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THE JOURNAL OF AGRICULTURE. ILLUSTRATED

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Quebec, March 23rd, 1885.

M. Barré and The Dairy-Industry.

It is my duty to bring to your notice the fact that M. Barré, under pretext of serving the public, has declared war against a certain class of cheese-makers. He has literally inundated the principal newspapers of this province with his writings, under the different headings: "Mr. Barnard and the dairy-business;"—"Mr. Barnard and agriculture;"—"Notice to butter-makers;"—"Notice to cheese-makers;"—"Notice to farmers;" &c., &c. As M. Barré not only attacks certain makers of dairy-products, but is also, always *in the public interest*, aiming at the demolition of the *Director of Agriculture*, the latter feels it is duty to encounter this giant of the dairy.

M. Barré accuses explicitly the Director of Agriculture of having done his best for several years to destroy the dairy-business. Unfortunate *Director!* And all the time the poor wretch thought he was doing his best to promote the interests of this industry.

But before attacking so very important a matter as the future of the dairy-industry, let us see a little what M. Barré is.

In 1879, as far as he recollects, the *Director of Agriculture* of this province, who even then had been for several years engaged in the study of the dairy-question, addressed, by particular request, a meeting of the dairymen of Ontario at Ottawa. After the session, a stranger accosted the Director, congratulating him on his speech. The strange was M. Barré himself, who, hinting that he was without a situation, requested advice as to his future. To be brief, the advice given him was to study the manufacture of butter and cheese, and he was told where to go to serve his apprenticeship. It seemed to the Director that he had made a *grateful friend.* After this, he was frequently consulted by this *most devoted* man, who, assisted more than once by the *Director of Agriculture*, was at last, through his mediation, sent to Denmark, in 1880-81, to finish his apprenticeship; means being supplied to him for that purpose.

At the same time, the Director of Agriculture persuaded the government to assist in the establishment of a dairy-school in the county of Kamouraska. The butter of that district was, at that time, selling for a most humiliating price, and there was no cheese-factory to be found in the county. The enterprise was not a trifling one! All that the government did was to furnish $800 a year, the wages of the maker, who, for his part, took half the risks of the speculation. The promoters undertook to erect a combined factory, for the fabrication of the best full-milk cheese, and, at the same time, for the production of butter and the most profitable utilisation of the skim-milk. There, on a small scale indeed, was founded the first school of the sort in North America, the government insisting that it should be, as much as possible, a model. The promoters, moreover, pledged themselves to give gratuitous board and instruction to at least five pupils at a time. It was indeed, on the part of these gentlemen, a most patriotic as well as a most difficult undertaking.

At this epoch, cheese-making was with great struggles emerging from a ruinous crisis, which had closed half the factories of the province, newly established as they then

were, the first in the French country having only been started in the year 1772. The trouble was no mainly doubt due to the ignorance of the makers, and the consequent bad quality of the cheese turned out.

No one can doubt the public utility of the enterprise; but the difficulties were very great. One of them was, to find an capable instructor in every branch of the business. Another was to start the affair so as to ensure to the farmers a regular and paying price for their milk, and to the shareholders a proper interest for their investments.

Such being the case, the Director of Agriculture, who carried the weight of a great responsibility on his shoulders, after having attended for four consecutive years all the annual meetings of the two dairymen's associations of Ontario, addressed himself for information and advice to the best authorities of the sister province. After mature consideration, he determined to follow the advice of Mr. Derbyshire, then, as now, president of the dairymen's association of Eastern Ontario, as well as the representative of one of the principal cheese and butter firms of Montreal.

The advice given by Mr. Derbyshire was, that we should adopt the *combination system*, a system by which the course of the markets could be followed, and the products of the factory suited to the demand; whether for whole-milk cheese, for butter alone, or for butter *and* cheese from partially skimmed milk.

Mr. Derbyshire himself selected for us a man who, in his opinion, was the best maker and teacher he had met with. No one could be a better judge of the qualifications required than Mr. Derbyshire; from his position, he knew all the most noted makers in the States, as the dairymen in their conventions were always on the look out for the best men to give good and sound advice to Canadian factory men. The choice of Mr. Derbyshire fell on Mr. Jocelyn, an American dairyman, whom he recommended most strongly as maker and instructor.

Return we now to M. Barré, our apprentice of 1879, who had solicited and obtained a slight aid to enable him to pass some months in Denmark, and thereby to become capable of rendering service to the country as a maker of butter. Before leaving Canada, the government had paid him in full the sum he had asked for his trip, M. Barré engaging to pay out of his own pocket the balance of his expenses, seeing that he would be the first to profit by any knowledge he might acquire during his journey.

Hardly two months had elapsed since M. Barré's departure, when he drew *at sight* upon me *personally*, not upon the Director of Agriculture, if you please: the draft was not for a trifling sum, either! This was done without the slightest authority from me, and without any intimation of his intention. I paid the amount of the draft, but I told him at once that he must not do it again. He sent me heaps of excuses: he was, he said, penniless, in a foreign country; and moreover, he must, anyhow, have *more* assistance.

In this embarrassing situation, the unfortunate Director renewed his application to government in behalf of M. Barré. After many essays, he succeeded in getting him appointed as assistant to Mr. Jocelyn, as the latter did not know a word of French, and technical questions were being received from all quarters at the factory. An advance was made to help M. Barré to return home. I, personally, related all that had passed in connection with Mr. Jocelyn &c. to M. Barré, and informed him of my success in getting him appointed as assistant. His reply is typical. It should be framed and glazed! Here is part of it, the faults in spelling corrected.

Translation. My Dear Sir,—To-day I received your letter of the 9th March. I thank you for what you have done for me I am satisfied with my position, though the salary is only moderate; everything must have a beginning, but the government must raise my pay next year, if it is desired that I should continue to work for my country; for, in addition to butter-making, questions are continually arising in connection with it, such as the keeping, raising, and improvement of our milch-cows, and all these I am studying intently. The Danes have given me a nick-name: *The American Demon;* not a very poetical epithet, but one must put up with it I can now translate Danish pretty well, and as to the literature of the country, none of it is beyond me. Your Mr. Jocelyn had better take care. I am sorely afraid he will find his assistant on his shoulders before long. (1) I am at present making cheese from milk skimmed for 24 hours down to the lowest point, and this cheese will take the shine out of much of the full-milk cheese in the province of Quebec I am strongly inclined to think that I can make better butter than Jocelyn. I shall always have the advantage over him in these points: I know English as well as he does; I know French; and when I leave Copenhagen, I shall know enough Danish to enable me to follow the progress of the dairy-industry in Denmark.

But there is one thing of paramount importance just now: the question of money. I am at the end of mine, and if you have not sent me any by the time you receive this letter, see to it at once. Send by telegraph, not by letter, as that would take up too much time. Telegraph, or make your banker telegraph, to the *Private Banken* of Copenhagen to pay me the money you are to send me, for you must know that my work is, to-day, at a perfect stand-still. I have learned all that there is to be learned here, and I cannot stir for want of means. I am in debt, too: a serious matter when my time is so precious. I should be ready to leave Denmark in ten days if I had enough money to continue the researches that remain for me to make, and I must think of returning home. I should like to be there by the first of June, but I must pass through France and England. I am in an awkward position, and had I known the affair would have taken so long I could have had money from my family. Well, I reckon on your making as much haste as possible; there is no use in waiting for government funds, for in that case I should have to stay till dooms-day. *They are too slow for me.*

....

S. M. BARRÉ.

We remark here, among other startling things, that before M. Barré had been in Denmark more than a few weeks, "*none of the literature of the country was begond him;*" that when he arrived, he did not even know the Danish alphabet; that his education had not at all been what is called *classical;* and that, until that time, he had never in all his life heard of Mr. Jocelyn! Nevertheless, he already felt himself Mr. Jocelyn's superior in butter and cheese-making!! And above all *after six-weeks apprenticeship*, he was making, with thoroughly skimmed milk, better cheese than much of the whole-milk cheese made in the province.

The St. Denis factory opened in June 1881. M. Barré arrived from Europe just in time to see it start, under circumstances of extreme difficulty. As is always the case, especially in the best undertakings, the first steps are expensive; the capitalists and those interested are timid; and, in fact, the difficulties are innumerable. M. Barré profited by such a favourable opportunity of trying to "*mount on Mr. Jocelyn's shoulders,*" and if he did not succeed, at all events he threw the whole affair into confusion: the proprietors were set against the foreign cheese-maker, against his method, and against the *Director of Agriculture*, who had arranged everything; the pupils were set against the proprie-

(1) i. e. will surpass him in his own trade. Translator.

tors, and against the method, &c.; and, lastly, the patrons were led to believe that all their milk would be wasted! —In a word, within a few hours of his arrival at St. Denis, our *American Demon* had done his work, and turned our little world topsy-turvy.

But M. Barré wanted *to get too quickly on Mr. Jocelyn's shoulders!* The *American Demon* in vain put all his *devilment* to work for four years: he has not succeeded yet in preventing Mr. Jocelyn from inspiring confidence in his method in all those who have studied it. Mr. Jocelyn has instructed many young people, who are, to-day, recognised as the best authorities on all matters connected with the dairy. The factories arranged after the plans of Mr Jocelyn have invariably given the best results, and have, on that account, irritated the numerous makers who, from want of knowledge, are now making full-milk cheese that does not sell for more than the partially skimmed-milk cheese made by Mr. Jocelyn's pupils. The factories carried on after the Jocelyn method invariably pay their patrons 12% to 20% more than the majority of those factories of the province where whole-milk cheese alone is made.

If our ordinary factories do not pay better, that is due to the *want of knowledge in the making;* for it is beyond a doubt that whole-milk cheese, well made, is richer than the best skim-cheese. No one has proved this more clearly than Mr Jocelyn's pupils: Mr. Skaife, at Baie du Febvre, who made the best whole-milk cheese that was ever seen at the excellent factory of M. Blondin; and M. Painchaud, who astonished the people of Louiseville, alike in the production of whole-milk cheese, as in making butter and cheese from milk skimmed, more or less closely.

Enough has been said about M. Barré, I think. I am not aware that he has ever brought out any adepts. Besides, I know that he dare not show his face at any of the meetings of the dairymen's associations, and not without cause. I warn him, that if he do not divest himself pretty soon of his young *American Demon*, it will play him so many tricks and such bad ones that no one will any longer place any confidence in him.

I regret this exposure—an excessively disagreeable one for me to make. It was necessary. In a future article I will treat of the very interesting question of butter-making combined with skim-milk cheese, compared with the production of full-milk cheese.

E. A. Barnard.

OUR LIVE STOCK.

OXFORDSHIRE DOWNS.

This established breed of sheep has now a long history: and with every stage of that history, the leading flocks of the breed have increased in reputation, and therefore in favour among practical breeders who have an eye to direct profit more than to anything else. This increase in repute and favour has occurred more particularly during the last thirty years, as I shall clearly show as I proceed.

On referring back to the *Farmers' Magazine* of 1838 I find a long discussion on one origin of this breed. The subject was opened by Mr. J. T. Twynam, of Whitchurch, Hampshire. (1) Mr. Twynam was enthusiastic, and the language of his enthusiasm was quaint as well as pertinent, as will be seen by the following extract from the publication mentioned:—

"It is now six or seven years since I first introduced an improved Cotswold ram among a few Hampshire Down ewes, the produce of which, living among the Downs, soon convinced me of their vast superiority. From that time I have continued the breed—with what success is pretty generally known by most breeders and dealers attending our Hampshire fairs. But I believe my plan in pursuing it has totally differed from that of any other person. Indeed, it has been in direct opposition to the generally received opinion in respect to crossing, for instead of going back after one cross to the original breed on either side I have used half-bred rams with half-bred ewes—a practice condemned by three fourths of the old school of breeders, none of whom by-the-bye could I find who had tested it themselves, but believed it to be erroneous because their great grandfather had so noted it down. It may be interesting, therefore, to state the why and the wherefore of my thus proceeding."

'There is much in the above extract that is suggestive, particularly at the present time when the price of the mutton of Downs and the "best crosses" is making 1*d.* per lb. more than that of pure Long-woolled and white-faced sheep, and long wool is, at the same time, worth less than 1*s.* per lb. Breeders of Devon long-woolled sheep may take a lesson from it. Lincolnshire, Yorkshire, and Northamptonshire flockmasters, have already seen the importance of improving their mutton in preference to increasing their quantity of wool. The result is that the improved Lincolnshire rams have largely declined in value, while the demand for Hampshire Down ram lambs has so increased that in all probability the sale of them this year will be as many at Peterborough, Lincoln, and other fairs and markets as the number of the native stock will amount to. (1) Whether the flockmasters of the above counties will establish a breed that will vie with, or equal the Oxfordshire Down, is a question that as yet remains an open one. The growth of wool in South America, Australia, and New Zealand, has so greatly increased—and the scope for producing it on land of nominal value in those countries is so large—that there does not seem to be any prospect of the wool of Great Britain again rising above, or much above, 1*s.* per lb. Mutton of fine quality, at the same time, in the face of larger foreign supplies, promises to maintain its past and present high price.'

Mr. Twynam's letter, from which the above extract is taken, was an exposition of the reasons why he had offered a challenge to other flockmasters in Hampshire and elsewhere. The letter was first addressed to the *Mark Lane Express* (the *Farmers' Magazine* having been mainly a monthly reprint of the articles that had appeared in the aforesaid weekly journal). The opening sentences of Mr. Twynam's letter were as follows:—

"I have this day [November 27, 1837] forwarded for your columns an advertisement, holding forth an offer to the whole kingdom to meet me in the field of competition with any breed of sheep, kept as folding and stock sheep, in which shall be found the union of so many points, profitable to the farmer and desirable for the grazier. It is now" Mr. Twynam continues, "seven years since I first introduced an improved Cotswold ram among a few Hampshire Down ewes, the produce of which, living with the Downs, soon convinced me of their vast superiority. (2)

Mr. Twynam then points out that his success was then well-known by breeders and dealers attending Hampshire fairs, and that his practice of matching cross-bred sheep was

(1) The loveliest spot I on the river Test, swarming with trout, and bordered with the finest irrigated meadows in the world. The chalk hills on the uplands are covered with a short, sweet herbage, which produces the best flavoured Hamp-hire-down mutton.
A. R. J. F.

(1) Precisely what I have been trying to show for the last six years. A. R. J. F.

(2) The Hampshire-down ewes are the best nurses in existence: hence, the propriety of putting the Cotswold ram to the Hampshire-down ewes, and not the reverse. A. R. J. F.

in direct opposition to preconceived views, "a practice condemned by three-fourths of the old school of breeders." He adds that he could not find any one, however, who has tested the practice, but they "believed it to be erroneous because their great grandfathers had so noted it down."

As history so frequently repeats itself, and this has already begun, as I have already intimated, in respect to crossing Long and Shortwoolled sheep, it will be interesting to quote again from Mr. Twynam's letter of November, 1837:—

"I have thus far spoken," he says, "only of obtaining a uniform breed of the first crop. I will now proceed to observe that to render this breed still more useful and profitable, and to adapt it for every purpose for which the full-sized Down is now used, a good-coloured, good-woolled ram of this first cross should be used with Down ewes. Where good judgment is here exercised, the produce is the handsomest, the most compact, and, all purposes considered, the *most profitable* sheep that has ever yet been produced."

Here our authority may be open to the charge of a slight inconsistency, considering what he had previously said about the value of first crosses. The words in italics, "most profitable," are his own, but he continues to anticipate what the Oxfordshire Downs, and, in a less complete sense, what the Shropshire sheep now are:

"Here you have combined, he says, "all the advantages of the Leicester, Cotswold, and South down, a capacity for folding with increased aptitude to thrive, a kindliness in nature without tenderness, a frame so improved as to come to greater weight when fatted than the Downs, without the inconvenience of too much size, an increase of wool, not only in length and weight, but in value; this second cross bearing beyond all dispute the most valuable combing wool England can produce."

As I have shown, the relative prices of mutton and wool are not now what they were upwards of forty years ago, and for several years after that time. Mutton was then selling at less than 6*d*. per lb (1) The present obvious practical tendency, as I have also shown, is to cross longwoolled sheep with Downs or first crosses, such as Oxfordshires, or with more mixed dark faced breeds, such as the Shropshire, and this with a view to improve the quality and value of the mutton rather than to increase the weight of wool. But Mr. Twynam proceeds:—

"On my farm, where the moderate-sized Hampshire Down will live, I do not hesitate thus openly to declare that the *second* cross of Cotswold and Down shall beat them, taking the average annual sales, at least 25 per cent. in profit, keeping the same numbers and performing the same folding. On this point. I have twice before ineffectually dared my brother farmers of Hampshire to a trial, and now for the third time I solicit some spirited Southdown breeder to select 100 ewes, one-half of which shall be coupled with his own ram, the other with a cross-bred of my own production; let the lambs fall and live together in any manner, good or bad, as he pleases; let them be shorn when tegs, and their wool and carcase valued. By the event, I am willing to let the merits of the cross stand or fall."

There is much in the above close and confident description that may be applied to current events in regard to the progress of British and foreign flocks of sheep. Mr. Twynam, however, concludes the paragraph from which the above are extracts in a way I cannot think is so happy or trustworthy. He says, in his emphatic way:

"As to pure breed, nonsense! There is no such thing in this country! And I much question, if a close investigation took place, whether the celebrated Ellman's breed did not derive their "mould" from Bakewell's Leicester."

I have been among Southdowns forty or more years, but do not remember ever having seen a trace of a stain of Longwool in any sheep that came from a reputed true-bred Southdown flock. This strain would crop out, even after many generations if it had ever been there. As I have previously shown, it crops out in "watery" or "open" fleeces in the Shropshires, in which it is admitted there is a strain of long-woolled sheep. It crops out, too, among the sheep in question, the Oxfordshires, an occasional lamb having almost a pure long-woolled fleece to look at. When these have appeared, however, they have been discarded from the flocks of professional Oxfordshire breeders. Hence the present prevailing uniformity of the wool and general character of the established breed of Oxfordshires. (1)

W. W. G.

(1) In 1850, I sold no end of Down-sheep at 3s 8d the stone of 8 lbs — five pence halfpenny a pound. A. R J. F.

(1) When Lord Ducie brought Jonas Webb's best ram (hire, 95 guineas a season) into Glo'stershire, the wool of his get was open, or watery, in the second year. I am as convinced as a man can be of anything he cannot prove, that Webb's sheep had a touch of the long-wool in them. A R. J. F

(2) Possibly, if they are sown *very* thin. As a rule, I never saw any cabbages or cauliflowers succeed when started in a window. A. R. J. F

Starting Cabbage and Cauliflower.

EDS. COUNTRY GENTLEMAN— Some four or five years ago I urged in the COUNTRY GENTLEMAN that for that part of the country north of the 40th parallel of latitude, cabbage and cauliflower plants started early in spring, if properly attended to, were equal if not superior to those started in September and wintered over. Additional years of practice confirm the opinions then held, not only by myself, but also by the majority of market gardeners I am acquainted with.

Plants may be either started in greenhouse hotbeds, or, when only a few dozen are wanted, the seeds may be sown in boxes and started in the window. (2) Every farmer may raise his own plants by this last method. I would not advise sowing the seeds before the first of March. Get a box about three inches deep and of a size suitable for the size of the window, sow the seeds thinly and when the first two characteristic leaves are formed transplant in another box, putting the plants down to the first leaves in the soil. Keep well exposed to light and air; set the box out of doors on all suitable occasions, so that they shall neither be tender nor drawn in growth; keep them stocky and hardy, and when time comes for setting into the open ground, they are in a condition to grow right along without any apparent check.

Mr Bailey, on page 69, advises, for early hotbeds, a foot of manure, and on this a foot of soil, for raising early plants. I think he makes a mistake in recommending a foot of soil on such a small quantity of manure, before the first of April. I do not think there is sufficient heat in a foot of manure to heat a foot of soil, unless the heating properties are more powerful than I can find in any manure I handle. Five or six inches is enough of soil for the raising of any kind of plants, and then the heat of the manure is not wholly exhausted in heating a large body of soil.

I consider flats or boxes the best, however, to start cabbage cauliflower, and in fact all kinds of early vegetable plants, when they are raised in large quantities. Last season I raised 50,000 early cabbage plants, and, with the exception of 15,000, had them all in boxes 18 by 24 inches and 3 inches wide. The manner in which I make these boxes is as follows: I use half-inch lumber cut to the width of 3 inches and 12 feet long, (by having it in this size, it cuts to the proper

lengths without waste) ; the bottom and sides I cut 2 feet long, the ends 18 inches, and nail them together with 6d. nails ; it takes for a box 7 pieces 2 feet long, 5 pieces for bottom ; this leaves 3 inches of space equally divided for drainage, which may be looked upon as too much, but I find, unless plenty of space is left for drainage, plants do not do so well ; and also find that plants in boxes of this description do better then when I used to make them with less open space in the bottom. I first place about an inch of well rotted manure in the bottom of the box, then fill up full with good rich light soil, and put into each box 150 plants. When only a few boxes are needed, they can be cut out of soap or shoe boxes and answer the purpose just as well ; only secure plenty of drainage.

I start my seeds, the second week in February, in a greenhouse kept at a night temperature of 50°, transplant as soon as large enough, (1) then place in cold frames which are covered sufficiently at night to exclude the frost. A slight freezing, if it does not kill them outright, weakens their vitality so that they are not of much account afterward.

I find plants grown in boxes are more convenient to market when the market is local. In attending market and also supplying store-keepers, they keep much fresher when so grown that when pulled out and left for several days to wilt before being sold. A good many farmers also just require about the number a box contains to set out, and they find it the better plan to take them along box and all, so that they can set them out at convenience. (2) I also grow tomato and celery plants for the home market in these boxes. I put tomatoes 100 in a box, and celery the same as the cabbage—150. I do not start tomato plants before the 1st of March. If started earlier, they, unless often transplanted, get starved in the boxes, lose their lower leaves, and turn yellow. Unless grown right along from the time the seed germinates until set out in the earth, they are a long time in making a fresh start. Early tomatoes are best secured by growing freely and transplanting frequently, so that they shall receive no check when set out, but move along the same as when transplanted from one box into another. This method of culture produces a large mass of roots which immediately take hold, and no evil from wilting is experienced.

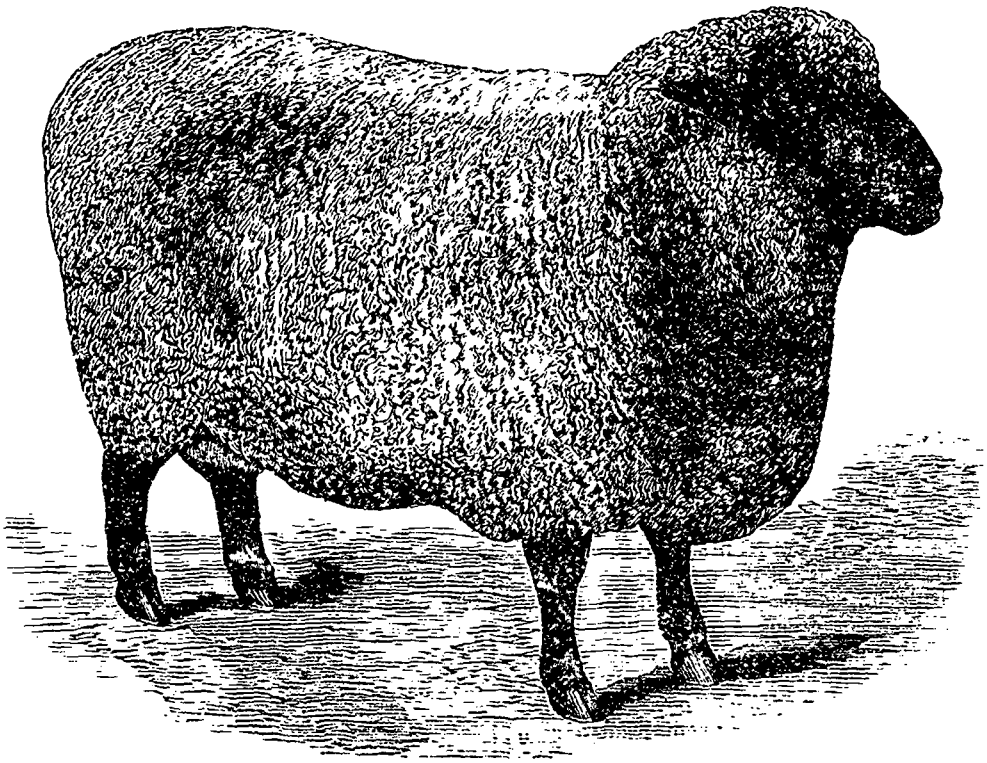
I cannot but express my admiration at the large amount of valuable matter you condense in your editorials in the horticultural department. They appear to contain, in few words, and therefore easily remembered, the practice and observation of the editors, with the best thoughts of our most practical horticulturists, and I consider it the best method of conveying such information to your readers. (1)

M. MILTON.

Mahoning County, O., Jan. 26.

(1) This is the grand point. Montreal people never "prick out", and that is their weak point. A. R. J. F.

(2) Yes, truly, but in the States good things fetch their price; here, one is expected to pay the absurd sum of 50c a hundred for lanky, leggy plants, with a taproot and no rootlets. A. R. J. F.



MR. CHARLES HOWARD'S OXFORDSHIRE DOWN RAM.

Harrowing Young Corn.

Before I had finished planting potatoes, the corn was up so that the rows showed across the field. As I had rolled it after drilling it in, this was exactly the time I wanted to begin to cultivate. But I really could not spare men or team-help to do this. It takes a good deal of time to cultivate one row at a time, and especially as I think best with very young corn to do the first cultivating twice in a row and setting the teeth as close to the corn as possible. In this

(3) A most valuable article on a most important subject.

dilemma I bethought me of the Thomas smoothing harrow. A man and team harrowed seven acres in about three hours, doing more effective work in that time than five men could do in a day. The harrow covers three rows, 3 ft. 6 in. apart, and works around the young corn as no other implement could, crushing lumps and breaking the crust that has formed in ten days after planting on the heavily rolled surface.(1)It is. I am satisfied, better work than the cultivator could do, and at an expense so trifling that it is hardly to be considered. This three hours' work, done when I was too busy to give more time, has effectually destroyed millions of small weeds, has put the grass and other green stuff under where it was trying to force its way up, and in the increase of fertility thus given I have no doubt it has added fifty bushels of corn to the crop on the seven acres, more than there would have been by delaying work till I had finished planting.

My stand of corn is too heavy, and in about a week I shall drag it again, this time with a heavier forty tooth drag in order to tear out some. The smoothing harrow on land free from stones as my corn field is, does not take out enough. I dragged the first time with the smoothing harrow, because I feared that when very small a heavier drag would prove too rough, and besides I wanted to take the widest possible sweep so as to save time. When I drag again I shall cross the drill rows, and so on alternately each way once a week for two, and possibly three weeks. Where the ground is in the best condition, drilling corn is better than planting in checks. If the corn is in hills, dragging it may cause a sod or stone to tear out the entire hill. When the corn is in drills, the crop is generally all the better for all that is torn out. I put on phosphate (2) at the rate of two hundred pounds per acre, letting the fertilizer run through all the tubes. I never saw a better stand of corn, and if the season is not very unfavorable I expect one hundred and fifty bushels of ears per acre, or something more than one thousand bushels of ears from the field. (3) The grain and the stalks for feeding will be worth as much as an average crop of potatoes on the same area, with the advantage that the corn will be fed out on the land, while the potato crop will add nothing to the stock keeping and manure-making capacity of the farm.

Where corn is drilled in, harrowed and rolled down, fowls and crows will not often do serious damage. They cannot find the grains until they come up, while I have known crows to follow the planted hills for several rods, taking out every kernel long before the shoots appeared above the surface. Crows are very cunning in following rows of planted corn; but where it is drilled in with phosphate I think the odor of the fertilizer repels them. They will alight on the field, try a little, and then fly away in disgust.

W. J. F.

Monroe County, N. Y.

(1) Crust is a certain sign that land has been worked out of season. A. R. J. F.

(2) Oh! If they would only say what phosphate they use—ammoniated or plain mineral superphosphate—we should get some inkling of what causes an increase or decrease of crop A. R. J. F

(3) Here, again; who knows what a bushel of ears amounts to in grain? A. R. J. F.

PEDIGREE.

CHIEFTAIN SECOND.

BULL.—Cream fawn and white. Calved November 1878. Bred by James James, Les Vauxbelets, Guernsey. Imported, July 1878.—Dam Rosebud 2nd, of Les Vauxbelets, highly commended; Bath and West of England show, June 1878. —Sire Chieftain; 2nd prize at same show.

I certify the above to be a correct pedigree of the Bull Chieftain 2nd, acquired from me by Mr. Joseph Staniforth, Lachute, and that he is entitled to Registry in the Guernsey Club Herd Book.

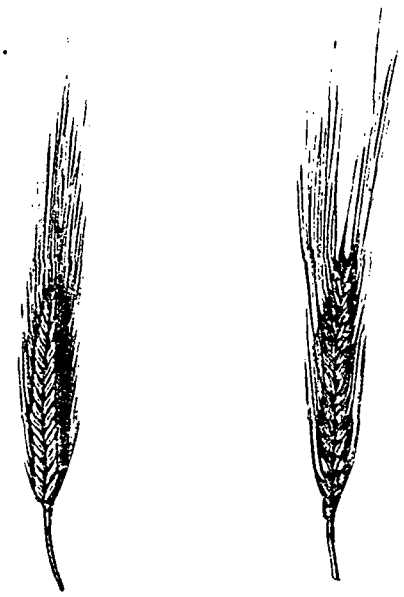
J. J. C. ABBOTT, Importer.

Sept. 26th 1884.

BARLEY.

The fruit of Sir John Barleycorn, as the old English term has it, is too well known to need a general description, but a short delineation of the different varieties of this grain may not be superfluous.

Barley may be divided into two chief kinds; two-rowed and four-rowed; again, into malting and grinding barley; once more, into spring and winter-barley; and, lastly, into common and naked barley. In the annexed engraving *a* is the 4-rowed, called in Scotland *bere* or *bigg; b* is the ordinary two-rowed barley, the only sort grown in England—at least I never but once saw the former, and then it was only grown one season (1853), as the maltsters did not like it at all. There is a six-rowed barley, but I never saw it, and I fancy it has almost entirely vanished out of cultivation.



Two-rowed Barley. Four-rowed barley.

It is of course very easy to distinguish between these two sorts of barley when in the ear; but after threshing, it is not so simple a task. In classing barley by the grain, the following difference may be observed: In the 4 rowed the middle line of the bosom is so traced as to give the grain a twisted form, by which one of its sides is larger than the other; but in the 2-rowed the middle line passes straight, and divides the grain into two equal parts. It is also shorter and plumper than the other In the two groups of grain, the natural size has been preserved; but in the engraving of the barley in ear, the natural size has been diminished by one-half.

Bere or Bigg. Two-rowed Barley.

The signs of barley being fit for malting, a very important point as far as value is concerned, is the shrivelled skin across the middle line The difference of price in England used to be very great between malting and grinding barley; but now the duty is levied on the beer instead of on the malt, it is not so great. The *swell*, as it was technically termed, amounted sometimes to as much as 15 0/0, i. e. the bulk of the malt exceeded the bulk of the barley by that amount. Barley was never sold by weight, as malting barley weighing 52 lbs. a bushel was often worth $2.50 a quarter more than grinding barley weighing 54 lbs. Here, unfortunately for the careful growers, there is very little difference in price between the two kinds, and it is not invariably the maltster fault, for I remember well that, when I had a brewery, if I gave one farmer an extra price for a fine sample, the next that came with a lot to sell insisted upon getting as much as his predecessor in spite of a possible inferiority in his grain. Of course he did not get it; but it created a dissatisfied feeling, which frequently led the disappointed man to refuse to deal any more.

A good crop of barley is a splendid sight. I once saw, in Cambridgeshire, England, 72 bushels an acre, standing bolt upright, and the waving ears, with their golden beards, were a glorious spectacle The ordinary crop used to be about 48 bushels, but in the Eastern counties, 64 were not uncommonly seen. Somewhere about 1835, Dr. Chevalier, a Suffolk physician, found a *stool* of barley, the beauty of which induced him to preserve the ears and propagate the seed with great care; hence, the celebrated Chevalier barley; the finest malting barley ever seen. This was not its only peculiarity, for whereas, before its discovery, no barley fit for the brewer would grow on the clay soils above the chalk, the Chevalier was found to answer famously there; and the consequence was, that instead of growing six or seven quarters of oats to the acre, the farmers of heavy land in the Eastern district succeeded in producing seven to eight quarters of the finest malting samples. In the long run, the landlords of course raised the rent, but it was a profitable discovery to the tenants all the same; the Chevalier barley entirely changed the whole system of farming in that part of the country, and a slovenly district was converted into one of the best farmed parts of England In this case, barley at first was sown on a summer fallow, whereby the land lay without a crop from August, when the wheat was cut, till the following February twelvemonth, when the barley and grass-seeds were sown. A long time, to be sure, but as the average yield per acre was 60 bushels, and the price 5 s. sterling, the gross return equalled £15, or £7.10 a year, the time between crop and crop being of course two years. Later, rape was sown on the fallows in June or July with bone-dust, guano, or dissolved bones, fed off with sheep, to each being given a pound of linseed cake, or ½ a pound of cake and ½ a pint of beans or lentils. With this, or with heavy dressings of dung ploughed in during the autumn, and the barley sown on the stale furrow—the strong point of heavy land farming in the Eastern counties—the crop was enormous; a farm I rented for a few years having averaged 64 bushels an acre for 14 years. The course of cropping was as follows: fallow or rape, barley, seeds (red clover), wheat; and the acre-yield: 64 bushels of barley, 3½ tons of clover, cut twice, and 40 bushels of wheat. In process of time, it was found that red clover would not bear the frequent repetition, and it was replaced in the second round by beans, and in the third round by hop-clover, commonly called trefoil (trifolium procumbens). In the two last rounds of the twelve years, the wheat was found to fall off in yield, but it was no use going on sowing red clover, and the loss had to be borne. I mention this because I must keep on dinning it into people's ears that our most valuable friend red clover cannot be played tricks with. It has its fancies, and if those fancies are not indulged, evil will come of it. The writers in the American papers talk of sowing red clover for manuring purposes as if it was a plant which, like wheat, would, if the land was kept in good heart, come every year. It is not so, as our East Anglian brothers found out long ago, and if we persist in neglecting to profit by their experience, we shall inevitably find that red clover will refuse to grow altogether.

Good Chevalier barley weighs from 52 lbs. to 56 lbs. a bushel. In Worcestershire, on the New Red Sandstone formation, it has been known to go as high as 60 lbs. I have found some samples in Chambly, on the Longueuil road, weighing 57 lbs., but the ordinary barley of the province does not exceed 52 lbs.

Malting.—The conversion of barley into malt is conducted as follows: The grain is steeped in water for from 48 to 72 hours, according to its quality—in mild weather, the water is changed the second day—it is then, after draining, turned out of the steep into a frame, called the couch, where it lies for about 24 hours—depth of couch, about 20 inches.—The grain now begins to heat, becoming about 10° hotter than the surrounding air, and it is turned over, and gradually thinned down to 5 or 6 inches. The roots begin to show; the stem or *acrospire* springs from the same end, and turning back, runs along the grain under the husk. To bring this acrospire far enough up and not too far, is the great point in malting In England, the quality of the barley is so superior that three-fourths is found sufficient, but, here, it is better to let the germ almost protrude. In proportion to the progress of the acrospire, the starch of the barley undergoes a change: barley usually contains 8 0/0 or 9 0/0 of sugar and gum; after malting, it contains about 30 0/0 of these substances In the process, some of the nitrogenous matter originally contained in the seed is lost: barley contains 3 0/0 of gluten, malt only 1 0/0. In the brewer's mash-tun, a further portion of the starch is changed into gum and sugar.

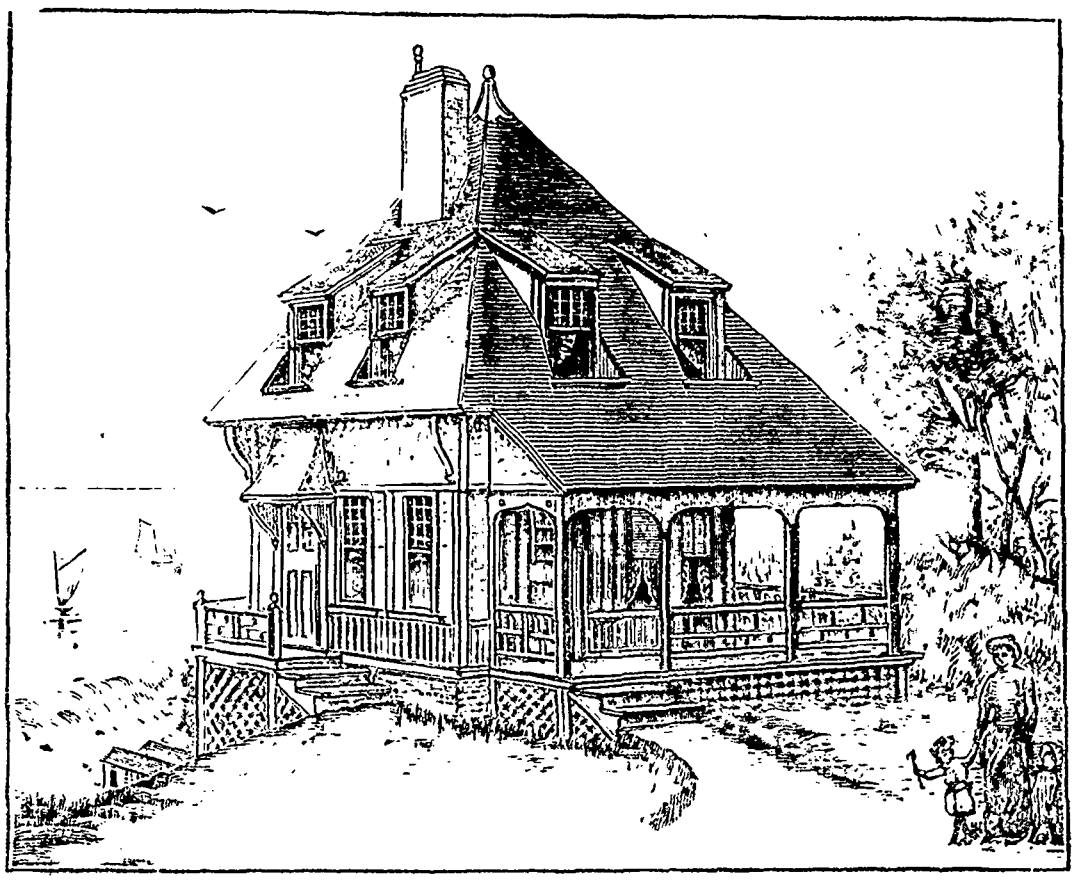
When the acrospire has proceeded far enough up, the malt is dried to prevent further growth, which, if allowed, would exhaust the whole contents of the husk. The process is a most interesting one, and in our English malt-houses is carried to perfection. Great pains are taken by the Burton people in the selection of grain; they have buyers all over the best barley districts, and price is no object, if the quality is of the best. I, myself, saw at Saffron Walden, on the borders of Cambridgeshire and Essex, 40,000 bushels of barley belonging to Messrs. Bass & Co. Burton, which had cost that firm 30c. a bushel over the ordinary market-price. The duty on malt used to be, up to about 1880, 2s. 9d. a bushel!

The rootlets or *cummins*, as they are called, when detached from the malt are very valuable cattle-food, containing as they do about 25.9 0/0 of albuminoids. The grains from the mash-tun contain only 5.9 0/0 of albuminoids, and yet at Chambly I could never get more for the one than for the other, both fetching 10c. a bushel. In reality, if the grains were worth 10c. the cummins were cheap at 30c; as may be easily seen by the subjoined analysis:

	Water.	Ash.	Albuminoids	Fibre.	Other carbhydrates.	Fat.	Value per 100 lbs.
Cummins	11 6	6.7	25.9	9.3	45 5	1.1	$1.33
Grains ..	75.2	0.3	5.9	3.9	13 2	1.5	.36

The value of the grains, however, depends a great deal on the quality of barley, the skill of the maltster, and the knowledge of the brewer. I have the vanity to think that, at my brewery, the grains were not worth much. Very little foreign barley, except some very fine sample from the river Saale in Germany, was ever used by the English brewer. Heavy as it often was, it would not melt in the mash tun, and the reason is plain: bite a grain of English grown Chevalier barley in two, and you will see that the interior is like flour all through; treat a grain of Canadian barley in the same way, and you will see that the middle is like rice. It is this that shortens the yield of extract, and when the yield is short, the flavor is invariably poor.

Barley is cultivated farther north than any of the other grains: fields of it are seen in the Orkney Isles and in



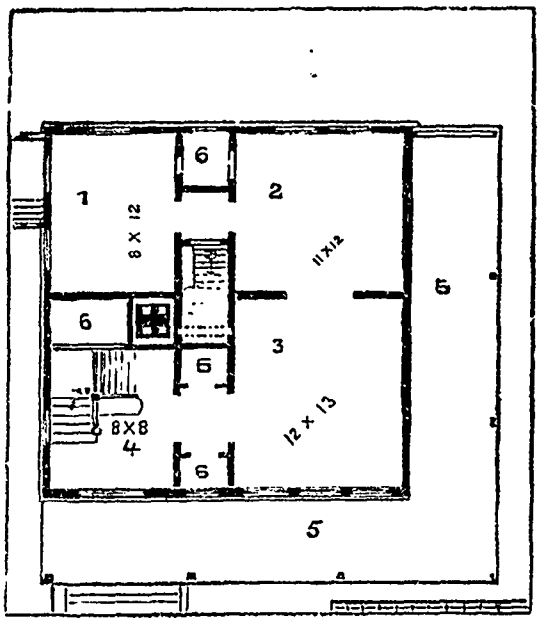
Shetland (lat. 61° N.), and even at the Faroé Isles (lat. 62° 15' N.). In Western Lapland, the limit of barley is lat. 70°, near Cape North, the northern extremity of Europe. Between the tropics this cereal does not succeed in the plains, because it endures heat worse than any of the cultivated grains.

Sowing barley.—Barley, to grow to perfection, requires a deep, well pulverised soil. It may follow any crop except grass, but does best after a well worked root-crop. The land should be ploughed a fair depth in the fall—say, six inches, —carefully water-furrowed, and in the spring the grain should be committed to the earth as soon as the dust begins to blow after the harrows. You may play tricks with wheat, but if you try it on with barley you will repent it. Mr. Stephens, Book of the Farm, says: "I have seen the experiment tried of sowing barley on one furrow, on land ranging from clay to gravel, and the result was a manifest deficiency of crop compared from after two ploughings; and the result was not surprising, as barley requires deep, well-worked land.... Strong land, with a single furrow, turns over with a tough, waxy clod, ungenial to the growth of barley." Perfectly true, Mr. Stephens, but the fact remains that nine tenth of the heavy land barley in East Anglia, in Essex, Hertfordshire, and Cambridgeshire, is grown on a single furrow, and this is the very district whence the Scotch brewers get their malt, and prize it highly for the manufacture of the highest class of Edinburgh and Alloa ales! The fact is, that, in the E. and S. E. parts of England, the plough is kept going so close up to the sheepfold, that almost the last acre of the turnip land gets a little frost on it and the cultivation of the root-crop, as well as the manuring, is so thorough, that the ground works like an ash-heap: it would be the height of folly to turn under this finely fitted soil to replace it with a lot of raw clods. I repeat my previous statement: Spring-sowing on a stale furrow is the strong point of our barley district.

There are three ways of sowing barley: 1° broadcast on the untouched furrow; 2° broadcast on the harrowed surface, to be dragged in with the grubber; 3° and best, drilled in on the well-harrowed surface; and the simplest consideration will show us which is the best method of the three.

Now, barley is of all grains the one most susceptible of gratitude. You may muddle in your wheat in a roughish tilth, but the ground for barley should be, nay, to be profitable, must be, as fine as a garden. To produce a good sample for the maltster, the grain must be thoroughly and equally

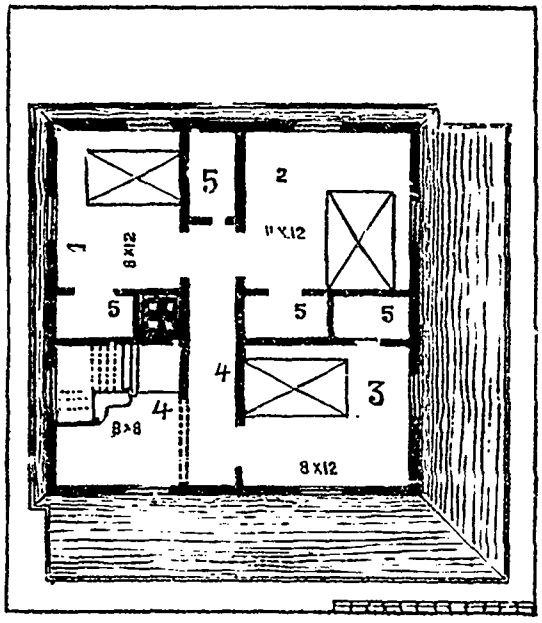
ripened, or else it will not grow equally in the *pieces* on the malt floors; consequently, the seed must be all put in at the same depth, or else it will not come up together, or, as the Scotch term it, will not *braird* equally. Now, there is no way of doing this, viz., putting all the seed in at the same depth, except with the drill: ergo, to drill it, is the best way of sowing barley. The land, should receive five sixths of its harrowing before the drill is set to work, including cross-harrowing of course. I spoke fully last month about this operation, so I need say no more on the subject, except to explain the reason why the harrowing should be done almost entirely before sowing; if, as I said before, the great object is to put all the seed in at the same depth, it must be clear, that to hook some of it up nearer the surface by the harrow-teeth after sowing must defeat the object. One tine or stroke along obliterates the marks of the drill and leaves the grain quiet in its place. Supposing that, in all, six tines are required—this ought to suffice, but there is no fear overdoing it—I should give a double tine up and down the ridges; then, a double tine across, to be followed by the fifth along. As, in this province, cross-harrowing is but too rarely seen, I may as well say that, in my opinion, any one who neglects it sacrifices not only an appreciable proportion of his barley-crop, but, also an important means of insuring a good stand or take of the grass-seeds usually sown with this cereal.



The grubber should be used only when there is no drill at hand. I wish there was one in every parish! With us, in England, there are men who keep half a dozen, and let them out to hire, as they do threshing machines here, charging so much an acre for the hire. If any beneficient Seigneur would take the hint, particularly in the heavy land districts, he would do untold good; but there seems to be no public spirit about!

You will easily perceive that, in sowing barley or any other grain with the grubber, it is necessary to harrow the land until it becomes perfectly homogeneous, that is, until all parts are equally penetrable by the teeth of the implement. It is not possible, however well we may prepare the ground, to deposit the seed with the grubber at an equal and regular depth; but how much less possible would it be, were we to sow the seed on the furrow, and then grub it in. On heavy land, I should proceed thus: pass the grubber across the ridges once; harrow up and down sufficiently to make the land tread equally under foot; sow the proper quantity of seed; grub it in along the ridges, and then finish with the stroke of the harrows, along them, of course. There is no need to describe the ordinary or broadcast way of seeding, as every one knows how to do that. Only, for goodness sake, see that your harrow-tines are sharp, don't neglect cross-harrowing, and never leave the piece untill the foot can be drawn along across the furrows without finding one place more difficult than the other.

When the sowing is finished and grass-seeds are not intended to be sown, roll the barley-ground at once, water-furrow, if needed as it always will be on all but the lightest land, having previously passed the double-mouldboard plough between the ridges. If the land is strong, the water-furrowing had better be done after the rolling; but on light soils, water-furrowing before the rolling make, a better finish. All these operations will take time, I allow, but as long as they are only partially employed, or negligently executed, so long will the amount of barley per acre grown in the province, as well as its quality, be inferior to what it might be.



Quantity of seed.—If you propose to get a good price for your barley from any of the Montreal brewers, you must look after the purity of your seed. I have skimmed off eleven bushels of oats from a steep of only sixty bushels of what professed to be barley! Of course, the grower was surprised, and, until I showed him the oats on the floor by the side of the steep, he did not believe it to be possible. The American maltsters prefer the four-rowed barley; but it is simply because they do not understand how to treat the two-rowed. Montreal men wisely choose the two-rowed; and in the hands of such a man as *Sandy*, at Messrs. Dow & Co, it is wonderful to see what tender, well-flavoured malt it becomes.

As to the quantity of seed, that must greatly depend on the condition of the land. In well prepared loam, 2½ bushels of 2-rowed should be enough, with drill, and a peck less of 4-rowed. Broadcast, with the grubber, or on the furrow, 2¾ of two-rowed, and 2½ of 4-rowed. If the land is rough

and the season advanced, half a bushel more will be advisable. In Scotland, I see, they still sow a sack—4 bushels—to the acre! In my part of England, where all seed, except grass, is invariably drilled, 3 bushels of barley are usually sown.

Early sown barley always produces—ceteris paribus—the best quality.

Never sow barley in badly prepared land—oats instead.

Barley may follow wheat, if the piece is very rich and grass seeds are wanted. From some unknown cause, seeds take better with barley than with any other crop. This, to my mind, is almost the only exception to the rule, that two white-straw crops should never follow each other.

If you roll or harrow barley after it is up, be careful to avoid doing it if there is the slightest frost.

The roots of barley have been traced to the depth of 9 inches below the surface; and this shows that land should be ploughed deep for this grain.

Winter barley is sown in the south of England for early sheep keep. It does well for that purpose, sprouting again freely and rapidly after feeding off. Far superior to rye for sheep, as that cereal soon gets hard and sticky. Winter barley is never grown for malting purposes, as if the weather causes it to tiller in the spring it produces an unequal sample, containing a large proportion of light grains.

Harvesting.—If you grow it for maltster's use, let your barley stand till it is ripe—*dead-ripe.*—The reason why, I have already explained, you cannot bind it in this state, as in making the bands, the heads would break off; you must be content to turn it, get it into heaps, with the barley-fork preferably, as it is very easily damaged and a horse-rake would do infinite harm. If there are no grass seeds or weeds in it, you can carry almost immediately after the reaping-machines.

In threshing, see that the machine is not set too tightly, as that would peel the point of the barley and injure it for malting. Take care not to break the grain, as each broken grain turns mouldy on the malt-floor, and this mould plays the very mischief with the subsequent fermentation of the brewer's wort or extract.

ARTHUR R. JENNER FUST.

MILK.

A PAPER READ AT THE ANNUAL MEETING OF THE HUNTINGDON DAIRYMAN'S CONVENTION, 28TH FEBRUARY 1885, BY D. MCEACHRAN, F. R. C. V. S.

Mr. Chairman and Gentlemen,

Some apology may be necessary for bringing this subject before you at this meeting, as from the heading under which this paper was announced, "The Science of Milk." I fear many expect a scientific disquisition on milk in all its relations to the dairy. Such is not my intention, gentlemen, but knowing how important it is that all practice should be based on science, I have thought that an hour might be profitably spent in describing the microscopic structure and analysis of the raw material which it is largely your business to manufacture, in the hope that turning your attention to the science of milk, it may lead many of you to further study of the subject and thus enable you to understand more clearly from scientific knowledge what you are familiar with in every day practice.

The great importance which attaches to milk as an article of commerce is the direct result of its importance as an article of food. From the moment of birth till the closing scene of life, it enters largely into the food of the human family, especially the young and the weak. Viewed by the unaided eye it appears to be a simple, opaque, white fluid, having a peculiar odor of milk differing slightly in different species, having a slightly sweet taste, a temperature nearly the same as the animal's body from which it is obtained, and a specific gravity at 60° F. of 1,029, a little heavier than water, water being 1000. It is the natural food of the young animal. It is secreted by the mammary glands of the mother, and contains all the elements necessary for the nourishment and growth of the young one. It is, in fact, the only single substance in nature which will continuously support life. Thus, it has been proved by experiment that dogs fed exclusively on meat will die after a few weeks. So, with any single vegetable substance, for want of chemical constituents necessary to support life, or according to some, the nausea resulting from want of change of food. Not only does milk contain all the chemical elements necessary, but in just the necessary proportions required by the animal's individual offspring, suited to its age and constitution. In it we find a mixture of albuminous, saccharine, and oleaginous substances, which indicate that the Creator intended that all these should be employed as components of the ordinary diet. The casein is a protein compound; the butterine of butter is but a slight modification of the ordinary fats; and its sugar differs from that in common use only by its larger proportion of water. The relative amount of these ingredients in the milk of different animals is subject to considerable variation, but they constantly exist, at least in the milk of the herbivorous animalia, and of those which like man subsist upon a mixed diet. The milk of purely carnivorous animals, however, contains scarcely any sugar, so long as they are fed upon a purely animal diet, chiefly consisting, like their food, of protein compounds and fatty matter.

Milk is not the simple white fluid it appears to be. When we examine it by aid of the microscope, we find it presenting numerous round shiny globules of various sizes floating in a clear liquid. These are the milk globules or cells.

Milk globules.—The milk globules are minute drops of oil inclosed in a delicate albuminous membrane, and milk is rich or poor according to the quantity of the oleaginous or butteraceous substance it contains, in other words, the number and size of the globules. They vary in size even in a drop of the same milk, but more particularly do they range in size according to the breed. Thus in Alderneys the globules are larger than in Ayrshires, hence we find Alderneys' milk yields relatively more butter. The fluid in which they float is serum, consisting principally of water. When this is relatively abundant in proportion to the corpuscles, the milk is thin and watery.

The variation in the number of globules in the milk is influenced by a variety of circumstances besides the breed of the cow. Thus you all know that the last drawn milk is richer and contains more cream than the rest of the milk, and that the morning's milk contains more fatty matter than that drawn in the afternoon or evening.

	Water	Solids.	Casein.	Fat.	Ash.	Cream by vol
Milk first drawn	85 5	14.5	3.5	3.5	0.5	12.0
" last "	80 0	20 0	4.0	8.0	1.0	Did not separate.

It will be observed that the last drawn milk is nearly three times as rich in butter as the first, and contains a slightly higher percentage of casein.

Colostrum.—The milk secreted by the udder for the first few days after calving is very different from that secreted afterwards. In the colostrum we find besides the milk globules large round bodies composed of a collection of oil globules held together by a cement and sometimes containing a nucleus. They are known as colostrum cells. The milk of a newly calved cow when first drawn has a specific gravity

closely approximating blood, 1,050. It has a strong taste like beaten eggs, a yellow color, is much less fluid than ordinary milk, and when heated sets into a solid mass. This milk yields a large proportion of cream or cream-like fluid. By the fourth or fifth day it gradually assumes the characters of ordinary milk. Colostrum is a natural laxative provided to empty the bowels of the intra-uterine accumulation of fæcal matters. It is necessary and salutary, but it is scarcely fit for human food, and we find that when mixed with milk supplied to infants or invalids it causes nausea, and in some cases derangements of the stomach and bowels.

CHEMICAL ANALYSES.

	Average composition of pure milk.
Specific gravity	1 030 +
Cream per cent by volume	8 ol° +
	Per cent by weight.
Sugar	4 40
Casein	4.30
Ash	.60
Solids not fat	9.30
Fat	3.20
Total solids	12 50
Water	87.50
	100.00

The inorganic constituents of milk are very important in connection with the nourishment of young animals and development of their bones. According to Haidlen, 1000 parts of milk contain from 5 to 7 parts of ash or mineral matter and this consists of about one half of phosphate of lime (bone earth) and the rest of soda and alkaline salts.

Inorganic constituents of 1000 lbs. of cows milk.

HAIDLEN.

	1st Sample.	2nd Sample.
Phosphate of Lime	2.31 lbs.	3.44 lbs
" " Magnesia	0.42	0.62
" " Iron	0.07	0.07
Chloride of Potassium	1.44	1.83
" " Sodium	0.24	0.34
Free Soda	0.42	0.45
	4.90 lbs.	6.75 lbs.

Milk is affected by a large number of substances, especially those which precipitate its casein, or in other words cause it to coagulate, becoming insoluble, inclosing the butter and produce the separation of a whey-like fluid from the caseous masss. When milk is left to itself for a considerable time it coagulates, in consequence of the conversion of a portion of its sugar into lactic acid. If the milk is allowed to remain still longer exposed to an ordinary temperature, the surface becomes covered by peculiar forms of mould, and under certain conditions which are not accurately known, particular species of infusoria are developed, which are the cause of the blue or yellow coloring matter which is especially distributed over the surface. The precipitation of casein by rennet, as you are all familiar with in the dairy, is said by Simon to be due to a catalytic action on the sugar of milk by which it is converted into lactic acid.

Milk resembles blood not only in its structure but also in the changes which it undergoes when removed from the animal body. Blood separates into clot and serum, milk into the cream and a more watery and less butteraceous fluid, skim-milk. As remarked already, when left standing for some time it alters, absorbing oxygen and giving off carbonic acid. When placed in contact with three or four times its volume of air it absorbs the oxygen in three or four days, fat increases in amount and oxalic acid is also said to be found. Lactic acid is developed at a later period from the lactine, the milk becomes turbid, casein is formed, and the cream disappears. These are the changes we find taking place when milk turns sour. We know that heat, thunder and lightning, keeping milk in close ill-ventilated places, all tend to increase this liability to change or sour. When milk is set aside and allowed to stand for some time exposed to the air, the cream rises and floats on the surface, owing to the less specific gravity of the fat cells. When this cream is churned the envelopes of the fat or butteraceous cells are burst, setting the fat or butter free, leaving butter milk, containing casein and sugar, behind. The great difference between well made butter and bad is the success or failure to remove the casein from the butter. Unless it is entirely removed, or nearly so, the butter is liable to become rancid or, in other words, undergo decomposition. Butter, like all oleaginous matter, consists of olein and stearine, and a peculiar substance from which it takes its name, butterine, to which the characteristic taste and smell are due. As you are aware, the most powerful coagulator of casein, and that which is in constant use in the dairy in the process of cheese-making, is the dried stomach of the calf, known as rennet. It is said to coagulate about 1800 times its weight of milk. In this way the curd is separated from the whey, the former consisting chiefly of the casein, while the serum, sugar and saline matters are found in the latter. As it is not my intention to attempt the discussion of the different practical operations of the dairy, nor to advocate any special skimmer, creamer, separator, or other paraphernalia of the dairy, I will conclude by a few remarks on certain alterations to which we find milk liable.

Few fluids are so liable to alterations as the milk of the cow, from the food she eats, the water she drinks, and the air she breathes.

Smell records some interesting facts on this subject. In one case large quantities of oilcake were given, and the milk became perfectly useless for the table, large quantities of a rancid oil floated on the surface after boiling it. Two short-horn cows, whose milking qualities were similar, were fed, one on ordinary meadow grass, the other on the grass from a sewage farm. The result was that the milk derived from the cow fed on sewage grass became putrid and stank after thirty-six hours, and the butter from sewage grass-fed milk became rapidly rancid, compared with cows fed on ordinary grass. We all know that at certain seasons of the year, when certain plants are eaten by cattle, how they affect the colour, odour, and taste of the milk. Carrots, turnips, onions, cabbages and vine leaves, &c., all flavor the milk when eaten by dairy cows.

I am indebted to Fleming's "Sanitary Science" for the following explanations of certain conditions of milk which you must frequently have met with without your being able to account for them.

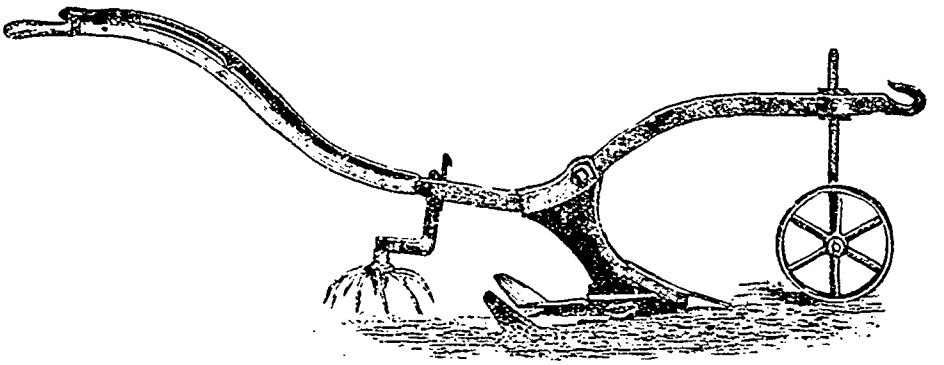
(1) *Acid milk which coagulates too quickly.*—You must have noticed occasionally that the milk coagulates, very soon after being drawn, especially if exposed to an elevated temperature; sometimes it is clotty even in the teat. This is usually due to inflammation of the whole or part of the udder, sometimes of only one teat. It may also be due to digestive disturbance, fever, the animal being heated by exercise, admission of air to the milk sources through using a teat syphon, keeping milk in a hot apartment full of vapors or in unclean vessels, especially those made of wood.

(2) *The yellow milk* is seen when there is irritation or

passive congestion of the udder. It is sometimes as yellow as the yelk of eggs. It is seen most frequently in newly calved cows, due to colostrum.

(3) *Viscid milk* generally appears healthy when drawn from the udder. It coagulates in the usual way, though imperfectly. In attempting to pour it from the vessel the cream flows in streaks, and the other portion runs off in viscid mucous-like streams, like a strong decoction of linseed or half-melted glue This is generally due to the condition of the dairy, which is damp, badly ventilated, and contains unhealthy vapors. It is a mucoid fermentation of the milk, and the consecutive transformation of the lactine and casein. It is sometimes due to digestive derangement. It yields a scanty, oily butter with a bad taste.

(4) *Milk which does not yield butter.*—This milk appears perfectly normal when drawn from the udder, but it scarcely yields any cream, the butter is separated from it with difficulty, or there may be none at all. The cream looks like an emulsion, becomes foamy in the churn, and is perhaps only converted into little masses of butter which cannot be made to cohere. It is generally due to disease of the udder, or disturbance in nutrition. It is explained by the deficiency of acid, by the imperfect conversion of lactine into lactic acid It is usually sufficient, if the weather is hot, to place the churn in cold water, or to add a little acid to the milk, or a quantity of sour cream.



HORSE-HOE.

(5) *Blue milk.*—Such milk is thin, watery, blue in color, and throws up very little cream. It is generally due to an impoverished constitution, watery food, and gastric derangement.

(6) *Red milk* is due to the coloring matter in some plants, as for instance, madder.

(7) *Bitter or "rotten" milk.*—This is characterized by a bitter, mawkish taste, a rotten, disagreeable odor, and the difficulty with which butter is made from it. It is most frequently obtained from dairies when cows are badly kept, fed on improper or altered forage, and drink dirty putrid water or water containing decomposing organic matter.

Certain diseases can be conveyed through the milk not only to the young of the cow, but to people as well. Among these are tuberculosis, foot and mouth diseases, typhoid fever, scarlet fever, &c.

A small Seaside or Mountain cottage costing $800 to $1,000.

To be able to spend a portion of the year, and particularly the warmest months, on some lively shore, where the sight of the ocean and the sense of its cooling influence may be a constant gratification, has been generally regarded as beyond the reach of any but the very wealthy classes. As for resorting to watering places and seaside hotels, it is not only extremely expensive but far from satisfactory. A few weeks or days even of that kind of life exhaust both the purse and temper. To live, however simply and frugally, in a seaside home of one's own possession, is a substitute immeasurably to be preferred. It gives entire freedom, seclusion and a much larger measure of comfort. Of course the building of the house at small cost is only half the battle; yet there are many who could so order their affairs as to permit themselves, or at all events their families, the enjoyment of such a home from June to September, if there were no exorbitant hotel charges and costly style of living and dressing to be encountered. We have shown with accompanying plates how the home may be made at a cost of from $800 to $1,000. And it is of course an investment which can be turned again into money as readily as any other of the kind, with as little risk of loss, and the same chance of profit.

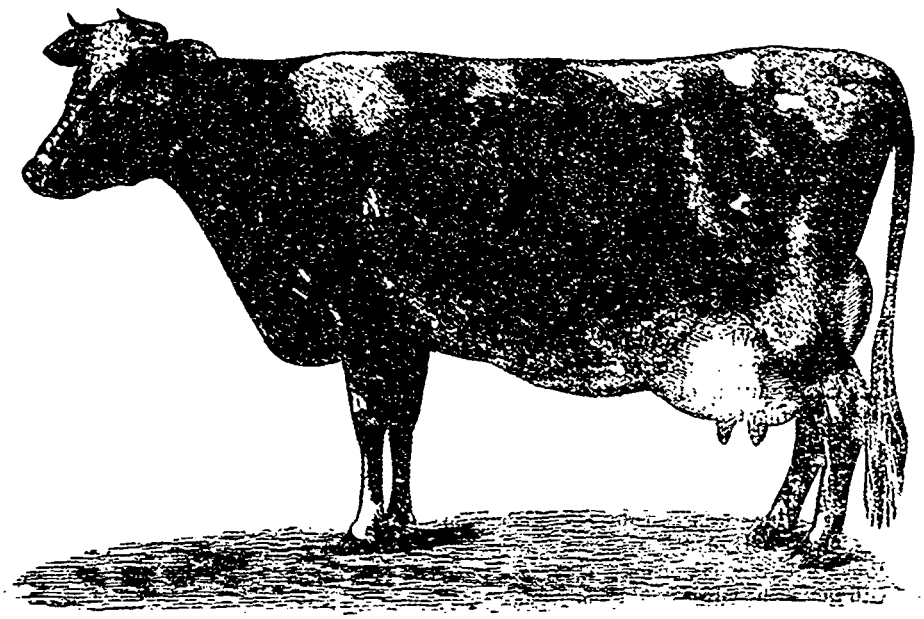
As this cottage is intended for summer use only, it must necessarily (to bring it within the appropriation) be built in the cheapest manner possible, consistent with good workmanship. The plan is a simple one, as may be seen, and perfectly square, without bays or breaks, as every jog or corner adds to the cost. A pretty effect is obtained by extending the pitch of the roof, unbroken, over the piazza on the front and side. An uncovered veranda may be added to the back of the house, joining on to the steps and landing at the side door, if desired, at a very small addition to the original cost. The outside walls, only, are rough-plastered on the inner surface between studding, on wire lathing, and finished with one coat of water-color of a cool olive tone. All inside partitions are matched or beaded white-wood or pine, finished at top of rooms with a two inch moulding. Doors, window-frames and chair-rails are also white-wood or pine. Finish all wood work with a coat of shellac. The ceilings are not plastered, but left open, allowing the floor-timbers to show. The floors should be double thickness with felting paper between, and painted some dark color, with small pieces of carpet or Philadelphia rugs used in the centre, or straw matting for the upper rooms if desired. The plan is arranged for cellar-stairs, so if the cottage is on a side hill the kitchen and servant's room may be below, and the room marked "kitchen" on the plan used as a dining-room. If a stove is wanted in any of the rooms not joining the chimney, the connection may be made by means of sections of drain-pipe, as suggested in the plan.

What is commonly known as balloon framing, if well nailed and spiked, will answer the purpose. The underpinning is of brick with a good footing of flat stones. If the cottage occupies a position as shown in the sketch, clearly defined against the sea and sky, the architect advises the following

scheme of coloring: For roof, asbestos red; this is cheap and stands the weather better than the more commonly used Venetian. The belt course of shingles, porch roof and ends of piazza a golden brown; body of the house a light yellow olive; trimmings a darker olive. Paint outside doors and blinds (if used) a dark bronze green—two good coats in all will suffice. The original cost includes only the priming coat. Bear in mind that the cost will vary a little in different sections of the country, and also that the cottage may be made a permanent dwelling by adding a few hundred dollars to the appropriation. A neat, comfortable and commodious home may thus be made, more tasteful and possessing more architectural beauty than many houses of two or three times its cost, such as are only too common both in town and country.

First floor: 1 is the kitchen, 2 the dining-room, 3 the sitting-room, 4 the wall, 5, 5 the piazza, 6, 6, 6, 6 the closets. Second floor, 1, 2, 3 are chambers, 4, 4 hall, 5, 5, 5. 5 closets.—*Leffel's House Plans.*

why factory cheese should always excel the home-made product in quality. No one who knows anything of the matter disputes the advantage arising to farmers out of the establishment of creameries and cheese factories, though, singularly enough, those most to be benefitted by these institutions appear to be singularly slow in fully availing themselves of the advantages they offer. Even in the old days, before those two regenerators of the farming industry—the cheese factory and the creamery—had been thought of, the best of our farmers, in the oldest settled portions of Ontario, were becoming fully alive to the fact that under the conditions then existent dairying was sure to pay better in the long run than grain-growing. The grain-grower was estimated to lose the equivalent of one whole crop in five years, while there were found to be no such fluctuations in either dairying or stock-raising. If this were true of the old order of things what shall be said in these days of cheese factories and creameries? And yet is it not a little strange that so many Ontario farmers should go on wearing out their farms with incessant cropping when



MR. L. W. LEDYARD'S GUERNSEY COW "ELEGANTE."

THREE GREAT REGENERATORS.

It is not long since every Canadian farmer handled his own milk and cream. His family made all the butter and cheese used in the house and usually had some of each commodity to sell. It is no slander to say of farmers' butter and cheese that a little is very good, a larger share "passable," but that very much more than half the gross product is decidedly inferior. The reasons for this are manifold. To begin with, many farmers' wives could not make good butter and cheese under the most favorable conditions, simply because they do not know how. In the second place, many farmers have no proper place for storing their milk and butter. Operating as they do on a small scale, they cannot afford to put up ice to assist in their dairying operations, and without this, or the coolest of cellars and the coldest of spring water, it is difficult to make good butter in hot weather. And then there is the trouble of getting anything like uniform grade and color for a single package, and a thousand and one reasons why butter made on the farm should average away below that made in the creamery, and perhaps nearly as many reasons they could achieve so much better results through dairying and stock-raising? (1)

Some are no doubt under the impression that they are carrying all the live stock their farms will support, but no farmer has a right to feel satisfied on this point till he has learned what can be accomplished through the third great factor in agricultural regeneration—the silo. It is not necessary to explain to the readers of THE CANADIAN BREEDER, what the silo is, nor how it is to be constructed. Again and again have they read of the results that have been obtained through the use of ensilage in England and elsewhere, and they can only form a correct idea as to its value to the dairyman and stock-raiser by trying it. It is a contrivance especially adapted to the present condition of Ontario. Western and North-Western wheat will soon drive our grain-growing farmers out of the market, and in many cases they will find themselves with worn out land to work upon. What is wanted is some system that will enrich the worn-out soil as speedily as pos

(1) But, good heavens, we can't *all* be dairymen, or stock raisers
A. R. J. F.

sible. Let the silo system be put in operation. It will enable the farmer to double-crop his farm for fodder, and this will mean carrying a greatly increased quantity of live stock and correspondingly increase the volume of manure. This, of course, means enriching the soil rapidly and bringing it in the least possible time to the highest attainable degree of fertility. The whole operation of the farm would then be on the high pressure principle The creamery and the cheese factory would take care of many times the milk product that could be successfully handled on the farm, and do it more economically too. The silo would enable the farmer to carry a much heavier herd of cattle than he could support in any other way, while the droppings from this great herd would be bringing his farm to a higher degree of fertility, and year after year increasing its capacity for supporting live stock; while, last but not least, the cattle exporter is always at hand ready to offer him prices for his surplus animals such as could never have been hoped for as long as his customers were all on this side of the Atlantic. Let him learn then to make the most of the CHEESE FACTORY, the CREAMERY, and the SILO.

Our Engravings.

1.—Mr. Ledyard's Guernsey cow Elegante.

2.—A remarkably promising implement for damp soils. This horse-hoe is calculated to do excessively good work on grassy land.

3—Oxfordshire ram. See article on this breed.

4.—Elevation of house to cost from $800 to $1000. See article.

Green Manuring Again.

EDS COUNTRY GENTLEMAN—Where a crop of green vegetable matter is turned under the soil upon which it grew, to improve either its physical condition or to increase the store of fertility upon which plants feed and flourish, the pertinent question is, whether the growth of corn, rye, buckwheat, or the millets turned under upon a light, porous soil for this purpose, is a compensation for the labor and seed expended for the production of future crops. I do not accept the experiment of H. Ives, on p. 1031, 1884, where he uses couch grass seed as evidence that green manuring is a success. I have no controversy with those who advocate the importance of a seed of any kind, and especially clover seed, as preparatory to the production of maximum crops. This has long since been settled. But clover often fails to grow upon worn soils, and the establishment of a sod is the result of time. The field that can grow for itself a seed-covering in a season, has no need of green manuring to increase its fertility.

There are plenty of fields coming into new ownership, whose present owners desire to put them at once into thrifty productiveness, and who have not the manure available to secure such a condition. If green manuring, such as I am considering, is the panacea for worn soils, it would seem that some practical examples illustrating the fact ought to be produced, which will serve as a guide to those who contemplate the rapid improvement of such lands. Agricultural writers with a scientific turn of mind, are too apt to argue from a hypothetical standpoint, and say certain things are true, because science has demonstrated it, and cry down an experiment which disproves the theory. A chemical analysis is worth more to them than an experimental station.

F. G. says, p. 993, referring to my former article, p. 932. 1884: "There is a difference in the fertilizing quality of the plants turned down, as some are richer in plant food than others. Clover, for instance, is far richer than corn; Hungarian millet is nearly twice as rich as clover. To turn down a heavy growth of Hungarian is equal to an ordinary coat of manure." Now, I imagine some visionary man, unskilled in the practice of farming, who has been beguiled into buying some worn-out lands, with the view of improvement for a home or for speculation. He takes the COUNTRY GENTLEMAN, of course, as that is the leading journal of American agriculture. In it he reads the above, and determines that the course for him to pursue is to sow all his lands to Hungarian, to be turned under as "green manure."

Every one to whom he goes for counsel will tell him that clover will be very likely to fail, but that Hungarian seed is as certain to come and grow as pigeon grass, and he is assured that it "is equal to an ordinary coat of manure," and "nearly twice as rich as clover." Farther along in this same article, he will be told that "buckwheat is also a good crop, rich in fertilizing matter." The seed for an acre of either of these latter valuable fertilizing crops can be bought for 25 cents,(1) while clover seed for an acre will cost a dollar at least, with the danger of entire failure, if sown, and he decides upon the trial of Hungarian and buckwheat. This is a fair conclusion for any inexperienced man to come to. I should like to ask F. G., if he is a practical farmer, if he would like to father the results of that experiment, or if he would really advise the man to "repeat the operation by growing and turning down several crops in succession? I am bold to aver, from experimental knowledge and frequent observation, that the advice, if followed, would be suicidal to his endeavors. In the first place, "repeated" plowings, of themselves, tend to impoverish light soils, and no one who hopes in his lifetime to enrich a soil by this means, could afford to "repeat the operation" of turning under his crop year after year. "Green manuring" is a misnomer. The green crop turned under, even if it is clover, is a disadvantage to the plant, if set to growing at once upon it. Humus comes only by a prolonged decay, and the benefit from the clover plant comes mainly from the annual decay of its roots, and their operations in the soil. George Geddes' field, that had been constantly cropped for forty years without a load of manure being applied, did not sustain its fertility by plowing under rye, Hungarian or buckwheat It was clover and plaster on which he depended.

Turning under a green crop of either of the above plants may affect favorably the physical condition of a hard, compact soil, and render it more valuable; but for a loose, porous soil, my experience teaches me they are entirely valueless for the purposes of fertility, and the growing of crops. The fruit-growers on the east shore of Lake Michigan, were once led to believe that rye sown in the fall, in their peach orchards, and turned under early the next June, would furnish all the fertility necessary for a continued production of peaches. Some of them tried it—their faith even lasting longer than the fertility. Both have now succumbed to the inevitable logic of fact, and we hear no more of this boon to sterile soils and famished orchards. It is a very plausible theory which accounts for its continued promulgation, but it is time to call a halt on this theory-building, and every one who has some special theory to advocate, should set about putting it in practice to prove its efficacy before shouting it in the ear of the public. (2) A. C. G. *Paw Paw, Mich., Dec.* 23.

(1) Come, I say! Buckwheat 50c a bushel and 2 bushels an acre =$1.00; Hungarian $3.00, and ½ of a bushel an acre! A. R. J. F.

(2) Good sense enough Clover turned under is beneficial from the roots rotting and imparting to the upper soil the nitrogen and minerals they have raised up from the subsoil. Sheep folded on green-crops will do twice as much good to light land as the same stuff ploughed in; but, then, some will say, sheep-folding is not the custom of the country True, but the sooner it becomes the custom of the country, the sooner will the terrible exhaustion of the land now in progress cease. A. R. J. F.

CATTLE FASTENINGS.

EDS. COUNTRY GENTLEMAN.—In your issue for Dec. 25, 1884, p. 1053, is a letter from L. D. Snook, giving some different illustrations and explanations about cattle ties, two of them showing different methods of tying at the base of the horn, neither of which I fancy would be adopted by any farmer or dairyman in this State. No farmer would use iron rings on his animals' horns, especially if he thought anything of their beauty; and what farmer does not prefer a finely shaped horn, free from blemishes, to one corrugated by the use of iron rings in the stable, as the horns of young and growing animals would most surely be, if they were fastened by such a device as shown and described by Mr. Snook. In regard to the tie chain for the neck, Mr. Snook has only shown the outline of what might be made into a good cattle tie, but his cut and description is a very imperfect one in two great essentials: First and mainly the length of the chains, and second, which is very important, the lack of a swivel between the ring that connects the two chains with the larger ring, which should slide upon a stout, smooth standard of wood, or an iron rod at the side of the stall in all cases where such chains are used, especially if the room in the stable is to be filled to the best advantage, as most farmers desire to do.

Some breeders of thoroughbred cattle who desire to give their animals extra room, put only one animal in a stall. In such cases the standard may be in the centre of the stall, if so desired. The large ring will move up and down the standard as the animal moves its head up or down in eating, and with a good swivel between the ring on the standard and the tie chain, there will be no chance for an animal to get its chain twisted, and thereby get choked, as might be the case if no swivel were used. In regard to the length of the chain, the two branches should be at least four feet, instead of two feet as mentioned by Mr. Snook. I have used such chains modeled differently, and prefer such method of fastening animals in the stable, for the calf of a few hundred pounds weight to the full grown cow and ox of fifteen to twenty hundred pounds weight, to any ever used on the farm, for the comfort of the animal, and the ease of fastening and unfastening the same. I have a great improvement over the ring and T, as shown by Mr. Snook, which is a hook on the end of the chain that has the T on, and the other end of the chain has simply common straight links, into which the hook is fastened as tight as is convenient for the animal on which it is used. The hook used has what some blacksmiths call a snake's head on the end, so flattened, and bent with quite a circle, the open end being brought nearly back to the eye of the hook, that it is perfectly safe when once hooked into the chain, making a comfortable circle of chain on the neck of the animal on which it is used; the large ring works on a standard of wood, or an iron rod. I have both, and after using them for the last forty years, think them the most comfortable cattle ties I have ever seen.

In getting my chains made, as I could find nothing in the market except those with the T or a snap, both of which time and use with me has proved unsafe (especially those with a snap), I buy chains of hardware merchants (such as were used many years since as trace chains for farm teams), and have some good blacksmith cut them in proper lengths, which are, for the short side (to which I have a hook attached), 20 inches; for the longer side 25 to 30 inches; for the side that is composed of links only, such proportions of the chains as have uniform length of links, those of one and one-fourth inches being about right in length; the portion of chain that has the hook attached can be of any length of links most easily obtained, whether twisted or straight; but the other side should have all uniform straight links, to that they will take in the hook readily. The large ring that is so slide up and down a standard, whether of wood or of iron, should be of such size as to slide freely on a wooden standard; they would have to be larger than for an iron rod.

In my own stables two animals stand in a stall. I prefer two to a single one, as they eat better in company; frequently what one might leave the other would eat up clean, and, by placing two animals in a partition or stall, more animals can be secured in the same space than where only one is so secured. The feeding manger should be divided so that only two animals can get what is put in for them, also the division plank should extend back between the animals from two and a half to three feet, so that no animal can turn its horns and injure its neighbor in the adjoining stall. If wooden standards are used to fasten the chains to, they should be put into the manger sill prepared for that purpose, at the bottom and the top, secured safely overhead, out of reach of being got out of place by the animals stabled; if by iron rods, they should be securely bolted to the partition plank, or, better, to an upright standard framed between each stall, of sufficient strength to make a secure fastening for any animal in the stable.

In my own manner of using chains, I have an iron pin driven into the partition post or plank, as the case may be, just above where an animal's neck would come when standing up, and on that hang the chain by the hook, which is on the shortest arm of the tie chain, the chain hanging at the side of the stall, so that when an animal goes into it to be fastened, one hand may be reached for the hook above the neck of the animal, while the other clasps it below the neck, bringing it together and hooking the hook into any link that will enclose the neck comfortably: then turn to the other side and fasten the other animal in same stall, which is quickly done; then pass to all the stalls, and secure all in the same manner. By so doing, the hooks of all the chains will reach over the top of each animal's neck; hang the belly of the hooks down on the other side from the standards to which they are fastened, while a few inches of the end of the chains into which the hooks are fastened will also hang in the bend of the hooks, thus making it almost absolutely impossible for a hook to get unhooked from the chain in which it is secured.

After using chains as I have described for forty years, I have got to have the first chain get unhooked, while I have had those with a T get loose frequently; those with a snap will get the spring broken, and the animals get loose in consequence. The only safe way in using chains with a T is to put the T through two rings, and that takes too much time; chains with a hook can be hooked and unhooked in less than half the time, and this is of great importance to the stock-raising farmer.

The tie chains described should be long enough so that it is not necessary to use the whole of them in fastening an animal, as it is much easier to have a few inches to spare on which the hand can hold, than to be obliged to use the entire length. I have a few instances the present winter where the entire length of the chain is needed to go round the neck of the animals, and both chains are nearly twice as long as the lengths mentioned by Mr. Snook—that is, one foot each side for both T and rings. Chains that are only three feet from end of T, or hook, to the end of the rings, or links on the other side, are found in practice too small for handy service for a dairy of cows when full grown, as many animals have a depth of neck of fully eighteen, or even twenty inches, and while chains are so cheap, it is much better to have a surplus length of six inches than to be forced to use the entire length. (1)

Rome N. Y., Jan. 12. JONATHAN TALCOTT.

(1) All right, though very intricate. I don't like two beasts in one stall; a partition does not cost a fortune. A. R. J. F.

Orchard Grass in New-Jersey.

ED. COUNTRY GENTLEMAN.—I beg to submit some inquiries on the subject of orchard grass Last year I had my first experience with this variety of grass. The year before I raised corn fodder on an inverted sod. In the fall I plowed the ground and during the following winter carted barnyard manure on the field—a liberal supply. Early in the spring I thoroughly incorporated it with the soil by harrowing it with a disc harrow, as well as with the ordinary harrow (without re-plowing), and sowed two bushels of orchard grass and six quarts of clover seed per acre. The seed grew well, and in a short time the field looked like an old lawn. I sowed no grain with the seed, and expected to cut a crop of hay the first season. About the first of July the grass was about six inches high, and by the first of August it had grown to nine inches, and then the leaves began to grow brown and the plants stopped further growth. Being disappointed in a crop of hay I concluded to pasture it, and it afforded pasture for about two months, and the grass went into winter quarters in apparently good condition, though I fear, as the sequel will show, that I pastured it too closely. This spring the grass was very late in making any growth, and to-day (June 9th) there is a thick undergrowth of grass about six to nine inches in height, with a very thin growth of flowering stalks. It will not cut over one ton per acre, if as much, while the clover has almost entirely disappeared.

I would like to know what the defect was in my management. Was I wrong in pasturing it? I certainly suspect that the young clover was pulled out by the cattle before it had gained sufficient root. I have another field this spring, of orchard grass and clover grown by themselves, planted under the same conditions and following corn fodder the year previous. If it does not make hay this year I think I will pasture it very lightly. Would I have succeeded better had I sown, say one bushel of oats to the acre? I have a small orchard sown with oats at that rate, and orchard grass and clover, and the three crops are doing admirably. The oats I will cut when in the milk, to feed green or make hay. I have a notion that the shade of the oats might benefit it. I do not grow any grain except to cut as green fodder and thought if I devoted the ground exclusively to the growth of the grass seeds, I would get a good crop one year in advance of grass grown with a ripened crop of grain.

Grass, for pasture and hay, is the crop of my farm. Theoretically I am a believer in orchard grass, as it is said to grow more rapidly than timothy and to make a good second crop for pasture after a hay crop, while timothy performs its full office in giving a crop of hay, the aftermath being of little account except for late pasture, and that is better not depastured, if a crop of hay is wanted the next year. I have understood that orchard grass does not make good hay for horses, as it acts too freely on their kidneys. Is there anything in this notion? I have contemplated getting my whole farm laid down in orchard grass and grow no timothy, provided it is safe for all kinds of stock. My farm is devoted to breeding and raising Jersey cattle, but we cannot get along without horses. If Mr. Allen of Western New-York, and others who cultivate orchard grass, will give their views on the subject I would be obliged, and I have no doubt it would be of general interest to the farming community. (1)

G. W. FARLEE. *Trenton, N. J.*

(1) There must have been something wrong in the management, for I *know* that Orchard Grass will stand any amount of close feeding when young Perhaps the seed was untrue to its kind.

A. R J. F.

I can recommend a farm of 90 acres, sugar bush, island of 15 acres, &c., at Contrecœur. A. R. J. F.

NEWSPAPERS OF TO-DAY.

People generally, and even those who may be termed steady readers and close observers, have but a faint conception of the magnitude and influence the press of this country has attained. From a careful examination of the advance pages of the 1885 edition of the AMERICAN NEWSPAPER DIRECTORY, issued May 1st, by Geo. P Rowell & Co, New York, it appears that there are 14,147 newspapers and periodicals published in the United States and Canada; of these the United States has 12,973, an average of one paper for every 3,867 persons In 1884 the total number of newspepers was less by 823 than at present, and while the gain this year is not so marked as in some previous years, it is still considerable Kansas shows the greatest increase, the number being 78, while Illinois follows with a gain of 77. It is curious to notice that New York, the scene of so much political activity during the last campaign, should have only about one-third as many new papers as the State of Pensylvania. As an index to the comparative growth and prosperity of different sections of the country, especially the Territories, the number of new papers forms an interesting study, and may well occupy the attention of the curious.