the effects, as having a tendency to injure the progress of an ox towards maturity, does not exist; for the bottom of the box is thickly littered at first, though very little straw is necessary afterwards to keep the animal perfectly dry. The best proof of this is, that the bullocks confined in boxes, if they are properly cared for, never have a spot on their hides. No animal will lie down on its own excrements if it can avoid it, and cattle in boxes do avoid it, and with great care. The beasts are always in good health, their noses moist, and their coats well licked: the best signs of thriving I know.

As for the fermentation of the dung, which Mr. Clarke declares to be the cause of many diseases among bullocks treated after this fashion, I can only say that the fermentation must be of the sort which Liebig calls *eremacausis*, or slow combustion, for no heat ever is found in the mass of dung and litter. As for smell, the only smell I ever found in the boxes was the pleasant, fruity smell proceeding from the digested grain and linseed on which my cattle were fed. Cannot any one see at a glance, that the constant trampling of the bedding by heavy beasts must prevent any formation of deleterious gas. The urea remains in its primitive condition, and no formation of ammonia takes place. Well, I suppose the last sentence may be a slight exaggeration, but a very slight one; at all events no escape of ammonia is perceptible, though I admit the possibility of detecting some by muriatic acid.

The urine is all preserved.—Is not this a great point? No tanks, pumps, dung-pits, or any other troublesome arrangements are required. The manure accumulates under the beasts for four months, and can be hauled out on to the land at once, or, if the season is not propitious when the boxes want emptying, mixens can be made where they are likely to be wanted in the following summer. I say "four months," that being the time I usually found it took to fill the boxes with manure when the litter was not too lavishly used: at any rate, the time will vary from three to four months.

Ventilation. You will do well to look carefully after this. Louvres in the roof, which should have the slats made so that they can be opened or closed at pleasure, will answer all purposes.

The troughs should stand close to the gangway, so that the feeder may not be obliged to enter the boxes at all except to distribute the litter.

Every bullock can eat at his leisure, ruminate undisturbed, lie down and take his rest when he pleases, and if he cannot lick himself in any particular part his neighbour can and will do it for him. No brushing or currying required.

Arthur R. Jenner Fust.

CORRESPONDENCE.

ENSILAGE.

Valleyfield, Aug. 20th 1886.

Dear Sir,—I should like to try ensilage on a cheap scale. I have a field of corn,so I thought I would make a building about fifteen feet square with matched lumber with a light roof. By cutting the corn up short and packing it in this kind of a building, do you think it should keep. I would be much obliged to you for any information you could give me.

Yours respectfully, Alex Clarke.

Answer.—The pressure in a silo being very considerable, your frame must be strong. Matched boards *inside* the silo will do, I think. However, there must be no obstruction of any kind inside, so that the air will be unable to find its way down, along unfilled corners, damaging thereby so much ensilage. I have just built a silo as a lean-to to my barn, partially in the ground. Posts 2 ft. apart, 3 " x 9 ", sunk in the ground below bottom of silo 1 ft.; common boarding, outside and inside, with sand filling between boards. The silo is 13' x 17' inside measure and 16' high. The greater height increases the pressure, and thereby, the capacity of silo, very considerably. The bottom lies in dry sand, with 3 inches of puddled clay over it, in order to prevent all loss of juices, if any. Shall cover with two rows of loose boards, cutting joints, and with 18 inches, or more, dried earth (muck) over boards. This muck will find its way into the manure cellar on the opening of the silo.

Will follow the "Fry" system of *sweet* fermentation, viz.: Put in loosely a foot of cut corn; press *round* silo only; allow corn to heat up to 120° to 150° Fahr., then add a new layer, and so on, until full. Please make sure that the air has no ingress whatever into your silo.

The *settling* of ensilage on the sweet process is fully as considerable—altho' much slower—as in packing at once. The result: more and better food. We have to provide against frost in this climate, I believe. This is my first attempt at ensilage, but shall be happy to give you the result of my studies on the matter if favoured with any further queries. (1) Ed. A. Barnard.

P. S. It shall take about 30 days to fill up and finish my silo. E. A. B.

Richness of Holstein Milk.

On page 59 of our (last) April number we stated that the average richness of Holstein milk was equal to one lb. of

(1) There are, as nearly as I could make out, ten silos in process of erection in the neighbourhood of Saint-Hyacinthe.

butter to from 30 to 40 lbs. of milk. We therefore expressed a doubt as to the exactness of a statement therein published, given by Mr. Ritchie of St. Ann Laperade, to the effect that his 24 months old Holstein heifers, giving (soon after calving no doubt) 33 lbs. of milk on poor pasture alone, had made one lb. of butter to 17½ lbs. of milk?

We have since received from Mr. Ritchie on this matter several letters and statements which he now requests us to publish. However, as they contain no proof of our error in the above expressed opinions, we do not feel justified in giving up more space to such questions in the *Journal*.

ED. A. BARNARD.

MARKET NOTES.

What could the world do without the potato? It is the standard vegetable and always will be. Cut off the potato supply and we should be a nation of malcontents. I remember one winter, years ago, on a little New England farm, when the potato crop failed. It was a household calamity. We lived on turnips, carrots and a few beets, with of course, the ever-present baked beans. It was the most unsatisfactory winter I ever spent. It is hard to say just why the potato is so popular an article of food. At least 75 per cent. of it is water. Rice tastes just as well, is cheaper and more nutritious, and can be prepared in numberless ways. Last year over 200,000,000 bushels of potatoes valued at nearly $90,000,000 were produced in this country. This is equal to nearly one-fourth of the hay crop, one-half of the oat crop, one-third of the cotton crop, twice the tobacco crop, four times the barley crop and five times the rye crop. Over 75 per cent. of the total crop is raised in the manufacturing States, where a large city population affords a ready market, and fertilizers are cheapened. The average cash value per acre for potatoes was $38; for cotton $15; hay $10. In New England the average value per acre for potatoes was $57. The markets at present are crowded with potatoes, yet they seem to "go as fast as they come." Potatoes everywhere—in boxes, barrels, bags and tubs. Potatoes small, large, long, round and flat, smooth and "scraggly." There are about as many potatoes in sight as there are of all other vegetables combined. Most of them come into market in barrels with a piece of old bagging tacked over the top. It is possible that it would pay to pack the nicest and most shapely tubers in crates by themselves for quick sale. Let somebody try this and see how it will work. The Early Rose about revolutionized the potato business. I can remember the old days when the Jackson White and Davis Seedling had the monopoly. We never see them now, though there are old farmers who still stick to them. They were good old friends, but they had to go down before the march of civilization. The Early Rose, like all reformers, will probably have to go to the wall eventually, though it still holds its own wonderfully well. Even to-day the Early Rose stands among market potatoes about as the Concord stands among grapes, so far as quantity is concerned. It is the "old stand-by" still, though dealers handle the newer kinds, scores of which, however, are sold as Early Rose. One never sees a red potato now. Why do people object to a dark color? No one can say, not even those who call for white tubers. It is charitable to call it a species of mild superstition. There are plenty of people yet who say that butter from a white cow will not be yellow,(1) that a black cat brings good luck, that a yellow tomato is not fit to eat. What potato sells the best? It is light in color, medium in size, compact in form, not long and round—more of the shape of a man's fist, and, more than all these, it is "mealy." People do not want a potato that they must cut in two and serve in halves. Far too many of the potatoes at the market are disfigured by the scab. The man who shall discover some way of lessening the ravages of worms and the fungus that cause it will be a national benefactor. Very many potatoes are damaged by careless digging. Great gashes and holes are cut into them. (1) These are sure to injure the sale, and they might be, for the most part, prevented.

HIRED MAN.

(1) Bosh! There are plenty of white cows with skins as yellow as a guinea, and that give the richest milk, and the best coloured butter.
A. R. J. F.

WEANING LAMBS.

Weaning-time is an important epoch in lamb life. It is, so to speak, the date when they are sent into the world to shift for themselves; and judging from the bleatings of the old as well as the young of the flock, the change is doubtless a severe interference on the part of man. But, as a matter of course, the flockmaster is compelled to follow what he considers the most profitable system of maintaining both ewe and lamb, whatever his feelings about animal nature. When the lambs arrive at a certain age, it is a more economical method of feeding to separate them and the ewes. The amount of nourishment which the ewe provides at her own expense can be supplied in a cheaper form by artificial means, and maintaining the condition of the ewes is always an object to be studied in breeding flocks; as without good, strong, and lusty ewes we can never have good lambs.

There are, therefore, two points to be considered in weaning; but as the change affects the lambs more immediately than the ewes, the problem is how to accomplish it so as not to arrest their progress or growth. Whatever may have been the condition of keep previous to weaning, it is afterwards necessary to improve upon it if the lambs are to prosper. The better-conditioned lambs are at the time of weaning, the better they require to be kept, and in most cases the food provided should exceed in richness that which they previously received, including the milk of the ewes. It is usual to shift the lambs on to some hained pasture, which affords a clean and enticing bite; but even then, though the quality of the new pasture is immensely superior, the lambs do not always thrive so well as could be wished. For some days after being taken away from the grazing they have long been accustomed to, they seldom settle to feed, and after they do begin to eat, from being so very hungry, they are apt to indulge too freely in the fresh grass, with the result of some serious ailment.

Our correspondent, Mr. Trethewy, of Silsoe, Bedfordshire, recommends that, instead of taking the lambs from the ewes, the ewes should be taken from lambs. Wherever such a plan can be adopted, it is doubtless a sensible one to follow, as the lambs will not be so liable to hang about the gates, or to suffer from a too sudden change of diet. When the ewes are removed, a little trough food should be given the lambs, and, as they are well acquainted with their pasture, and know where to find a plentiful supply of water, they will not be so liable to sustain a check; and any changes that may afterwards be necessary can be overtaken with greater benefit and less risk. (2) *Eng. Ag. Gazette.*

IS ENSILAGE FATAL TO HORSES?

EDS. COUNTRY GENTLEMAN—Your very intelligent correspondent from Aiken, S. C., Mr. Dibble, on page 556 expresses his surprise when he finds, on page 394 of the book

(1) If people *would* give up using the hoe in getting up their potatoes! A. R. J. F.

(2) Good sound sense, but not new. I made the same observation seven years ago in this Journal. A. R. J. F.

on Feeding Animals, a recommendation to feed ensilage to horses. He supposed it was considered settled that ensilage is fatal as a horse food. Well, if we take evidence of the same character as the cases he mentions against ensilage as a horse food, we shall come to the conclusion that many other foods are fatal to horses. Let me refer him to page 386 of the same book, where he will find a case in which a feed of corn meal proved fatal to a horse, and in this case the evidence is as clear and direct as in any case of ensilage proving fatal. But no one will contend that any number of such cases would prove corn meal to be necessarily fatal as a horse food. There have been a great many cases where a heavy feed of grass has proved fatal to horses kept in stables, with the stomach pretty full at the time. Grass is the natural food of the horse, but the evidence is quite as strong to show its fatality as that of ensilage. Ensilage, properly fed, is quite as harmless to horses as grass. Grass must be fed to horses with the same precautions as ensilage. The change from dry feed to grass must be very gradual or the fermenting mass will be likely to produce fatal results.

The writer fed ensilage to four horses for two winters, adopting the same precautions as he would in feeding grass, the results being all that was expected. When horses, in a northern climate, are to be subjected to hard labor in winter —neither grass, ensilage or roots is appropriate food in any considerable quantity—as the excess of water must be evaporated or discharged from the body through the urinary organs, and this would consume food, and is thus opposed to the most economical uses of food. But in a climate like Southern Carolina, these points would not have so strong a bearing.

Mr. D. presents an interesting fact in describing his silo in "a hard red clay," which furnishes permanent walls for the silo without additional finish. If the clay is sufficiently hard to remain in place, I should expect the result stated, that the ensilage keeps better in contact with this clay wall than against a brick and cement wall. Notwithstanding the hardness of the clay, it still retains a power to absorb gasses. And it is probable that it will retain this absorbing and deodorizing power for some years. It is also highly probable that a room prepared in this hard clay would make an excellent preservatory for good butter, keeping it sweet indefinitely.

Now if Mr. D. will place his ensilage-fed cattle over a water-tight gutter, so as to enable him perfectly to preserve liquid and solid droppings, and apply these entire to his soil without loss—he may then feed decorticated or hulled cotton-seed meal as a balance to his ensilage, and receive, in the beef produced, a full return of the purchased price of this rich food, with a like value added to the manure which shall redeem and enrich his land. Decorticated cottonseed meal is worth all it costs in the home market as a fertilizer—and instead of raising 15 tons of southern white corn ensilage, he may easily raise 40 tons per acre.

This is the great problem to be worked out in the South as well as in the North. In the past more than half the real value of manure from our animals has been wasted. It is time that this waste ceased. E. W. Stewart.

ABERDEEN-ANGUS COWS.

BRITISH BEE-KEEPERS' ASSOCIATION.

A meeting of this association was held on July 31 in the Colonial and Indian Exhibition. The chairman, Mr. T. W. Cowan, read the presidential address on "The Development of Bee keeping as an Industry." He said, although invented thirty years ago, Langstroth's hive was still a pattern of simplicity and perfection, and its principle was more popular than that of any other frame hive extant. The British Bee-keepers' Association had given a great impetus to bee-keeping by adopting a standard frame, one which experience had shown to be the most suitable size for working. There had been too much complication in hive construction, and

the aim of the association had been to induce simplicity. In our own country it was not only improvements and discoveries in methods which had helped to develop bee keeping; its progress was largely due to the co operation which had existed between bee-keepers. When the British Bee-keepers' Association first started in 1874 it had but few members; now, however, it numbered 10,000, and it was their co-operation which had entirely revolutionized the system of bee-keeping in this country. Bee-keeping was capable of becoming, as part of agriculture, a great national industry. We were greatly in need of schools where the science could be taught, and where the young could receive certificates. Our agricultural colleges should take the subject up, and classes should be formed, as well as a working apiary instituted for the instruction of tyros. Profitable bee-keeping was not yet as common as it would be in the future. Success depended largely upon the queen-bees, as good and prolific queens were alone profitable. The introduction of Italian and other foreign strains had done good, bringing to us, as it did, fresh blood; but a great hindrance to improvement had been the introduction of cheap queens. The demand for Italian queens had been so great that it was not surprising that the supply had deteriorated in quality. He would point out that good breeding stock could only be obtained by the careful selections of both queens and drones. With regard to the constant complaints made as to the lowness of the price of honey, grumblers should bear in mind that it was increased supply which caused the downward tendency in prices. Their show, the largest of the kind ever held, was a testimony to the progress made in the industry, for in the worst year they had had for a long time there were 340 entries and 250 exhibitors, nearly double the number of but a few years before.

The Rev. G. Raynor, M.A., read a paper upon "Queen Introduction." He said that practical apiarists would allow that upon the condition of a colony which was to receive an alien queen very much depended. When the bees were in the midst of gathering in a plentiful harvest all feeling of irascibility was laid aside and the sting remained in the sheath. In the summer months, therefore, when the honey was briskly coming in, was the best time for changing and introducing queens. All queens, and especially virgin queens, could be more safely introduced when the bees were storing honey than at any other time. It was, however, often more convenient to the apiarist to introduce his queens in the spring or autumn, *i. e.*, in time of dearth. Taking then a leaf from the book of nature, at such times we should feed our bees continuously for a day or two before removing their queen, during the time of the introduction, and after liberating the alien. The food should be presented from the top of the hive, since that plan was least conducive to robbing and produced least excitement or confusion in the hive, a state against which it was most important to guard. Mr. Raynor then described in detail the various methods of direct introduction and introduction by cage. As the conditions which had to be dealt with were so numerous and diverse, the method which succeeded in one case might fail in another.

CHEDDAR CHEESE.

BY ARCHDEACON DENISON. (1)

The Venerable the Archdeacon Denison has forwarded the subjoined letter to Mr. Robert H. Symes, provision merchant, of Bristol:—

"East Brent, Highbridge, October 19, 1885.

"Dear Mr. Symes,— . . . No country in the world can make Cheddar cheese real and true except Somerset. People may talk as they please, but the fact is so. Somerset therefore had a natural monopoly of what is, I think, the best article of food producible in England. Somerset has lost it. How? By the action of Free Trade, and by very unwise measures taken at home by way of meeting the difficulty. Somerset is a county with this great remunerative monopoly, comparatively, of rich land, small holdings, and high rents. What enabled farmers to pay the high rents and still to do well? Cheddar cheese. (1) The real article is going fast. Nobody in their senses asks now for Cheddar cheese in any place of public refreshment, because it is a thousand to one that they do not get it, but some very nasty and unsound substitute. What has brought this to pass and, or all but, ruined the Somerset farmer? Free Trade in respect of American cheese eating out of the Somerset market. Real Cheddar is as good at two years old as at two months—ay, better by a good deal. American cheese is a caution. You cannot go near it after a few weeks. Why? Because it is made (and but quarter dried) in a hurry, and very probably has all sorts of nastiness put into it. At four months at most it begins to smell very nasty indeed. When you make cheese in a hurry, and dry it in a hurry that you may sell it at once, you get rid of a large proportion and true substance of the article. But still it goes down with the British public a people very easily taken in, and the reason is this. You see, if a thousand people go into a cheese shop, there is probably not one of them that buys a whole cheese; he buys a 'cut,' and he carries it home to his unhappy wife, and says, 'My dear, I have bought you, very cheap, a nice piece of American Cheddar' Poor, silly man! He has tasted it, and found it good; he doesn't know that a good cheese-taster is as rare a man to find as a wine-taster, or even a tea-taster. Now, if the wife knows what she is about, she says, 'Give me a knife, and I'll cut off a bit and put it by;' and then they set to work and eat up all the rest before they find out how beastly a thing it is. The bit in the cupboard escapes, and lives to stink in six weeks. Meantime the family have been eating food unsound, unwholesome—half-rotten from the first. This, then, is now our position in Somerset—it could not well be worse. How is it to be mended? Only by landowner, occupier, and consumer playing a wiser game than they are playing now, and have been for some time past. There will always be plenty of people in England to give best price for the real article, but they won't buy shams, or things that stink when they ought to be in first rate order for eating.

"(*a*) The landowner must lower the rent Without this the occupier will either sell a prime article at a ruinous price, or will make a bad article, and keep making matters even worse than they are now.

"(*b*) The occupier must go back to the old and only true way of making Cheddar cheese.

"(*c*) The consumer must give up the utter foolishness of buying promiscuously 'nice bits' of a wretched article even at its best, and take care to know something about where his cheese comes from and how it has been made.

"There is and has been a good deal of general ill-health

(1) Archdeacon Denion is a very positive kind of person. I knew him well some forty years ago, and very amusing it used to be to hear him abuse—in the most agreeably facetious manner—every one who did not agree with every one of his views upon every sort of matter Was it he, or the Rev J. W. Bennett, who excommunicated Dr. Philpotts, the Bishop of Exeter? I think it must have been the Archdeacon; it is just the kind of thing he would do. The Cheddar I used to eat at Charlton in Somerset, was a very different thing to what we now find. It was very like a cheese of Mr. Macfarlane's I tasted in 1880 : v Journal p. 143, vol. II. A. R. J F

(1) And infinitesimally small wages : eight shillings a week in 1840. A R. J F.

about England; I think it not at all improbable that it has come of eating 'nice bits' of American cheese. (1)

"You can make what use you please of this letter; I should not be sorry to see it published.

"Yours always,

"(Signed) George Anthony Denison.

"To Robert H. Symes, Esq., Bristol.

"N. B.—I wish not to be understood as being against Free Trade in articles of food save and except such articles as England can produce and every other country cannot, but only poor and unsound counter-feits of them, with ruinous results to us."

Cream Cheese.—"Dairyman" says: I have failed to note in any report of the late Dairy Show the process of cream cheese making. Will you obligingly give the most approved method or recipe adopted thereat?

The following is a recipe of proved merit:—Take a quart of cream, or, if not desired very rich, add thereto one pint of new milk, warm it in hot water till it is about the heat of milk from the cow, add rennet (a table-spoonful), let it stand till thick, then break it slightly with a spoon, and place it in the frame in which you have previously put a fine canvas cloth, press it slightly with a weight, let it stand a few hours, then put a finer cloth in the frame, a little powdered salt may be put over the cloth. It will be fit for use in a day or two.

Wire-worms and Rape Cake. — "A Correspondent" says:—With reference to your article in a recent number on wire-worms, please inform me of the quantity of rape-cake you recommend per acre.

We have to thank Miss Ormerod for the following reply to this question:—Relatively to the effect of rape-cake in lessening damage from wire-worm attack, it appears to me, after looking over notes contributed for my reports by agriculturists in various parts of Great Britain and Ireland, that the cake acts in two ways: it strengthens the plant, whereby it is helped to grow past such amount of attack as merely injures without at once killing it; and likewise the cake is such a favourite food to the wire-worm that it attracts the pest away, and thus (temporarily at least) allows the plant respite. Information on this point is given, with the names of the observers attached, in my Report on Wire-worm printed in the *Journal* of the Royal Agricultural Society, 1883, Part I., pp. 127—130; also in my own Report on Injurious Insects for 1882, published 1883. Notes are there given both of the good effects of rape-cake as a dressing; and likewise of rape-dust mixed with turnip manure and drilled with the seeds; likewise of drilling oats and rape meal together. In regard to the quantity to be used, I should not like to express a definite opinion, for the amount may differ much with circumstances. I see Professors Johnston and Cameron state that, "drilled in with the winter or spring wheat, or scattered as a top dressing in spring at the rate of five cwt. an acre, it gives a largely increased and remunerative return." Further on the same writers state, relatively to the practice in some places of using it alone for the raising of turnips or potatoes, that this practice is undesirable as encouraging too much leafage, and that "generally it may be substituted at the rate of about 1 cwt. of rape-dust for each ton of farm-yard manure." I quote the above as confirming the views of the fertilising properties of the application; for, in a large amount of wire-worm attacks, the plant is not killed outright, but is so injured by being partly bitten through that its growth is retarded, consequently any application which will supply available food at once, will help it greatly over the temporary pinch. In regard to the popular idea that wire-worms are killed by eating rape-cake to such an extent that they burst, I can only say that I have made long and careful experiment, by feeding them on this, and nothing else, and I never found such results happen. They appeared in every way comfortable and thriving; and likewise, as we have no knowledge of any peculiarity in the structure of the wire-worm which could prevent it discharging its contents in the way customary to most larvæ, there does not appear any reason for supposing that we can benefit by their enormous voracity in this way. They are easily broken when full of food, and then look very much as if they had burst, from the whitish contents coming out. There is some difference in the action of different kinds of so-called rape-cake on wire-worm. What is sold under the name of Indian, or Kurrachee, cake, which is really mustard cake, when first moistened repels the wire-worm, that is to say, when the cake is placed by itself and moistened, I have found the wire-worms would not enter it until the pungency of the freshly-mixed mustard was gone off, and (through the commencement of putrescence setting in) the mass was turned into food, for which they left the morsel of turf in which they had sheltered. In an urgent case, where dressing is being resorted to, to check attack at once, it might possibly, therefore, be best to use the ordinary rape-cake, but otherwise the effect of either is highly desirable.

How to Teach. — The *Salisbury and Winchester Journal* of Saturday reports the following capital example of what may be called clinical agricultural instruction:—The following is an abstract of a demonstration upon Hampshire sheep made in the Downton College of Agricultural lecture room on Tuesday. A ram lamb, the animal which received a prize at the Salisbury Fair, was introduced into the lecture room, and its various points were discussed before the students present; the ram meanwhile standing upon a table in the centre. After speaking of the various points of Hampshire sheep, Professor Wrightson instanced the following cases in order to show the wonderfully early maturity of the Hampshire breed. Seven lambs were taken promiscuously from among the ram lamb section of the flock and weighed, with the general result that they averaged 142½ lbs. each. Professor Wrightson pointed out that it might fairly be considered that 54 per cent. of this live weight was marketable meat, or dead weight; and upon that assumption the seven sheep in question would weigh, upon an average, 19 lb. per quarter. Taking the heaviest lamb, he point out that its live weight was 169 lb., and applying the same rule as above mentioned, this lamb might be taken as being 22½ lb. per quarter. This lamb had been born about January 15th, and probably then weighed 18 lbs. Deducting those 18 lbs. from the present live weight of the lamb, the increase from January 15th to July 19th, or for 185 days, would be seen to have been 151 lb., or at the rate of .816 lb., considerably over ¾ lb. per diem. This fact indicated the early maturity of Hampshire Down sheep, and as it could scarcely be expected that the same increase would take place during the first weeks of the lamb's life it must have made an increase of over 1 lb. per day during the later weeks. This early maturity of the breed was further shown by the fact that on August 1st, 1884, the average weight of twenty five ram lambs sent to the Cirencester ram fair was 150 lb. (1)

(1) Please observe that the Archdeacon is good enough not to abuse *Canadian* Cheddar. I am afraid, though, the omission is only accidental. A. R. J. F.

(1) Mr. Wm Hale writes me word, that the Sherbrooke "old agricultural society" is about purchasing three lamb-rams: a Leicester, a Shropshire down, and a Hampshire-down. I have no objection to offer against the Shropshire-downs, though, from an intimate acquaintance with the Hampshire-downs, I prefer them. But what on earth do the Townships people with their grand hills for sheep-grazing want with Leicesters. A. R. J. F.

ABOUT WORKING BUTTER.

THE BLIND LEADING THE BLIND.

Eds. Country Gentleman—I have just read an editorial in the Boston Cultivator, headed, "Salting and Washing Butter." For inconsistency it is entitled to the palm. If the writer has any practical knowledge of butter making, no evidence of it is given in this editorial. What he says about the amount of salt used is all right, but when he decries the washing of butter, and says the gilt-edge butter of the future will not be washed at all, and in another paragraph, referring to "some of the best makes of butter sold in Boston," says "great care is used in working them down hard, fine and waxy with the wooden butter worker," and "the buttermilk is thoroughly worked out" he is indeed inconsistent. There is scarcely a week but I see something in the agricultural and dairy papers of the country about working out the buttermilk from butter. If there is any one thing that butter makers should learn above all others, it is this—that all buttermilk must (1) be removed from the butter before it comes to the process of working. As a rule, these remarks about working out the buttermilk are found in editorials, not from correspondents, who, as a rule, are apt to be more practical butter makers. The less butter is worked, the better, and if one can get along without working it at all, a great step in advance has been made. At any rate, butter should be worked but little, and the only office of that little is to liberate the brine. Churning should never go any further than to bring the butter and leave it in granular form. At that stage nearly all the buttermilk can be drained off, and the little remaining can be rinsed out with cold water or brine, the latter being preferable. In granular form it is an easy matter to salt the butter after it has been thoroughly drained. The salt can be sifted on while the butter is still in the churn, but the better way is to remove a portion of the butter into a bowl or tray, then sift on a sprinkling of salt, after which spread another layer of butter, and repeat the operation of sifting on the salt, and so on, until all the butter has been removed, and the required amount of salt added. The butter should then be covered with a cloth wet in brine, to exclude the air. Let it stand for a few hours for the salt to dissolve, when it may be worked lightly for the purpose before mentioned, viz., liberating the brine.

But when one writes about working butter down "hard, fine and waxy," the height of absurdity has been reached. The quality of butter can be in no way improved by working, its quality having been determined before it reaches that step in the process of making. Thorough working of butter has but one effect, viz., that of breaking its grain and making it salvy.

It is safe to say that no one discovery has been of greater benefit to butter makers than that of producing butter in granular form. (2) It is the only correct way, for if butter is allowed to gather in the churn, the buttermilk is locked in, and in attempting to work it out the butter is always more or less injured in grain.

That any harm can come from rinsing butter while in the granular form with pure water or with brine, is more than I can understand. The best butter makers have practised it for years, and with satisfactory results.

Clinton, Iowa. F. W. Moseley.

(1) *Should* be removed, I presume, Mr. Mosely means.

(2) Undoubtedly but it is very hard to get an old butter maker, who has "always made good butter," to try it. A. R. J. F.

CUT EARLY.

Nothing is more prejudicial on the farm than what we may term misguided greed. It shows itself early in the summer in the hayfield, when grass is left till dead-ripe in order to increase its quantity; but, as the inferior grasses always ripen earliest, late mowing only makes sure of bad grasses getting propagated on the farm. (1) This, then, ensures that the crop will not be of first-rate quality, for the riper a bad grass the more woody it becomes, while the most nutritious part, the seed, is scattered in the harvesting. Next, the hay thus made is usually withered at the bottom, to the injury both of the quantity and quality, but should by chance the quantity be increased, the quality is so much injured as to make it bad economy to defer mowing too long. Again, grasses cut too ripe are apt to die out, so that the aftermath suffers, it suffers from want of time in which to grow. Between July and November at least three-eighths of the whole growth of the year will take place. If the period for the aftermath begins in August instead of with July, at least three-quarters of the year's growth is got in a rick of bad hay, and the aftermath quarter is inferior, both in quality and quantity. The yield of the aftermath in some circumstances is not more than half what it ought to be, whilst the shorter ends of old grasses sadly interfere with the growth of the new, and, at the same time, it is very much against the comfort and convenience of animals feeding upon it.

After haymaking comes harvest, and here the same principle of misguided greed is acted upon. As regards corn crops, there is no doubt that both the grain and the straw are injured by being left till over-ripe. Many farmers fancy that the bushel is more speedily filled up with over-ripe corn, but this is seldom so, and, if it should so prove, it would certainly suffer in weight. Over-ripe wheat, for example, will have a quantity of coarse bran, whilst less ripe will have a thinner and more delicate skin, and the flour will be of a better quality. The straw, again, gets more dry and fibrous, and is certainly not so useful for any feeding purposes. As regards oats, the one effect of letting them remain too long before cutting is that instead of getting more grain you get less, because the first ripened grains are apt to be shed, while the straw, as in wheat, by over ripening will lose a quantity of nutritive matter. Barley is usually left too long before being cut, under the impression that the stripes on the grain will make it of a bad colour, and so it is too often left till the stain is removed by dews and wet. We have seen many a fine crop of barley ruined by waiting for the removal of these stains, which at once disappear on drying. (2) With grain, then, as with hay, we have convinced that it is better to be satisfied with even less of a good quality than the chance of more where there is every probability of the quantity being injured to a still more serious extent. (3)

(1) Very sound reasoning. A. R. J. F.

(2) Barley, for malting, is the only exception to the rule of "cut early" If barley is not dead ripe it will not sprout equally in the *couch*. For grinding-barley the rule is to be followed. A. R. J. F.

(3) These things will not be new to the readers of the Journal; but "repetition is the mother of learning." A. R. J. F.

NON-OFFICIAL PART.

"**Pulverize the land,** whatever you do: Go on the "principle of the woman making gooseberry pie — who "sweetened it all she dared and then shut her eyes and put "in a handful more. Work your land until it is fine enough "and then go over it again. If you do not think this will "pay, try it on a strip through the field, and then contrast it "with the balance."

See advertisement of the "ACME" Pulverizing Harrow, Clod Crusher and Leveler, on page 4.