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THE ILLUSTRATED  
Journal of Agriculture

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Notes by the Way.

**Candlemas-Day.**—It is rather amusing to see, every time the Feast of the Purification of the Mother of our Lord comes round, all the papers repeating the old rhymes about the prospects of the weather. The ancient foretellings were made when the *Old Style* was in vogue, so that, to appreciate their meaning, we must postpone the date twelve days; just as what we call Twelfth-day, was in our younger days called by many of the older people Old Christmas, so Candlemas-day should be the 14th instead of the 2nd of February. The rhymes are chiefly from the North country, and are frequently misquoted:

"If Candlemas-day be clear and fair,  
Half the winter's to come and mair."

"The hind would assoon see his wife on her  
[bier,  
As that Candlemas-day should be fair and  
[clear."

The very peculiar word *hind*, for farm-labourer, a term unknown in the Southern counties of England, shows the locality whence this latter distich is derived. Another curious pseudo rhyme is connected with this month:

"February fill dyke,  
Be it black or be it white,  
But if it be white it's the better to like."

That is: it is well to have the ditches filled in February in some way, either by rain or snow; black or white; but the latter is preferable.

Of course the actual day of the month does not signify, but no doubt the state of the weather about the date in question is, in general, a fair prognostic of the duration of the winter.

**Artificial manuring.**—A liberal mind has Prof. Brooks, of the Massachusetts Agricultural College. He says, and with perfect truth, that "for oats, rye, and grass, nitrate of soda applied just as the growth begins in the spring, has proved very beneficial." Nobody doubts this, for a moment, but when the Professor goes on to advise that "400 lbs. to the acre should be applied," there, we must call a halt. Nitrate of soda costs \$60.00 a ton, here, therefore, the dressing of an acre of oats, rye, or grass, would cost \$15.00: could that pay? A bushel of oats, for instance, is worth, say, 40 cents, to ask one to believe that the additional crop grown by the application of fifteen dollars' worth of a manure so evanescent in its effects as nitrate of soda can by any favourable conjunction of weather, &c., amount to thirty-seven bushels an acre is rather too much of a good thing, and yet that is what it must come to, if there is any truth in figures: 37 bushels of oats at 40 cents a bushel amount to \$14.80. We are afraid the extravagant statements that emanate in such numbers from the agricultural colleges in the States, are doing more harm than all their combined energies will remedy in many a long year.

But, of course we are not to be supposed capable of underrating the use of artificial manures; only, their use must have sense as a guide. For, another case in point: a Professor advises "the application of 400 lbs. of highgrade sulphate of potash to the acre of potatoes;" not a word about the soil being fall, or the reverse, of potash already; and the adviser does not seem to have the least idea that potash is of no use at all, in nine cases out of ten, unless it is applied in the fall or, at latest, in early March. In

the dressing of grass-lands with potash, it is different; for, if the manure does not act this year it is there ready to act the next year. But the fact is, that where farmyard manure is used equally all over a farm, there, potash will be found to be a most costly and useless application. Phosphoric acid, in the shape of bone dust or of mineral superphosphates, and nitrogen, in the form of nitrate of soda or sulphate of ammonia, are all the additional aids needed.

And this leads us to advert to the sales of artificial manures that are made annually in this province. Mr. Spafford stated, the other day, at a meeting, at Capelton, of gentlemen interested in mining, that, "at present, about 1500 tons only were used, whereas, ten times that amount might be employed with advantage."

Now, in round numbers, a ton of superphosphate, of fair quality, may be taken to represent a decent dressing for seven acres of land. So, we have it that 10,500 acres are annually dressed with superphosphate, in this province, or in this Dominion, for, unfortunately the report of Mr. Spafford's address is vague. And, again, we have to remark upon the absurd fact on, both here and in the States, of calling all commercial manures "superphosphates." *Superphosphate* is, properly, a certain amount of phosphate of lime dissolved in sulphuric acid, and nothing else; and this phosphate may be in the form of bones or in the mineral state, as in *Carolina* or *Florida rock*, in *apatite*, &c.

By the bye, we remark in some of our exchanges a resuscitation of the old scheme to persuade people that *Canada apatite* ground extremely fine, may be used as advantageously as if it had been dissolved as above.

Now we have the authority of the three greatest and best known agricultural chemists in the world; Lawes, Volcker, and Aitken; for saying that any crystalline form of phosphate of lime is useless as a manure, unless it has been previously dissolved in acid. No infinitesimally fine pulverisation is of any use.

**Turnips.**—A correspondent of *Hoard's Dairyman*, signing himself F. C. N. send the following to that paper:

**Vermont Way of Raising Turnips.**—ED HOARD'S DAIRYMAN:—Having had several years' experience with turnips will give H. C., Short Creek, Ohio, a few suggestions. We sow the round turnip—never heard any other name for them. Sow seed before cultivating the last time, generally about the last of June. Use quarter of a pound to the acre, which is a great plenty. This year we raised two thousand bushels on twelve acres of corn and potatoes—did the best in corn. Fed fifty bushels a day to thirty-seven cows, also gave them two quarts of bran and middling. Got seventeen thousand pounds of milk in October—paid us \$1,047. Skimmed night's milk and made 100 pounds of butter, which brought 24c—top price. Feed turnips after milking at night and you will get no turnip taint in butter, if nothing but night's milk is skimmed. Be sure and sow them thin. Do not feed more than once a day. Better take the tops off if wanted for winter feed. Would not advise butter makers to grow them, but for cheese they can't be beat, considering cost of production and milk value.

Cows are scarce and high. Good ones sell from \$30 to \$35. Calls in good order go from \$18 to \$22. West Pawlet Vt. F. C. N.

What is this marvellous eagerness to grow two crops at once? Fancy the skill of a man who can make a quarter pound of turnip-seed cover an acre of ground! Surely, if the cow could spare some of its food to the turnips, the potatoes would want all they could get. This is not farming at all, but scratching for a living, some thing like the Channel-Island people, where, in Guernsey and Jersey, we have known carrots sown among the barley. However, we are glad to see that there are some who, like ourselves, give turnips to cows, though we never dreamed of such rations as 50 bushel a day for 35 cows!

Again, we see in the *Farmer's Advocate* a letter from M. Wark, of Windsor Mills, on the same subject:

"Beautiful Butter" from Turnips.—I saw in the *ADVOCATE* for December 15th, that "F. J. S." informed us good butter could not be made when turnips were fed the cows. I received a remittance from Montreal, the day I got your paper, for a quantity of butter, the cows having been fed turnips and hay. The buyer paid 22 cents for the butter, and said it was beautiful.

ROBERT WARK,  
Windsor Mills.

[NOTE.—Would Mr. Wark give our readers further information as to the quantity of turnips fed, method, before or after milking, &c.; also give his plan of handling and creaming milk.]

The roots should be given immediately after milking, and we never gave more than half a bushel a day to each cow, either here or in England. As for the flavour of the butter we made, the opinion of the Trustees of a certain College in the Townships was: that we ought to have sold the butter we made on the college-farm and bought inferior butter for the use of the pupils, as it was the height of extravagance to give boys such butter as that!

As to feeding fat into milk, we were glad to see that Professor Long, at the annual meeting of the English Dairy-farmers' Society, last month, said: that he saw no remedy that would protect the fraudulent sale of separated milk, except the fixing of a reasonable standard. Farmers ought to experience no difficulty in producing milk containing a certain proportion of solids as specified in the resolution. *It was within their power to improve the quality of the milk yielded by their cows by the addition of certain foods.*

Mr. Long, I need hardly say, is known in England to be as distinguished for practical knowledge as he is for theoretical acquirements.

The two prize-animals we lay before our readers in this number are the Queen's Shorthorn steer and the wonderful Polled Angus heifer, exhibited by Mr. Clement Stephenson whose winnings at the Fat Stock Shows are probably without precedent. At Birmingham her prizes were: £15 as best in her class; £30 as best Soot; the President's prize of £25; the Elkington Challenge Cup, 100ga.; and the Thorley Challenge Cup, 100 ga. At the Smithfield Club Show she won first in her class, £20; the breed prize, £25; the prize as best cow or heifer, £50; the Club's champion prize, 100 ga.; and Her Majesty the Queen's Cup, 150ga. The last-named trophy is not won absolutely, but the others are final, and, of course, a half-share of securing absolutely the championships at Birmingham is due to Benton

Bride's half-sister Bridesmaid of Bon-ton. Altogether, without reckoning the Queen's Cup, the winnings amount to £480, while the heifer has been sold for 150 gs.

However, when the beasts came to the block test, the Shorthorn turned out by far the more profitable of the two. The heifer was full of waste, much too fat, so that the tallow chandler got a good deal of her weight, while the steer cut up well and was in no part overdone. We always distrust those terribly fine bones. The only fault we can find with the Shorthorn is that his underline is not so straight as it might be, but the underline of a steer is never so perfect as that feature in a heifer.

Was it not the Hon. J. J. Ross, of Ste Anne de la Pérade, who said, at a long past meeting of the Dairyman's Association, that he could not afford to send the milk of his Jerseys to a cheesery, as it paid him much better to send it to a creamery? In those days, the Babcock test had not yet been applied to the paying for milk according to its contents in butter fat, but, even now, many people distrust—not the test, but the tester—and doubt, with reason too we fear, if the general run of cheese-makers are competent to apply the instrument satisfactorily. Hence, the vital necessity of universalising, if we may coin the word, the syndicates; and even if they really did become universal there would still remain many who would say, with *Hoard's Dairyman* accounting for. There is no reason why the milk from Jersey cows should not make the best quality of any kind of a cheese, but a more important question is whether the producer of such milk can afford to have it made into cheese of any sort. As a rule it will pay much better to use such milk for butter-making.

**Mushrooms.**—This paragraph ought properly to form part of the department "Household"; but it shall be a very short one. A writer, in *Landreth's "List of seeds, &c."* proposes to teach people how to cook that delicious comestible, the mushroom: "Wash thoroughly, remove the stems, and fill the cavities with finely chopped parsley and onions!" Conceive such a horror! Onions and mushrooms! The coarsest of all flavours added to the most delicate of all flavours! The man who wrote the above recipe deserves to be fed on half-boiled rice and underdone veal for the remainder of the term of his natural life.

**Value of roots as cattle-food.**—Some years ago, a correspondent of this periodical essayed to prove, from the analysis, that a ton of mangels could not be worth more than fifty cents! Well, we need hardly say that we did not agree with him, holding, as we did then and do now, that no chemical analysis was worth a farthing compared with the synthesis the animals of the farm made in their own proper interiors. We held then, and hold still, that a few tons of turnips grown in, say, Aberdeenshire, will, with good oat-straw, turn out a bullock fat enough for any market; whereas, a few tons of turnips grown in, say, Kent, will, with good oat-straw, only keep a flock of sheep just going; and, yet, no chemist alive can, by analysis, show any material difference between the two lots of roots.

Wherefore we then concluded and we still hold the same opinion, that, what the chemist puts down under the head of water in his analysis contains something differing from the fluid

the layman calls water; and we rejoice to see, at last, that the experience gained during the last ten years has led many of the more practical men at the experiment stations in the United States, to come to the same conclusion. The following extract, from an American paper, was a very pleasant sight to us.

**The Feeding Value of Roots.**—The experiment stations do not seem to agree on the exact value of root crops for feeding purposes, but they have a greater value than can be detected by chemical analysis.

Every farmer has straw in abundance, and this is not highly esteemed as a food for stock, and is often practically wasted so far as its use for this purpose is concerned. In many cases where a supply of roots is available, straw can be fed to great advantage in connection with them, for while it is not capable of scientific demonstration we are satisfied from actual practice that roots, add to the digestive ability of the animal to which they are fed, and if a liberal supply of roots is given them they will eat straw that has been well taken care of with a relish, and thrive nicely on them.

A crop of roots is easily raised and they are the cheapest source of succulence possible to the average farmer. It is to be hoped that they will come into great favor and be more generally known.—(*Farm and Home*.)

**Sugar beets.**—We hear, from M. des Etangs, that the Berthier beet-sugar factory will be in full vogue again next season. M. J. de L. Taché and M. E. Castel, both say that thousands of tons of beets will be sent down from St Hyacinthe; so that, altogether we may hope to see this novel industry flourishing at last.

Dr Wiley, whose article on this crop we append, though his views on political economy are heterodox in the extreme, hold very sensible ideas on the question of beet-growing, but we wonder how his countrymen like the expression of his opinion as to the "curse of American agriculture being its slovenliness."

**Dr Wiley on the sugar-beet industry.**—The culture of the sugar-beet is intensive culture. It is a kind of agriculture which can be carried on with high yields, where ordinary crops or cereals would not pay. It is already difficult in this country to grow wheat, maize or oats on land worth \$100 an acre. The fixed charges on such land are high, \$6 or \$7 an acre, and these fixed charges, together with the high taxes which are paid, eat up the profits of cereal culture. (1) Such lands, however, could be profitably cultivated in sugar beets, where the yield per acre is higher and the returns are to the farmer for intense culture and high fertilization. An instance of this is seen in China, where lands have rapidly increased in value under the stimulus of beet culture, and farmers get high returns from the growth of the sugar beet.

The establishment of sugar beet culture becomes a true object lesson in agriculture. Every field, properly cultivated in beets, becomes an agricultural experiment station. The influence of beet culture is felt upon every other crop. The yield per acre of cereals, root crops and grasses is always found higher in a community after the introduction of beet culture. It is a blessing not only to the person who engages in it, but also to his neighbors.

(1) Why so much latin? *Grain-growing* is pure English.—Ed.

Slovenly agriculture is impossible with the sugar beet, and the curse of American agriculture is its slovenliness. If there is one thing our farmers need to learn more than another, it is how to farm. Another great argument in favor of an indigenous industry is the stimulus which it will give to American agriculture. The markets for our farm products are now overstocked and the prices of our farm products are phenomenally low. As I have often pointed out, the nation which exports its agricultural products as a source of revenue must eventually become pauperized. It sends out of its boundaries blood and marrow. The only agricultural products which can safely be exported are sugar, oil and cotton. The establishment of an indigenous sugar industry would render it unnecessary to send agricultural products away from home in order to get money to buy our sugar. We would have a larger home market, a larger home consumption and less necessity for going outside to purchase. The mere fact that over \$100,000,000 in gold would be kept at home annually, in the price of sugar alone, is a matter of no mean importance. When you add to this the stimulus to agriculture and other industries which the establishment of an indigenous sugar industry would give, we see an advantage to American agriculture which is almost incalculable.

Does the good Doctor really believe that \$100,000,000 in gold are sent out of the country in payment for sugar? A short course of Adam Smith and Mill would teach him better.

**Timothy.**—We have often expressed our surprise at the persistence that is shown by the farmers of this province in places far removed from markets in seeding down with timothy. And that we are not alone in this feeling of surprise, is shown by the following letter from an extensive farmer in the State of Massachusetts. If any thing is needed by farmers here, it is permanent pastures, and it must be clear by this time that the most unpermanent of grasses is timothy. Not that we should feel inclined, as the writer of the quotation seems to be, to omit timothy entirely from the list of a combination of seeds for permanent pasture, for it fills up the sward for a couple of years at any rate, at the end of which time some of the natural grasses of the country will be at hand, ready to fill up its vacated place.

**No Timothy Wanted.**—Occasions where a reader of the *Country Gentleman* feels justified in thinking that he knows as much about an agricultural topic as the editor of that paper are so rare that when one does occur it is worth making a note of. Hence this communication, which is suggested by your advice to Mr. Bond, to make timothy the predominating grass for a permanent pasture. I consider timothy one of the poorest to sow for pasture. It is short-lived at best. It is slow to start after having been cut, or eaten off. Its bulbous root at the surface of the ground is easily destroyed by close cropping, or by the tread of cattle or horses, especially the latter. Alone, it can never be made to form a good turf—in fact, when growing with the better grasses, its presence among them seems to prevent the formation of that fine, close, compact sod without which no land can be rated as first class pasture. In a combination of seeds for a permanent pasture, I should omit timothy.

## THE ADVANTAGES of a VARIETY OF CROPS.

(By the Editor.)

As was remarked, some years ago, by the Hon. J. J. Ross, at one of the Annual Meetings of the Dairyman's Association of the province, it is not judicious to put all one's eggs into the same basket. Growing wheat, year after year, on the same land, has not proved a lasting source of wealth to the people of Manitoba and the North-West; the production of consecutive crops of tobacco on the same land has ruined many a prosperous farmer in the South; and we fear greatly that, unless a very great change takes place in the mercantile economy of the world, the entire devotion of our own people to the production of dairy-goods will not, in the long run, conduce to their welfare. Dairying is good, and has in the past stood us in good stead; but the time has come, it seems to us, that our farmers should look about them a little, and see what others are doing. New Zealand, Australia, Denmark, France, all these countries are entering into competition with us for a share, nay for a preponderating share, of the English market: and who are we against so many? Look at price-list:

Brockville cheese 9½ cts. a pound,  
Creamery-fall-butter 20 cts. a pound.  
Yesterday, in St-Catherine Street, Montreal, we saw in one of the leading grocers' window the following: roll butter—18 cts. a pound. The butter must have been pretty good or Mr. Walter Paul would not have had it for sale.

All these things must bring consideration in their trail. It seems clear that we can no longer depend upon one line of goods for a living, and the point now is to ponder deeply the present state of the world's commerce and see if it would not be wiser to diversify our production of farm-wares, and supply the markets both at home and abroad, with more articles than we at present have to offer.

There are many things our farms are calculated to yield that are at present scarce. For instance: good short wool mutton; long, leanish hogs for conversion into hams and bacon; flaxseed; tomatoes for canning; cucumbers or gherkins for pickling; onions for cooking and for pickling; green peas for the table and for canning, and string-beans, or as we call them in England, French-beans, both for canning and the table: these last two vegetables can never be found, even in Montreal, fit to eat; the reason why, we will state further on. Who ever ate a good white-turnip, here? Far superior to any yellow-turnip or swede, the white-turnip, a most delicious vegetable, is utterly unknown in this country until too old to be worth eating.

And first of good short-wool mutton. You cannot jump into a good flock of sheep at a shot. To begin with, very few of you keep a sufficient number of ewes to make it worth your while to lay out money in the purchase of a first-rate ram. The average flock here, we suppose, runs to about 15 ewes. A good Shropshire ram will cost at last \$50.00, which would make each ewe's service come to between three and four dollars, and as it is not much the habit of the ewes to twin, each lamb will cost some two and a half dollars, which will make the flock a long time before it pays.

A good Hampshire-down lamb-ram can be bought of Mr. James Wood, Mount-Risco, New-York, for \$25.00,



and will be perfectly at his ease with 40 or 50 ewes, provided he be kept away from his brides for a few hours daily, and well fed, by himself, on cracked pease and oats.

Why should not two or three farmers, living close together, join their flocks and buy one ram between them as is done up North by Terrebonne farmers?

Of course, we do not mean to say that a ram lambed in May, and poorly fed till service time, would be able to do the above work; but all ram-breeders like Mr. Wood, or the Snell's of Ontario, and other like men, lamb down their ewes early and prepare their lamb-rams for the autumn's campaign.

We may take this opportunity of mentioning that the heaviest *Hampshire-down* pen of three lambs, at last December's Smithfield Club Show, weighed 218 lbs. a piece, and had made 0.71 lb. a day since their birth. This is within 4 lbs. a head of the weight of the heaviest *Southdown wethers*, at the same show, and they had only made 0.35 lb. a day since birth; just one half as much! Of course the weights are live-weights. The *Hampshire-down* would probably dress in the neighbourhood of 35 lbs. a quarter, as the percentage of carcase to gross weight was returned by the butcher as 64.60%; not bad work for a lamb!

(To be Continued.)

## RAPE.

As autumn feed for lambs, I believe there is nothing that can nearly equal the rape crop. While there are some of the leading breeders who have grown rape to a large extent for several years, yet I am surprised that not a greater number take the advantage of this most valuable crop for their lambs. We have had a large amount of experience with rape during the past five years, at the Agricultural College, and I wish to state that my estimation of the value of the rape plant for autumn feed increases every year. I could, if necessary, say a good deal upon this crop in its relation to the fattening of sheep and lambs in the autumn months, but to do it justice would extend this paper to too great a length. I would, however, like to draw your attention to a few facts in regard to this crop. We have grown rape as the only crop upon the land during the season, thus having it under favorable conditions. This rape, when pastured by lambs produced on those animals live weight increase at the rate of 762 pounds per acre. (1) This is certainly high and may not always be expected, but it shows what can be done. The land received no special treatment for the rape crop, but was in good condition. In 1893, we grew rape under somewhat similar conditions, and received 27.2 tons green rape per acre. In an experiment conducted in 1891, in which rape was grown after winter wheat, it was found that one acre of the rape increased the live weight of the lambs 179 pounds. The animals receive no other food, but, of course, were given salt.

The principal method which has been adopted in growing rape at the Experimental Farm has been after a crop of rye which had been taken from the land in June. In three years' experience in growing rape after rye, we find that on the average, one acre of rape will pasture from ten to

sixteen lambs from two to two and one half months, and each lamb will increase at the rate of about 8 pounds per month.

In an experiment which was carried on in 1891, in feeding lambs upon rape alone, rape and meal, and rape and pasture, it was found that the increase in the live weight per lamb was 117 pounds per month on rape alone, 120 pounds per month on rape with meal and 14.1 pounds per month on rape and pasture. These results favor the use of a pasture for the lambs to run into from the rape field. It also tends to show that half a pound of oats per lamb per day, when on rape, is not necessary. (1) The nutritive ratio of green rape, as given by Wolfe, is 1:2.9, while that of red clover in full bloom is only 1:5.2. But as rape contains more water than clover, the same authority estimated clover as being worth 15 per cent. more than rape, pound for pound, for feeding purposes. On the other hand we have found that rape will produce from two to three times more in weight from a given area than a single cutting of clover.—F. Ad.

C. A. ZAVITZ, B. Vt.

## THE CULTIVATION OF OATS.

A LECTURE

BY

Arthur R. Jenner East.

The principal grain cultivated in the Province of Quebec is oats. I say cultivated, though, in truth, very little cultivation is given to this crop. Anything less likely to produce a full yield of this cereal than the customary method of treating it, would be difficult to find. The land is ploughed, generally in autumn, an uncertain quantity of seed is scattered over the surface, a couple of strokes of a worn out harrow, always in the same direction, (2) completes the job, and at harvest the result is, as might be expected, in proportion to the trouble and time expended in the spring. If oats are worth growing, and nothing has ever been found to equal them as horse-food, they are worth taking pains about, and I think a few thoughts on the subject will not be thrown away on the readers of this Journal.

We cannot hope to grow such oats here as we see in Scotland. There, the climate is as well suited to them as it is unsuited to the growth of wheat, and consequently they are the main crop of the country. I have seen them, at the Mark Lane market in London, weighing 47 lbs. a bushel, with a bright, silvery skin, and so full of meal, that they almost appeared to be bursting out of their envelope. (3) In fact, I saw one sample, sent from the Lothians to be sold for seed, that the corn-factors declared was "doctored" or sulphured, so beautiful was their appearance. Now, these same oats, sown in the south-east of England, on our best land, soon retrograded, and the second year from their importation only weighed, the usual weight with us, 38 lbs. a bushel! It was not an unusually hot year, but the climatic influence had thus affected them. The Scotch, then, have reason on their side, and the south of England farmers too, for we sow very

(1) But it will always pay, though pease pay better.—Ed.

(2) That is, seldom across the ridges.

(3) I once saw a statement in the *Country G* that oats in Scotland often weighed from 50 lbs. to 55 lbs. per bushel. This is of course ridiculously untrue, and I wonder it escaped the editor's eye. A. R. J. F.

few oats, particularly on the lighter soils; rarely more than sufficient for our own horses.

Compare the growth of wheat in England and in Scotland. The figures I quote will probably surprise many of my readers, who do not seem to comprehend that nothing can be more contrary to their true interests than to grow crops for which their land is not suited, when they can exchange their own natural production for imported produce. Now, the counties of Norfolk and Suffolk grow hardly any oats, the farmers buy Russian oats, but, in revenge, those two counties grow 267,000 more acres of wheat and barley than does the whole of Scotland, and, a few years ago, the single county of Norfolk produced 1,290,373 more bushels of wheat than all the land north of the Tweed.

But, in spite of all this, natural causes, originating in the soil and climate, are, or can be, modified in their results by cultivation, and hence we may manage, if we think it advisable, to render the cultivation of oats in this province a matter of greater certainty and success than it has hitherto been.

The best soils for oats are the alluvial tracts which form the lower parts of valleys, such as are called "inter-vals" in the Eastern Townships. The richer class of granite soils are also well fitted for this crop. As a general rule, it may be stated, that whenever a soil has been formed by the alluvium of rocks or strata not characterised by the presence of too great an amount of aluminous or clayey matter, there we have a soil, which if drained and in proper condition, will produce excellent crops of the best varieties of oats. The finest crop I ever saw was grown on this sort of soil. On the "marge of the salt flood," near Brighton, on land as flat as a pancake and formed from the detritus of the chalk-hills of the South Downs, my friend, William Rigdon, grew 148 bushels of White Tartar oats to the acre: the piece was 11 acres in extent! I once grew 108 bushels per acre but it was on an old garden, so that don't count. Mr. Clare Sewell Read, in his report of the "Recent improvement in Norfolk farming" (1858), mentions a 46 acre field belonging to Mr. Hudson, of Castle Acre, which in 1856 yielded the great return of 120 bushels an acre! (1) The treatment of this piece of land is worth attention: previous crop, wheat; soon after harvest, the little couch-grass in the stubble was forked out; during the winter, turnip tops, &c., were thrown on the land for the ewes, which were removed at night and folded elsewhere, and in February the field was regularly folded over with 2000 sheep, eating on every acre five tons of mangels, and  $\frac{1}{2}$  lb. of linseed cake each per day. The ground was then ploughed, and 2 cwt. of guano (it would take 3 cwt. of the present strength) an acre sown on the poorest portion of the field, white Tartar oats were drilled in March, and afterwards top-dressed with 1 cwt. of nitrate of soda and 2 cwt. of common salt. The result was one of the most level and glorious crops of grain ever seen in Norfolk. The following year, the field produced the best crop of swedes in the county, and the barley which followed was, when Mr. Read wrote, showing signs of over-luxuriance. This is the perfection of farming; to grow such an excellent and profitable crop, and yet keep the land free from weeds and increasing in fertility.

(1) Mr. Wrightson, of the Dawnton Coll. of Ag., mentions a crop of the same number of bushels in this week's Ag. Gazette.

On the clay soils along the St. Lawrence, from Montreal downward towards the sea, the cultivation of oats seems to be very precarious, and the yield greatly depends on the character of the seed time. When the ground has been properly mellowed by the frost, the sowing season dry, and the summer, particularly during the month of July and the beginning of August, not too hot, fair crops of oats can be grown, on these soils. I do not say fair crops are generally grown, because it would not be true, for the general cultivation of these soils is about as bad as can be. Narrow ridges may be necessary for the surface drainage, the growing of root- and green crops may be a difficult undertaking, but nothing can excuse the infamous ploughing, the negligent harrowing, and the total absence of the roller, so constantly observable all through these districts.

Oats are found to succeed best on clay land after a crop of clover and other grasses, and the stronger the grasses are, the better is the grain-crop. The roots of the grasses, no doubt, tend greatly to open up the soil, and to render it more friable and less apt to consolidate around the tender rootlets of the oat-plant. But wherever potatoes have been grown on such heavy land, and the ploughing and general "fitting" of the piece properly carried out, I should prefer sowing barley, unless previous experience has proved the soil to be unsuited to the growth of that plant. Grass-seeds, too, take better, as a general rule, with barley than with any of the other cereals; the reason why I could never understand. Certain clays in England bear first-rate malting barley, but these have a chalk subsoil, and in some queer way the *Chevalier* barley succeeds there, and the great malting firms of Essex, Cambridgeshire, and Hertfordshire, prefer their growth to any other; whereas, grown on our Kentish clays, the barley is entirely unfit for the brewer's purpose. As for grinding-barley, for pig-food, the cheapness of Indian corn does away with any necessity for sowing it; unless expense is no object; for no pork is to be compared with a four months old pig of good breed—Berkshire or Yorkshire—fed on nothing but barley-meal and skim-milk from the day of weaning. And, parenthetically, as to weaning pigs, we have a rather crafty plan of management: supposing a sow has nine pigs, we wean three at six weeks old, which three are kept moderately till they are put up to fatten, on barley-meal at first and then finished off on pease for about three weeks, for *bacon-hogs*. The next three are kept on the sow for another week or two, and are intended for pickled pork. The remainder are not weaned till they are nine weeks old, and are put on barley-meal, whey, or skim-milk, and soon go to London weighing from 50 lbs. to 60 lbs. each. A perfectly grown pig, about 50 lbs. in weight, and neither too fat nor too lean, always fetches the very highest price in that market; a very difficult market it is to suit, but when suited, the most profitable one to deal with in the world.

But to return. There are several kinds of moory soils on which oats refuse to grow, especially those lying on a subsoil of mixed clay, sand, and oxide of iron, hardened together by infiltration from above, and known, here, as *hard-pan*. Both wheat and barley can be grown with tolerable success on such soils, but the cultivation of oats is a thankless, unprofitable task. Liming would, doubtless, be highly useful on such land, and

draining is indispensable; but with lime at 20c, a bushel, and drain-pipes at \$10.00 a thousand, exclusive of carriage, there is not much chance of the reclamation of these hard-pan lands being carried out, at least, in our time.

I see, by the reports in the agricultural papers published in the United States, that the price per rod of 16½ feet for 3½ feet drains is about 30 cents, and this for only digging the drain and laying the pipes, the filling up being done by horses and being altogether an extra job. It is clear to me that either the men do not understand the work, or that they earn extravagantly high wages, for my men in England, in 4 feet work, were well paid at 12 cents a rod, were the pick was not wanted, getting regularly through their six rods a day, in the short winter days, and filling up as fast as the pipes were laid. Allowing men here, to earn a dollar a day—quite enough as time goes—18 cents a rod should be quite enough. I tried a small piece of drainage this autumn: the man I set about it did his work quite fast enough, but he could not keep his drain straight, though working, of course, with a line, and the bottom was like the waves of the sea; so I gave it up in despair. (1).

**Varieties of oats.**—With the exception of Black Tartars, most of the oats I have met with in this country derive their origin from Scotland. They are the following.

**Potato oat.**—This is one of the finest of the early varieties both for quality and quantity of produce. It is probably the oldest early white variety at present in cultivation. It was introduced into Scotland towards the end of the last century, but the accounts of its origin are somewhat contradictory. According to a writer in the "Farmer's Magazine" for February, 1803, potato oats were first imported from South America in a small parcel containing a quantity not larger than would fill an ordinary snuff-box. They were inclosed in a larger package containing potatoes: hence their name. But another account states that they were first discovered growing in a field of potatoes in Cumberland in 1788. The latter is Lawson's account, and I think the true one; Dr Chevalier found the celebrated barley known by his name in the same position; and Lawson, the well-known seedsman of Edinburgh, is no doubt, to be trusted, both from his long experience and his many opportunities of becoming acquainted with facts relating to the origin and introduction of agricultural plants.

The grain of the potato oat is white, short, and plump, when well grown, and the straw is of a pale yellow colour, and moderately bulky. The young plants tiller freely when the seed is not too thickly sown, and the stems usually stand close and carry a large bushy ear, which gives the crop a remarkably rich and luxuriant appearance when fully shot out. The grain varies in weight from 38 lbs. to 47 lbs. a bushel. At the latter weight, 134 pickles weigh one drachm. The grain yields more meal per bushel, weight for weight, than any other variety. I heard, many years ago, when in Scotland, of a very fine sample of potato oats yielding 245 lbs. of meal from a quarter—8 bushels, weighing 368 lbs.—but, in general, what the Scotch millers call "even meal," is considered pretty fair, that is, one hundred pounds of oats should give 50 lbs of meal. The soils suited to the growth of the potato oat will

rarely be found in the province of Quebec. Perhaps, some of the soils at the base of the Laurentide hills, and some of the lower slopes of the Conticook and St. Francis valleys might do, but I cannot recommend it as a rule, fine as it is when successfully grown. On our ordinary clay lands it is hopeless to attempt it. This oat sheds easily when ripe, and should therefore be cut early. (1) See engraving, fig 1. —A degenerated



Fig. 1



Fig. 2

descendant of the potato oat is the sort most commonly met with here; but the sooner it is got rid of the better, for it yields badly, and sheds worse than any oats I ever saw.

**Hopetown oat.**—The Hopetown oat was greatly admired on its first introduction. On good land in high condition it answers better than the potato oat, as it is stronger in the straw and, therefore, not so liable to lodge.

Till I went to Scotland, I always fancied that the *Sandy oat* was so called from its colour! Not at all: Lawson says that it was discovered in 1824, on the farm of Milton of North, Alberdeenshire, by a hord-boy, Alexander Thomson, who found it growing in a bank of recently thrown up earth.

—*Sandy*, as all my Scotch friends know, is short for Alexander. (1) The grain of this oat is neat and compact, but small and should therefore be crushed if given to horses, as otherwise they will be likely to swallow some of the pickles whole. The *Sandy oat* does well on soft, mossy land, as it will stand up when other oats, from over-luxuriance, are lodged.

**Sherriff oat**—I strongly recommend the Department of Agriculture of the province of Quebec to import a few hundred bushels of this oat for seed. It is the earliest of all the white oats—now lots appear in the Edinburgh market a fortnight before any other kinds are ready; and earliness is a tremendously important point here. Individually, I do not care for any white oat, but if the prejudice in favour of them is ineradicable, the Sherriff is the sort best fitted for our climate and soil.

The above are the chief varieties of early white oats; the late sorts are numerous, but it is quite unnecessary to speak of them here, as, in nine seasons out of ten, they would not ripen their seed, unless sown very early in the season.

**Dun oats.**—Somewhere about the year 1849, I bought some seed oats of the late Mr. Hewitt Davis. He called them "Sovereign" oats, but I believe them to have been the common *dun* oats, and nothing but a hybrid between the old black variety (not the Tartar, by any means) and one of the ordinary sorts. They yielded fairly, but nothing like as well as our ordinary black Tartar, so I did not try them again. They seemed suited to inferior cold clay land, though Mr. Davis grew the Sovereign oats on a poor gravel, in the neighbourhood of Croydon, Surrey, where, he protested, his average crop was 96 bushels an acre! Mr. Davis was a thin sower; 3 pecks of wheat, 6 pecks of barley, 8 pecks of oats, and 4 pecks of winter beans, were his usual quantities. As to his yield per acre, I can say nothing positively, as I did not see the crops threshed; but, looking over the fields just before harvest, I must say that the appearance was magnificent. All the grain was sown in rows 12 inches apart, and the winter beans 27 inches, the land, all crops having been horse-hoed, was as clean as a garden. And the farm was not on a small scale either, there having been 850 acres under the plough. I should like to see it in a dry year, for when I went over it we had had a dripping summer, which just suited it.

**Tartar, or Tartarian oats.** v. f. 2.—Ten years ago, when I tried to introduce the Black Tartars into the Eastern Townships, I was gravely told that the horses would not touch them. They had been tried, said the farmers, and they could not give them away! The same absurd sort of prejudice I observe to exist in the *Sorel* market, clover-hay is unsaleable; (2) nothing but timothy stands a chance of bringing a price. Mr. Cochrane, of Hillhurst, however, had seen too much of the world to indulge in such fantasies, and, on my recommendation, imported seed for 20 acres, the yield of which amounted to 1500 bushels; upwards of 72 bushels an acre! His horses, like their master, were devoid of prejudice, and devoured their rations with equal zest, whether they were composed of the white or of the black sorts. The great trainers of Newmarket and Yorkshire, the Days,

(1) And *Saunderson* or *Sanderson*, are really *Alexanderson*.

(2) In England, clover-hay is always worth \$5.00 a ton more than any other.

the Scotts, and others, refuse the finest samples of Scotch potato oats in favour of the Tartars. Like the Scotch late oats, the meal of the Tartars is flinty, and of superior quality, making a sharp porridge. From experiments I carried on this summer on the Lincoln College farm with three different kinds of oats I deduce the following conclusions.

The ordinary white oats of the country—as descendant probably, of the Scotch potato oat—sown after potatoes, require very thick seeding; are short in the straw; do not tiller much; and, though they stand up well, do not head out regularly, nor do they yield as they ought to do.

The *White Tartars* imported last spring—sown on a one year "pacage," i. e. an oat stubble grazed without seeding down—were satisfied with a moderate amount of seed per acre; were shortish in the straw; tillered well; stood perfectly; yielded well; but were at least eight days longer in ripening than their black brothers.

**Black Tartars.**—These oats, bought of Mr. William Evans, of Montreal, and grown in that neighbourhood, received exactly the same treatment and were sown on the same piece of land as the white Tartars. They require a fair amount of seed; were long in the straw—many straws measured four feet six inches in length; they tillered amazingly; went down very little for so bulky a crop; yield at least 8 bushels an acre more than the white Tartars, and, certainly 12 bushels an acre more than the country oats; and, though not sown till the first of June, were ready for harvest on the 1st of September; whereas the white country oats, sown on the 5th of May were hardly ready on the 17th of August. I should say that the common oats were sown on land which was at least a week earlier in general effects than the land where the black Tartars were grown; in other words, the black Tartars if sown on the same piece and at the same time as the common white oats would as far as I can judge, have been fit to cut ten days before the others. I have no interest to serve in the matter, as I have no seed to sell. There are no less than 54 varieties of oats described in "Lawson's Agricultural Manual," and of all these I most earnestly recommend the Black Tartars to the attention of my brother farmers. It was only last week, I was told that the people of St. Barthélemy, a parish in the rear of Berthier, between the St. Lawrence and Laurentian Hills, can grow neither oats nor pease; the oats go down and lodge; the pease never stop growing and blooming, and in consequence, neither crop ripens its seed! The soil is so rich, according to my informant, that these evil consequences invariably ensue, if any attempt is made to sow either of these two crops. It is very odd! There must be some way out of the difficulty. I will attack the pea question, when I come to treat of that plant; but, at present, I will simply describe my way of cultivating oats, and if any of the farmers who are fortunate enough to possess too rich a soil will try my system, I believe they will find a very great difference next harvest in the state of their oat-crop. Since writing the above, I see that Mr. Hewitt Davis died July 15th 1884.

**Quantity of seed per acre.**—A very important element in the cultivation of oats in a dry, warm climate, like ours, is the quantity of seed that should be sown per acre. Six bushels are commonly sown in Scotland, even seven bushels, when the land is not in

(1) I'll try again, of course.

(1) As, indeed, should all kinds.

good condition (1); but it is pretty generally acknowledged that a smaller quantity of seed is required in a dry climate than in a moist one, and for this reason: a thin sown crop will resist more drought than a thicker one, simply because the roots of the plants being fewer, they are stronger and strike deeper into the moist sub-soil. The common occurrence of a thickly sown crop turning yellow during a continued drought, while the thinner sown one retained its green hue under the same circumstances, cannot have escaped the notice of even the most unobservant, and certainly if the yield of oats in our dry climate is ever to equal that of the moister, cooler, and, in this respect, more highly favoured districts of the North of England and Scotland, thin and early sowing must be adopted. Observe: *thin and early*, for if oats are sown in June, as I have frequently seen happen—I have even been obliged to do it myself—thin sowing will not answer the purpose intended. If three bushels an acre are enough seed at the end of April, four bushels will not be too much at the beginning of June.

If land is in good condition, my own belief is that three bushels per imperial acre, that is 10½ pecks per *arpent*, are enough seed at the end of April or the first week in May. I would not sow less than this quantity anyhow, but I think it will do. As the season advances, I would increase the dose, a peck a week, and in June, I would sow at least four bushels to the acre—13½ pecks per *arpent*. Early sown grain has an opportunity of tillering; sown late, it must shoot up at once into the grain-bearing stem. Did any body ever see a June-sown crop of oats standing too thick? I never did.

*Preparation of the land.*—Grain-drills are rare in the province of Quebec. I wish they were not, for they simplify matters most amazingly. Sowing, or broadcast machine are the next best means of distributing the seed, but they do not work kindly on ley-ground, the case of which we will first consider.

The land was, I presume, ploughed in the autumn with a nicely turned furrow 6 + 9 inches, or, if you prefer it 7 + 10. As soon as the piece will work kindly—I would not wait for the dust to fly—set your well-sharpened harrows to work, and keep at it, in a line with the furrows and across them, until you can draw the toe of your boot across the land without the little groove being deeper in one place than in another. Then, start the drill, with coulters well weighted, and try to deposit the seed 2 inches deep—3 inches will not hurt—a couple of strokes of the harrows will suffice to cover the seed, and these should be *along* the ridges. Horses should step quickly in harrowing, the action of the implement will be more of a *shake* than if they go slowly.

With the broadcast machine, the land should also be well harrowed before sowing, and the cultivator teeth should not be set too deep for fear of dragging up the turf; the usual two strokes of the harrow should complete the job.

If there is no machine on the farm; the work must be done by hand, and very irregular sowing is too frequently the consequence. What with the wind and other impediments, it is

(1) In speaking of the quantity of seed sown per acre in Scotland, I beg to say that I am perfectly well aware that the Scotch acre contains five roods. Eight bushels of potato oats per Scotch acre is not an uncommon seeding even now. (This lecture was delivered in 1835.)

very seldom one sees a really level-sown piece of grain. And there is another trouble: if the ploughing has been carelessly done, the grain will be too deeply buried in one place and not be covered at all in another. To avoid the too deep burying, a stroke of the harrows is sometimes given before the seed; the consequence of which is that the grain is barely covered at all, and, in dry summers the roots get scalded. All grain should be sown much deeper than is usually practised here. On land that has grown a matured crop of roots or corn, I should not sow oats. Barley or wheat will answer better. However, if oats must be grown, they can be put in as before with a drill or broadcast-machine; if these are not to be had, a common grabber will bury the seed deep enough if the piece be well harrowed before sowing.

As we have sown our oats in the proper place, that is on a ley, we have no grass-seeds to trouble us. What shall we do, then, with the oats? Leave them to grow untouched till harvest? I think not! If you have no roller, you should make one; a good

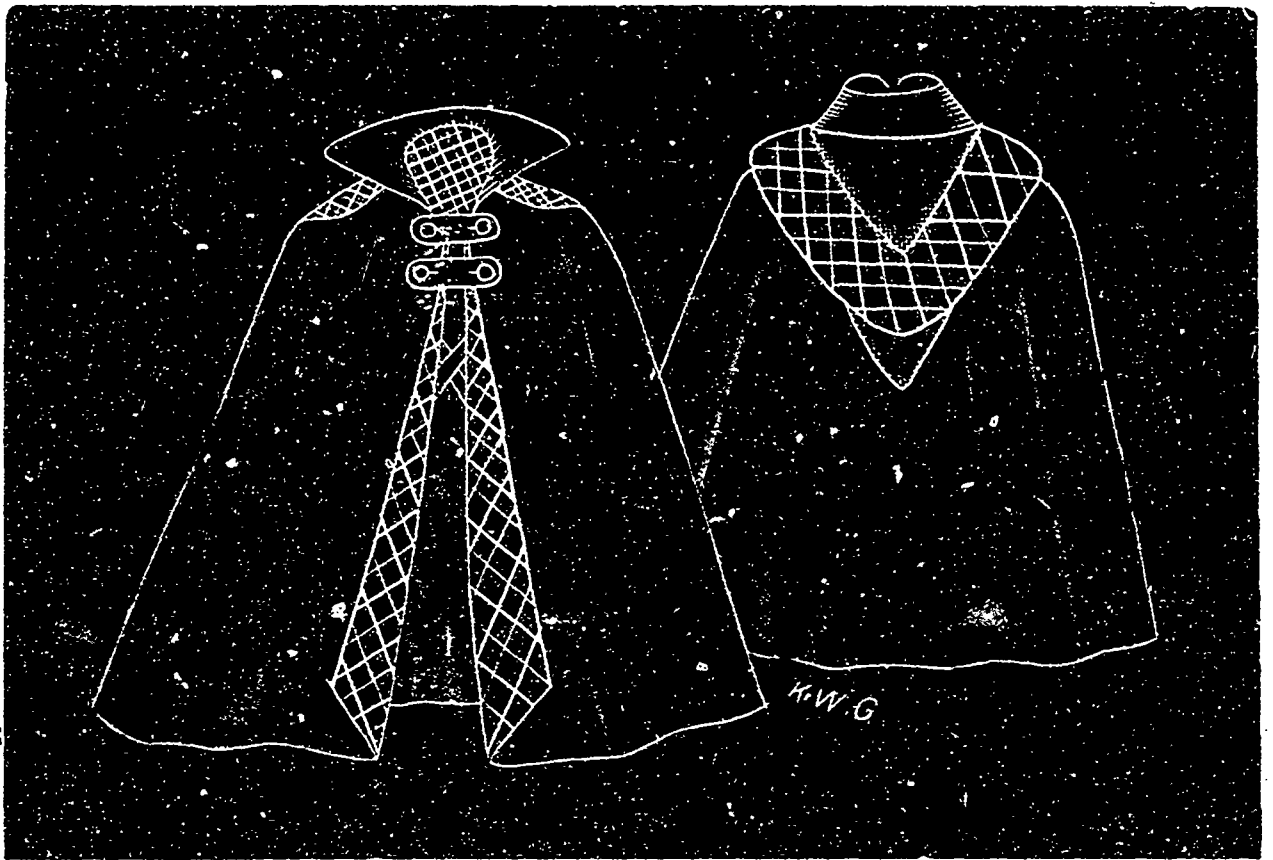
practice as a rule, it is better to omit it than to let the horses tread the land. The Scotch make no ridge less than eighteen feet wide, even on their heaviest land; but our soils are so strong that more than eight feet three inches would be injurious to our crops. Some of the finest farms in the county of Essex are all laid into five feet ridges, and the crops grown are immense. Of course, after heavy manuring and real cultivation, the land becomes tender and, indeed, its nature is utterly changed, and then the width of the ridges is, comparatively, a matter of indifference.

*Harvesting.* Cut your oats so green that every body who sees you laughs at your folly! In the harvest of 1848, a friend of mine in Scotland did this, and a neighbouring farmer speaking to a miller about it was requested by him to look at a parcel of new oats he had just received. After examination, the farmer admitted that they were certainly as fine oats as he had ever seen. "Well" replied the miller, these are Mr.—'s oats that you and others have been laughing at him for cutting so soon!"

it so long there is a doubt about it as there is no mark they which you can claim it. It may be a garden rake, or the little trowel you use for your flower bed or your garden spade, and this happens just as you have made up your mind to have a pleasant hour amongst your flowers, and you end by borrowing your own rake, as I have done, rather than lay claim to what there is the slightest doubt of being yours. Now if the young lad of the house who is so fond of whittling a stick, just for amusement, would spend a little of his time in something very useful he might collect every article he could find, and either cut or burn a mark on it so that it could be claimed without dispute of ownership.

Having done this good work indoors, he might turn his attention to farm implements, thus giving valuable help by saving many a dispute and perhaps hard feeling between neighbours.

*A Golf-Cape.*—This cape was designed for golf players, but now every body seems to like it, and it has consequently become the fashion. Cloth



GOLF CAPE.

hardwood tree, the heavier the better, with a pair of shafts, and a tray to hold stones for additional weight, will do. Light land may be rolled immediately after sowing; on heavy land, I prefer waiting till the grain is well up. A week from rolling a pair of harrows passed across the ridges will break any crust that may have been formed after a heavy rain. Striking out the furrows with the double mould-board plough and water furrowing will, of course, not be neglected. In this work, our French-Canadian brothers are very skilful; but I wish, as the greater part of their heavy land is ploughed into narrow ridges, they would try to harrow with a long whippetree, so that both horses could walk in the open furrows and thus avoid treading the land. In our South East of England farming, the drills have their shafts quartered, the harrows cover a ridge—the horses in the open furrows—and even the roller is, so to speak, broken-backed, rolling half each of two ridges. We find that though cross harrowing is the right

Mr. Stephens—v. The Book of the Farm—in speaking of the proper time to cut oats: "Upon one occasion I cut down a few stooks of potato oats when quite green, though full in the ear, to allow carts to pass to a place destined for the site of a haystack, and after standing till the rest of the field was brought in, they were threshed with the flail by themselves, and the sample was the most beautiful grain I ever saw."

### Household-Matters.

This month when there is not much doing, is a good time to look over mend, and mark, all articles of every day use. In the country people are so apt to borrow and forget to send back the article at once, you in the hurry of spring work forget till some day you want it, and wonder where it is, you send to see if your neighbour has it, you see it, and feel certain it is yours; but the neighbour having had

can be got for it plaid on one side and plain on the other, so when the golf player finds it in her way, or too warm, she has only to unfasten the front, and the cape will fall open, showing the lining, which has a very pretty effect. To prevent it from falling off the shoulders two bands of the cloth are fastened to the collar to and crossed over the chest, fastening behind. The cape is cut in one piece the cloth being wide for that purpose. To make it 2½ yards will be wanted. A very pretty cape could be made of a much less expensive cloth, but unless the stuff is thick, it must be lined.

*Scotch-broth.*—It is a remarkable fact, but no less is it a fact, that there seem to be insuperable difficulties in the way of one of another nation fully entering into the spirit and composition of a distinctly national dish.

Only the other day a distinguished and well-known English expert in the culinary department was giving a recipe for the above dish, as she best



know how. Alas! not "being to the manor born," she of course contrived to make a muddle of the whole affair. To instance, one error among many were directions for making the soup "lithy"—that is, thick, or, as we also say in Scotland, "lapped." Now, among good Scotch cooks, it is reckoned undesirable to have lithy, or lapped, broth; it might possibly be relished by a band of hungry harvesters, though even they have been known to resent such bad cooking, but for persons of the least fastidious taste to have such a dish presented at table would be simply to disgust them. It is done by careless boiling, when the barley is boiled with the meat and vegetables, and to obviate this the best and easiest plan is always to boil it in a pan by itself. The soup of real Scotch broth should be thin and clear, with a mixed meaty and vegetable flavour, and never tasting of the grain. But so little can English cooks be made to understand this, that they will even add oatmeal, flour &c. to thicken it, as if they were making charity soup, on which the recipients were expected to make a full meal.

To make real Scotch broth take a leg, or part of a leg of mutton, according to quantity required, and if wanted very good, add a beef bone with some meat on it, which can be minced for shepherd's pie next day, (1) and enriched with any good stock or gravy that comes handy. For four or five quarts of soup prepare two large carrots by cutting one and a-half into neat small dice, and grating the remaining half; cut a small turnip in the same way; cut the blanched part of three or four large leeks into rings; also chop fine a middle-sized Portugal onion. Boil all these with the meat, putting them into the soup pan when it has come to the boil, and been well skimmed. Now put on, in plenty of cold water, in a lined pan—barley is apt to boil discoloured in an iron pan—two cupfuls of pot or pearl barley, and boil till quite swelled and soft, adding water from time to time as it wastes. When about to serve the broth, strain the barley from its liquor, and add as much of it as appears sufficient; skim off all the fat, and after taking off the fire, stir in some chopped parsley, and send to table in a very hot tureen. If there is more soup than is to be used the first day, the barley should not be put to it, but kept in a separate vessel till wanted, as there is an acid in barley which would act deleteriously on the soup. Broth is sometimes made in Scotland of sheep's head, skinned, and well soaked to draw out the blood; but it requires an extra bit of beef along with it, as the stock from it is very poor. The meat on a well boiled sheep's head is much esteemed by those who are accustomed to it, though wonderful stories are told of the disgust it inspires in those who see it for the first time. (2) The head should be split open, the brains taken out and served separately with brown sauce, or made into little cakes and laid round the head.

A. L. O. S.

**Baked Onions with Cheese.**—Peel the requisite number of medium-sized, sound Spanish onions, and cut them in slices about a quarter of an inch thick, then season these pleasantly with salt and pepper, lay them in a single layer in a well-buttered baking tin, cover them with a buttered paper, and

bake in a moderate oven until thoroughly cooked. When done enough, cover each slice of onion with a thin slice of cheese cut to fit, and return the tin to the oven until the latter is entirely melted, then dish up as quickly as possible in the following dainty manner: Take up the slices of savoury onion very carefully with a fish-slice, so as not to break them, then place each one upon a hot, crisply fried croûton or a round of hot buttered toast of corresponding size, sprinkle the surface over with a pinch of pepper and a little finely-minced hot parsley; arrange tastefully on a hot dish paper, garnish with sprigs of fried parsley, and send to table just as hot as possible, as the coating of cheese so quickly becomes tough and leathery.

**NOTE.** Slices of baked onion may also be served with a slice of fried or baked tomato, a tiny heap of cucumber boiled until tender, and cut into small dice, or a carefully poached egg on the top, instead of the cheese. Thus various little changes can very easily be effected in what is practically the same dish.

**How to cure a cold.**—Almost everybody has a remedy for a cold, which he is ever ready to recommend to others after detailing his own experience. The *Boston Journal of Commerce* quotes from a medical writer some advice on this subject which seems to be more than ordinarily useful. When one becomes chilled, or takes cold, the mouths of myriads of little sweat glands are suddenly closed, and the impurities which should pass off through the skin are forced back at the interior of the body, vitiating the blood and putting extra work on the lungs and other internal organs. Just beneath the surface of the skin, all over the body, there is a network of minute blood vessels,

#### FINEER THAN THE FINEST LACE.

When one is chilled, the blood is forced from these capillary vessels into one or more of the internal organs, producing inflammation or congestion, and thus often causing diseases dangerous to life. The time to treat a cold is at the earliest possible moment after you have taken it. And your prime object should be to restore the perspiration and the capillary circulation. As soon, then, as you feel that you have taken cold have a good fire in your bed-room. Put your feet into hot water as hot as can be borne, and containing a tablespoonful of mustard. Have it in a vessel so deep that the water will come up well toward the knees. Throw a blanket over the whole person to prevent rapid evaporation and cooling. In from five to ten minutes take the feet out, wipe them dry, and get into a bed on which

#### THERE ARE TWO EXTRA BLANKETS.

Just before or after getting into bed drink a large glass of lemonade as hot as possible, or a glass of hot water containing a teaspoonful of cream of tartar, with a little sugar if desired. Should there be a pain in the chest, side or back, indicating pleurisy or pneumonia, dip a small towel in cold water, and wring it as dry as possible. Fold the towel so that it will cover a little more surface than is affected by the pain. Cover this with a piece of flannel, and both with oiled silk, or better, with oiled linen; now wind a strip of flannel a foot wide, several times around the chest. The heat of the body will warm the towel almost immediately, the oiled linen and flannel will retain the heat and moisture, and, steaming the part, will generally cause the pain to disappear.

Should there be pain or soreness in the throat, you should treat in a similar manner with wet compress and flannel bandage. Eat sparingly of plain, simple food. Baked apples and other fruit, bread and butter, bread and milk, milk toast, baked potatoes or raw oysters may be eaten. By following the above directions intelligently and faithfully you will ordinarily check the progress of the cold, and prevent serious, possibly fatal illness. —(*Montreal Star*.)

**Things to be remembered.**—That black cotton hose should be dried and ironed on the wrong side to prevent fading.

That calicoes should be washed in clean water, dried in the shade and turned on the wrong side to dry.

That black and white calicoes are benefited by having a handful of salt added to the rinsing water.

That red tablecloths keep their color if a little borax is added to the rinse water and they are dried in the shade.

That it is not needful to boil white clothes (unless very dirty) and have the house filled with steam every week.

That if the clothes are folded and laid in a large rinsing tub and boiling water poured on generously, it answers the purpose.

That blueing added to the rinse water does not whiten the clothes, only covers dirt, and need not ever be used.

That letting clothes hang after they are dry, or letting them hang through a storm, or in windy weather to slat about, is not conducive to long wearing or to help the good man's pocket-book.

That a clothespin bag made of bed-ticking or something stout, in the form of a pocket with a slit on the front side, is much easier to get at than a common bag.

That a bed-ticking apron with a large pocket across the bottom is better than either.

That a basket exposes the clothespins to dust, and the clothes suffer accordingly. (*Good Housekeeping*, *Vt. W.*)

## Correspondence.

Editor of the *Journal of Agriculture*.

SIR,—As a reader of your Journal, I would like to ask why a good fertilizer cannot be made with good unleached ashes, lime and salt? I can buy the ashes for 10c, lime at 20c per bushel and salt at 60c per sack of 200 lbs. My intention is to use them for corn fodder, mangels and potatoes. Even if we had to use more in quantity, we have all the material at hand and could effect a large saving. Our soil is mostly a gravelly loam, warm and dry, long under cultivation, being some of the earliest settled in this section. I have found ashes alone excellent in the orchard and nursery but would like to use it for other purposes as well. Kindly answer in *Journal* and oblige D. W.

In reply to Mr. Westover's question, we would, first of all, say that lime is not, properly speaking, a manure. It is very important to healthy vegetable growth, as practical experience has long proved. The object of applying it has always been the same: to increase the crops by stimulating the action of the soil. It acts, we believe, in two ways, directly upon the organic matter in the soil, and upon the

soil itself, by altering its texture. Stiff clays it renders friable, and loose gravels are rendered firmer by its action.

Many a thousand acres of land in this province are gaping for lime. Not the poor land, by any means, on which dung is rarely put; but land that has had a fair amount of farmyard manure applied. If there is but little organic (vegetable) matter in the soil, there will be little use in applying lime, as it will have nothing to work upon; and, contrariwise, heavy dressings of dung on land devoid of lime are mostly wasted, as the dung remains in the land in an effete state, incapable of action. To use simple, unscientific language: lime cooks the vegetable matter in the soil, and renders available what would otherwise remain inert.

On most soils of the kind described by Mr. Westover, a dressing of from 10 to 20 bushels of lime to the imperial acre, applied the season after the dung cart, would have great effect.

Salt is so almost universally present in all Quebec soils that we can hardly recommend its use here, unless our correspondent would like to try it for mangels. We only advise this as an experiment, for, like potash, the effects of salt are most capricious; but we have heard of salt adding tons to the yield of the mangel-crop.

Ashes of hardwood of course, are a most important addition to our list of manures. They contain large doses of both potash and phosphoric acid, and, it is pretty hard to tell, sometimes, to which of these two constituents their effects are due. As a general rule, all light land, long in cultivation, and not too frequently manured with dung, is benefited by potash, and yet, the Sorel sand, when we farmed it, did not seem to be affected by it. There is so much potash in the dung usually applied to land that it always seems to us a waste to add ashes to dung. At all events, if ashes, or potash in any form, are employed on the land, the earlier the dressing is spread the better, as potash takes a long time to prepare itself as plant food. Where there is no wash in the spring, ashes should be spread in the fall.

But the really trustworthy manual constituent of ashes is the phosphoric acid. On land in decent heart, we have grown a fair crop of turnips with a dressing of 40 bushels of ashes to the acre, and a really good crop of rape with even less; and this rape, fed off by sheep, was succeeded by a heavy crop of oats, a pint of a mixture of oats and pease being given daily to each sheep; and the following grass crops were by no means bad, particularly when the young seeds had a top-dressing of dung in the fall.

By the bye, on Mr. Westover's soil: "a gravelly loam, warm and dry," what a splendid chance there would be for a crop of tobacco! Tomatoes, too, for canning, would yield well, and as for "Stratagem" pease, the only trouble would be to find enough pickers. Something must be done to vary our products in this province, and it is on soils like the one in question that the easiest experiments can be tried.—Ed.

The *Journal*.—All members of County Agricultural Societies are entitled to a copy of the *Journal* gratis.

Tamworth Hogs.—The reason why we do not care for Tamworths, except as a cross, is that they do not mature so early as the Yorkshires, Berkshires,

(1) Poor shepherd!—Ed.

(2) Englishman as we are, we delight in the sheep's head, provided it be skinned and not singed at the forge as in Scotland in 1716. See Rob. Roy, the Dinner at Baille Nicol Jarvie's.—Ed.

&c. The English market (see M. Gigault's Report) demands long, lean, young hogs.—Ed.

The answer to the questions about the Babcock test shall appear in our next.—Ed.

## The Dairy.

### Mr. JOHN FRASER'S DAIRY FARM

Fraser's Point Dundee, Que.

A description of this farm, visited lately should be of interest to the readers of the Journal, aording as it will, some valuable suggestions to beginners.

Mr. Fraser states that when he entered upon its occupation, six years ago, he found it run down by poor cultivation, and he made up his mind not to attempt more than he could well accomplish, but to improve it thoroughly piece by piece, to keep all the cattle he could with the means at his disposal, and gradually to increase his stock of cows. He planted green crops; clover, tares, pease and Indian corn; to supplement his pastures when they became bare in the late summer, and, as soon as he could, he built a silo. Believing in the manufacture of butter on account of the value of the bye products he never sent his milk to the cheese factory and attributes his success to never losing sight of the necessity of increasing the productivity of the soil he tilled. At last, he had advanced far enough to put in a cream separator, and now makes butter of uniform good quality for which he has a regular customer in Montreal.

He does not, however, consider the butter any more profitable than the separates the milk as he uses it. He separates the milk as it comes from the cow at each milking, and has a pipe which conducts the skim or separated milk direct to the hog trough, thus the hogs get it quite fresh and warm from the cow. He showed me 22 six months old pigs which had always been thus fed, with no grain whatever added, and they would weigh from 150 to 200 lbs. each. These pigs ran over the manure taken from the cows and horses, greatly improving its value. Mr. Fraser was of opinion that if a cow is to pay hogs must be fed in connexion, because the pork and manure they make is a very considerable part of the net profit. It will be seen that by Mr. Fraser's plan there was no time lost in preparing the food or feeding the hogs. Of course all the separated milk was not used for the hogs, some being appropriated to the rearing of calves, which were looking well. The stables are built upon the most approved principles as regards the health and comfort of the animals; the siloes, of which there are two, are convenient to the feeding mangers, and are most successful, Mr. Fraser says that without these he could not possibly make the profit he does.

The water of which there is an abundant supply of the purest, is conveyed to the upper story of the building, where its temperature is raised, and thence to the troughs.

Mr. Fraser thoroughly believes in de-horning, stating that his experience is that the cows milk better because their disposition is rendered more pacific. As to the supposed cruelty of de-horning, the details of an experiment made by Dr. Ball, V. S., of Stanstead, may be of interest. That gentleman selected two cows in his herd,

weighed their milk morning and evening, dehorned them at night, and again weighed the milk on the following day, when it was found that the quantity had not diminished. He states that the same night they were de-horned he went to see them, and found them lying down chewing their cud as if nothing had happened; this confirmed him in the belief that they suffered very little pain by the operation.

Mr. Fraser's practicalness is perhaps his leading characteristic. He does nothing without first proving the practical result; keeps strict accounts and records of all his transactions; occasionally tests his cow's milk with the Babcock; and if one cow persists in not coming up to his standard of butter fat, she is drafted from the herd. In fact, everything is done methodically and systematically; not one particle of liquid or other manure is allowed to escape, and his crops bespeak the careful and judicious manner in which it had been used.

Such thoroughly practical and persevering men are the bone and sinew of agricultural progress, and will raise the respect due to the husbandman to a higher plane of importance by all classes of the community.

Geo. Moore.

### DAIRYMEN AT QUEBEC.

They Ask That the butter Industry be Bonused.

QUEBEC, February 11. — There was a gathering of creamery men and butter manufacturers at the Colonization Department on Saturday to consider what should be done to foster the butter industry. Mr. Gigault, Assistant Commissioner of Agriculture, presided, and a short address was delivered by Mr. J. de L. Taché. He also submitted a petition signed by over two hundred creameries in the province. Mr. Taché claimed that the time is near at hand when the supply of cheese in Canada will be greater than the demand in England, consequently more attention must be paid to the butter industry as well as to that of hams and bacon. He showed where the English importation had been stationary since 1890, but the production of cheese has increased rapidly during the same period.

Mr. Taché claims that Canada will produce in 1900 more than the present total consumption of cheese in Great Britain, but in 1900 Canada will not be the only country manufacturing cheese for the English market. The production of cheese in the United States is five times greater than that of Canada, and their exports to the English market are equal to 60 per cent, of Canada's exportation to the same market. The Australian colonies also commence to busy themselves with the production of cheese, while the Maritime provinces, just beginning, will add a great deal to Canada's production. What must be done, says Mr. Taché, is to manufacture cheese in the summer and butter in the winter. What butter is manufactured in the summer should be exported so that the home market would not be overstocked in the winter. If a regular trade in butter with England can be brought about, it would prevent either the cheese or butter markets being overrun. Mr. Taché quoted figures to show how successful the colony of Victoria has been in exporting butter to Great Britain. Proceeding, he referred to the irregularity with which butter was exported to England, claiming that cold storage accommodation should be provided on this side as well

as on the railways and steamers, so that the butter could be landed fresh in England.

He assured the meeting, also, that he had good reason for believing that the Federal Government would provide the cold storage facilities, provided they could be convinced that there would be butter to ship. The butter makers of the province of Quebec seek a bounty of one per cent. per lb. on 2,000,000 lb., viz.: \$20,000 during one year, two or three years, according to the results obtained. Cheese sold in this province in 1894 at an average rate of 9½ cents per lb., and if it drops in future years to 8 cents the loss will be \$100,000 per year, or about \$900 yearly to each cheese factory in the province of Quebec. There were made in 1892 about 10,000,000 lbs. of butter in the factories, the average price being one cent, lower than in 1893, representing a loss of \$100,000 or \$100 to the patrons of each butter factory in the province. At the present time butter is worth 2 cents less than last season and all the butter made at the factories and conserved in ice houses and all yet in possession of the farmers will suffer the same loss. After remarks from several other gentlemen the following resolution was adopted.

"The butter makers at a meeting held at Quebec to-day, 9th February, unanimously approve of the steps taken by the committee named at the Dairymen's Convention, held at St. Joseph de Beauce; endorse the petition signed by the great majority of the province, and the memo submitted in support of it, and pray the Quebec Government to an early decision about the demand contained in the petition; that they promise themselves to get patrons of their respective factories to bind themselves to ship during next season a certain proportion of the make of butter to be shipped perfectly fresh, according to regulations, to the English market. They further express their surprise at the opposition which several country members have brought against their just demands, and that these members be severally asked to join in the move, which is now a national one, in the interests of the cheese as well as the butter factories."

After adjournment, a deputation waited on Hon. Mr. Taillon, who promised to do all he could towards securing the bonus asked for.—Star.

Creamery butter, said Prof. Robertson, has its highest intrinsic value within four days after it is made, and should be sold or consumed in that period. Butter was sold last season at 18 1-2 to 20 cents per pound, when the market in England would not guarantee more than 17 cts. Buyers took the risk in expectation of an advance in price. Butter can be held if kept in cold storage at a temperature of 32 degrees in perfect condition. Butter would spoil more in one day after arrival in England than in one month in cold storage here. He laid stress on the fact that our people too commonly called Canadian butter bad, whereas the truth was that Canadian creamery butter was equal to the finest Danish. Two or three years ago he had sent several sample shipments of butter to England, which, owing to the fact of their having to be introduced in the market, were resold at a moderate price, and in order to please the patrons interested he made the difference in price good to them out of his own pocket. He did not feel disposed to repeat this. He was also attacked by the trade in Montreal for interfering with regular business. He intended to take the

matter up, and was here for that purpose and expected to be backed by the farmers.

### AS TO SHIPMENTS.

In connection with Prof. Robertson's address the president presented a resolution which had been placed in his hands yesterday. It was moved by Mr. John H. Croil, Aultsville, seconded by R. J. Graham, Belleville, and was in effect that owing to the demoralized condition of the Canadian butter market, caused by the system of holding through the summer and shipping to England during the winter months, the Dominion and Provincial Parliaments be asked to extend such financial aid as may be necessary to place weekly shipments on the English market of fresh made Canadian creamery butter until such time as its quality may be established.

Mr. Graham, as one of the movers, was called upon and condemned the practice of holding our butter. He felt sure that this system was the chief cause for the absence of demand from Britain. From experience he had of shipments of fresh butter made by him, he felt sure that with a regular supply going forward weekly our butter would sell at as high a price as Danish butter and give much better returns and satisfaction to the farmers of this country.

Mr. Croil strongly endorsed all that Mr. Graham had said, claiming that as we had never had any good results from shipping butter to England, which was held in cold storage for any length of time, and that as our grade now was in an unsatisfactory condition, while other countries which were pursuing the system of selling their butter fresh were keeping the trade away from us, the experiment he proposed should at least be made, as it would not in any way interfere with the system of holding until winter. After some further discussions the resolution was unanimously carried.

Whitchurch (Cheshire, Eng.) Cheese Fair.—At the monthly fair held in connection with the very successful Dairy Show on Wednesday there was the largest pitch known in the history of the Association, being no less than 115 tons of which 65 tons were show cheese. The attendance was large, both of the general public and factors. There were no "fancy" prices for the prize cheese, as was the case last year; all the transactions were of a real business kind, nothing being forced. Mrs. Wilson's champion cheese made 80s., and other first and second-prize cheese met with a ready sale at from 70s. to 78s.; the third, fourth, and fifth prizes from 63s. to 68s.; and the *vhc's, hc's, &c.*, from 56s.; whilst some of the lots hardly touched this figure, but there was not a single lot unsold. There was a slight improvement in the trade for the "fair" cheese, and from 57s. to 63s. may be accepted as a correct quotation for the best grades, 48s. to 55s. for medium, and from 41s. for lower qualities, the latter, however, meeting with a slow sale.

### GRAIN, &c., FOR COWS.

Q Does it pay to begin keeping our cows in the stable nights to save the manure, as soon as you begin feeding them grain in the fall of the year?

A Farmer—I think it does.

Mr. Gould—It pays to keep cows in at night after October 1st. After that



it is easy enough. I think it a better way to keep my cows than the way grandfather did. We put our cows in the stable the night of October 5th and they have been there every night since. Next day there was an average gain of a pound and a half of milk per cow.

Mr. Shepard—I feed my cows some grain every day in the year. I may not get it all back through the milk pail, but I am satisfied that I do by way of fertilizer left in the pasture. I only regret that I am unable to get such cows as my friend, Mr. Wilcox, over here, does. Somehow, I can neither breed nor buy them, that is, I have not been able to yet.

Mr. Lyons—Mr. Wilcox's success does not all come from feeding. He is a wonderfully sharp man, having a special eye for a cow and seems to know a good one just as soon as he gets that eye upon her. Besides that, his pastures are permanent, and the grasses mixed and of the best varieties, because they contain the elements that make good milk.

Q. How much and what kinds of grain does Mr. Gould feed his cows?

A. I feed grain to my cows every day in the year, except when they are not giving milk. There are about two weeks in August when the cows are dry, that the grain ration is taken off. My cows go dry during the time when the flies are doing their best work and when milk brings lowest prices. About September 1st they begin to come fresh, then we begin feeding peas and oats as a soiling crop; these are followed later with corn out in the field. November brings the ensilage out. We feed but a little hay as I have but four acres of meadow on my farm. Besides that, I cannot afford to feed much hay; it is too expensive; what I do feed is either clover or mixed hay. Would not feed timothy hay if it were given to me, and I am fully satisfied the day is not far distant when every dairyman will have the same opinion. It not only costs too much in this day and generation, but it is not a milk producing food, just as corn meal is not. Both will have to go, sooner or later. About two and a half pounds of mixed or clover hay per day is all my cows get. One good sized forkful goes the whole length of the mangers. Mill feed is the principle grain ration, about six pounds per cow per day, in two feeds, morning and night. I have tried all the rations I ever saw recommended and have settled on mill feed—nearly all bran—as the one best for me. I know that it is worth more than the same amount of cotton seed meal for the purpose I want it. That and good ensilage with the small ration of hay does the business for me every day in winter.

Mr. Lyons—We mix corn and cotton seed meals, half and half, for our dairy. Have never found any other combination that would give better results; our cows are Jerseys and we make butter.

Q. How long do you keep your cows in the stables in winter?

Mr. Gould—Twenty-four hours and fifteen minutes every day.

A Farmer—How would you like to stand with your head between two stanchions all winter, or even 24 hours and not have a chance to go out?

Mr. Gould—What man having any sense would put his cow's heads in a stanchion? My cows are not kept that way, the stanchion having never found a resting place in my stable. I have an inherited dislike for the stanchion which knocks it out where my cows board, if nothing else would

Years ago, when it was a pleasure as well as a pastime, to hang Quakers, in Massachusetts, my great-great-grandfather, who was of the Quaker order, hearing that a brother Quaker was to be hanged in Boston, went up there to give him some religious consolation, but old Governor Endicott didn't look at the matter in that way, so to block the consolation game he ordered my ancestor taken out and put in the pillory where he stood all night. The Goulds have been down on the stanchion ever since that night. But there was another good thing which came out of it, and that was the sum of 50 pounds cash which my grandfather was awarded by the court, and which Gov. Endicott subsequently paid, as damage for his pillory stanchion experiment on the old man. That cash bought my grandfather a farm and laid the foundation for the immense wealth of the subsequent Goulds, including my own, and yet I'm down on the stanchions.

Hoard.

body; that they furnish the material necessary to repair the losses sustained by wear of tissues; that they supply material for new growth; that they give the fuel needed to maintain the animal body at a temperature suited to its working requirements; that they give the body strength to do work; that they enable their nutritious parts to circulate through every part of the body, and thus supply to each what is needed. These points were expanded and illustrated by the speaker.

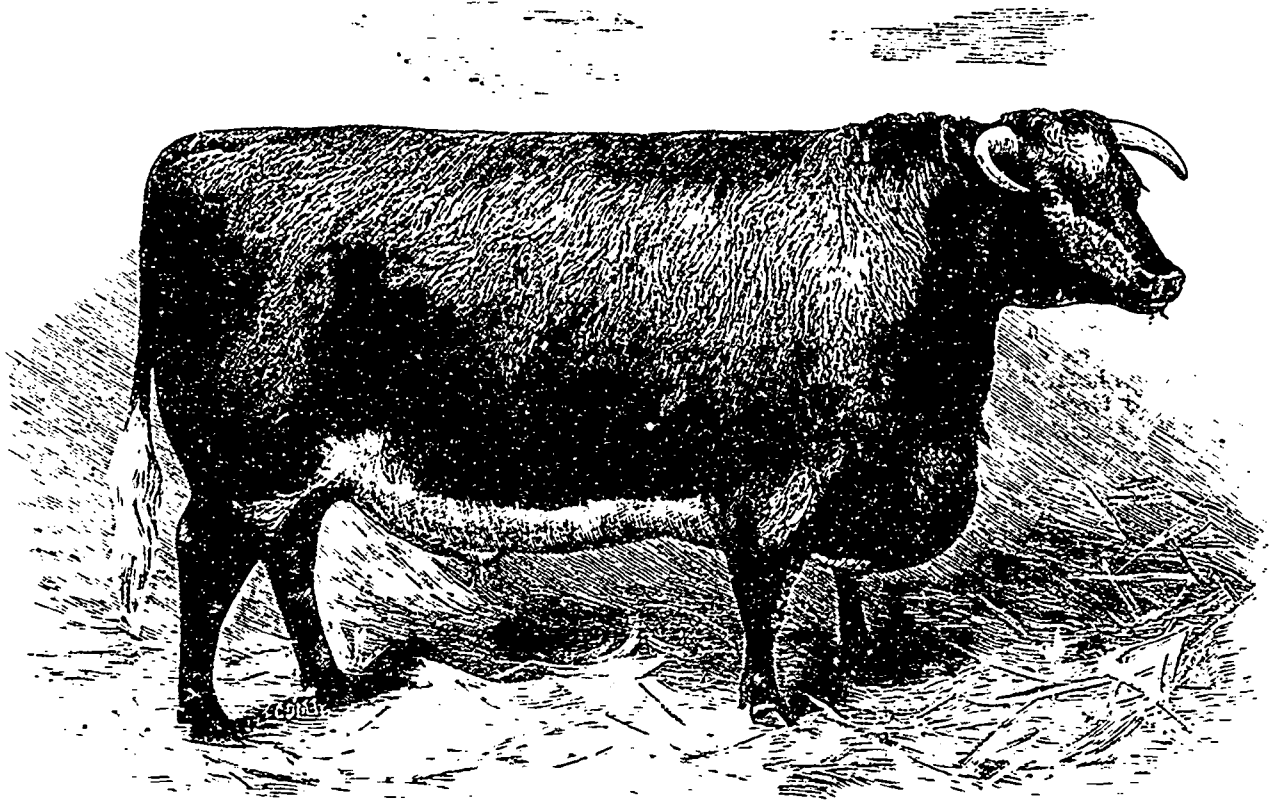
He then came to the unsolved problems. One such, of high importance in dairying, concerns the source of formation of milk fat. Where does the milk-fat come from? Some say that it is formed from the protein of food, but there is no experimental evidence that the milk-fat necessarily comes from protein. Such a belief has made some persons feed highly nitrogenous rations. *There is unquestioned proof that fat is formed from carbohydrates. There are also good reasons for believing that milk-fat comes more*

We know that milk is very largely made up of water, averaging about 87½ lbs. for 100 lbs. of milk, with large variations in both directions from the average. We know also that the quantity of water in milk is influenced by various conditions, such as breed, individuality, stage of lactation and quality of food, health and care. While we can control to some extent the quantity of water in milk, we are very far from doing so completely.

It was formerly supposed that milk-fat was a simple compound, but we now know that it is a very complex mixture, containing glycerine, united with a considerable number of different acids. But we know little as yet about the details of how this mixture of compounds contained in milk fat is put together.

#### THE PLAGUE OF ABORTION.

On the following day, we had the pleasure of inspecting the Berkeley



SHORTHORN STEER, MASTERPIECE.

Bred by and the property of Her Majesty the Queen, Prince Consort's Shaw Farm, Windsor.

Winner of Plate as Best Steer or Ox at the Smithfield Club Show, and Reserve for the Championship at Birmingham and London. (v. p. 47.)

Dr. L. L. Van Slyke of the Geneva Experiment Station spoke on "Some Solved and Unsolved Problems of Dairying." He presented a general survey of what has already been accomplished in dairying, and also of what remains to be done before we come nearer our ideals. He spoke first of breeding. It would be untrue to say that our knowledge of the science of breeding has not advanced for we know much more about the "whys" of breeding than we once did; but this knowledge has served rather to explain why successful breeders secured good results than to work any revolutions in these methods. We know that it is easily possible to control the character of offspring, and to direct it along lines that are suited to a more or less special purpose. We also know that we have not yet complete control of all conditions.

Great advance has been made during the last generation in regard to our knowledge of food, its uses and adaptations. We know that foods perform several functions in the animal

or less largely from fat consumed in food. (1)

Another unsolved problem is in regard to controlling the per cent. of fat in milk, particularly with reference to increasing it. Another is in relation to the mixing of food nutrients. I regard it as a species of humbug for any one to make one ration for a Jersey cow, another for a Guernsey cow, and still another for Holstein cow, when the object in each case is to produce milk fat. *The tendency has been too much in the direction of regarding a fixed, definite standard, universal in its application, as a solved problem.*

To a layman, it may be a surprise to learn that chemical methods for determining the actual food constituents of our feeding materials are very far from complete. For instance, we have as yet no satisfactory method for determining the quantity of fat or oil in a food. What we report as fat is very impure. The determination of starch, sugar, &c., is still a matter of study and experiment.

(1) Italics ours.—Ed.

Castle shorthorn herd in the company of the noble owner and a party of his friends. But, before making any remarks on the principal members of the herd, it is important to note some remarkable facts as to its past history. Twenty years ago the Berkeley Castle shorthorn herd was one of the leading shorthorn herds in England, and a large proportion of the most prominent prize-winners of the day were drawn from its ranks. As already noted, the famous bull, Duke of Connaught, was bought at the Dunmore Sale in 1874 for this herd at the record-breaking price of 4,500 gu. The purchase of this animal at this fabulous price proved to be one of the most profitable purchases ever made for any herd, as during the years he stood at the head of Berkeley Castle herd he earned for more than his purchase price in service fees for cows sent from the best herds in England to be mated with him. He also begot in the Berkeley Castle herd a host of valuable animals, some of which were retained in the herd, while many others were

sold at prices ranging from 100 to 1,000 gs. each. One of the young Dukes thus sold was Berkeley Duke of Oxford, which was sold to Mr. McCulloch for exportation at the price of 700 gs. Another of the same family, namely, Berkeley Duke of Oxford 2nd, was bought for 1,000 gs. by Mr. Hume, of Barrelwell, Brechan, for Mr. Hill, of Minnesota. Mr. Angus, of Australia, also bought from Lord Fitzhardinge a dozen head of Connaught's descendants at prices ranging from 100 to 300 guineas each. But in the beginning of the 'Eighties,' this great herd, which for the previous six years had been in the zenith of its fame, suddenly dropped almost completely out of sight. The plague of abortion had seized upon it with such virulence that scarcely a cow in the herd escaped, and many of the best cows had to be parted with on account of their repeated 'slips.' For ten years this state of matters continued; and, although the most eminent veterinary professors in England were called in to advise on the subject, yet all the remedies that veterinary skill could prescribe proved to be powerless

germicide when applied internally. For that purpose he began to give his pregnant cows small doses of this substance, the doses being steadily increased until they reached half an ounce per day; and as soon as this treatment was adopted in his herd, the plague at once ceased. Mr. Peter decided to give this treatment a thorough trial, the carbolic acid being given to the cows in the bran mashes; and in his case also, as soon as this treatment was adopted, the plague was stayed. The carbolic was given in small dose at first, and gradually the quantity was raised, till the dose reached the maximum of half an ounce per head, which was given every alternate day. Although the plague, which had ravaged the herd for ten years, ceased from the very day that this treatment was commenced, Mr. Peter still gives the pregnant cows a half ounce dose of carbolic in a bran mash once a week as a preventive against the plague. When the Royal Society of England were recently conducting their enquiry into the subject of abortion in cows, Mr. Peter gave evidence before them

### THE PASSING OF ROVER.

ED. HOARD'S DAIRYMAN:—Eight years ago when I began Dairying, I deemed a dog and a club as essential to the business, as anything that could be named. Accordingly, among my other assets, I had some good, stout oak goads, and considered myself fortunate that a relative gave my wife a highly bred Scotch collie pup. I thought that with such a complete equipment, I was, without the shadow of a doubt, well on the highway to success. But, alas! "Man proposes, but God disposes," says the proverb. But in this case, as in many others, the so-called Providential disposition was merely a direct result of a well defined cause.

Abortion reigned supreme and anyone who has ever contended with abortion, to any extent, knows what that means. I pondered faithfully as to what probable cause such a result could be due. Slinkweed, oil cake meal, cotton seed meal, noxious weeds in pasture, etc., all came in for a share

tor to shame. I thought all these qualities and results were of great use to me. But some abortions kept coming. The billy goat remedy, while good, was not infallible.

But the time came when my valuable assistant, the dog, succumbed to attacks of mango and kindred diseases, and he paid the debt of nature. I mourned him truly and out of reverence to his memory I neglected to replace him at once. Meantime the billy goat remedy improved; abortions ceased altogether.

And then I drew my conclusions. I am satisfied in my own mind that a dog has no place in a dairy herd. The shock to the delicate nervous system of the mother cow by the appearance of a natural enemy, can have nothing but evil results. If the dog were always kept well in hand, the effect would be bad enough, but that is impossible, and when he is allowed to run riot in the herd, lagging promiscuously, the damage is incalculable.

Since the demise of my dog, I have not had one case of abortion. My cows breed regularly, fine healthy calves. It takes a little longer to drive them in from pasture and a little more "jaw action," but I think increased results at the pail pay for that.

The billy-goat is still hale and as aromatic as ever. Truly, he or something else has wrought a great change. Which?

Salem, N. J. A. JERSEY SANDBORR

### HOW OFTEN TO FEED.

ED. HOARD'S DAIRYMAN.—Brother "Johnathan" opens up an interesting field of discussion when he inquires how often to feed. Where our own stomachs are concerned we have had it drilled so often into our heads (I am an Irishman) that we should not eat between meals, that we have come to think the same about the cow. But four or five hours after a man has eaten a square meal, his stomach is as empty, as the heads of some of our politicians, while it has been found that the paunch of a cow will contain from 150 to 200 pounds of matter after a fast of twenty-four hours. This entirely upsets the theory that the paunch of a cow should have a rest; for, if after this long a period it has still this surprising quantity of matter, no sane man would want to starve his cows until their stomachs were entirely empty. Then, if nature intended that the paunch of a cow should always have a large quantity of food in it, why should not brother "Johnathan" fire up as often as he wants to? He has certainly got nature on his side, and when a man has this powerful ally on his side he can generally rest assured that he is right.

P. B. CROSBY.

Catonsville, Md.

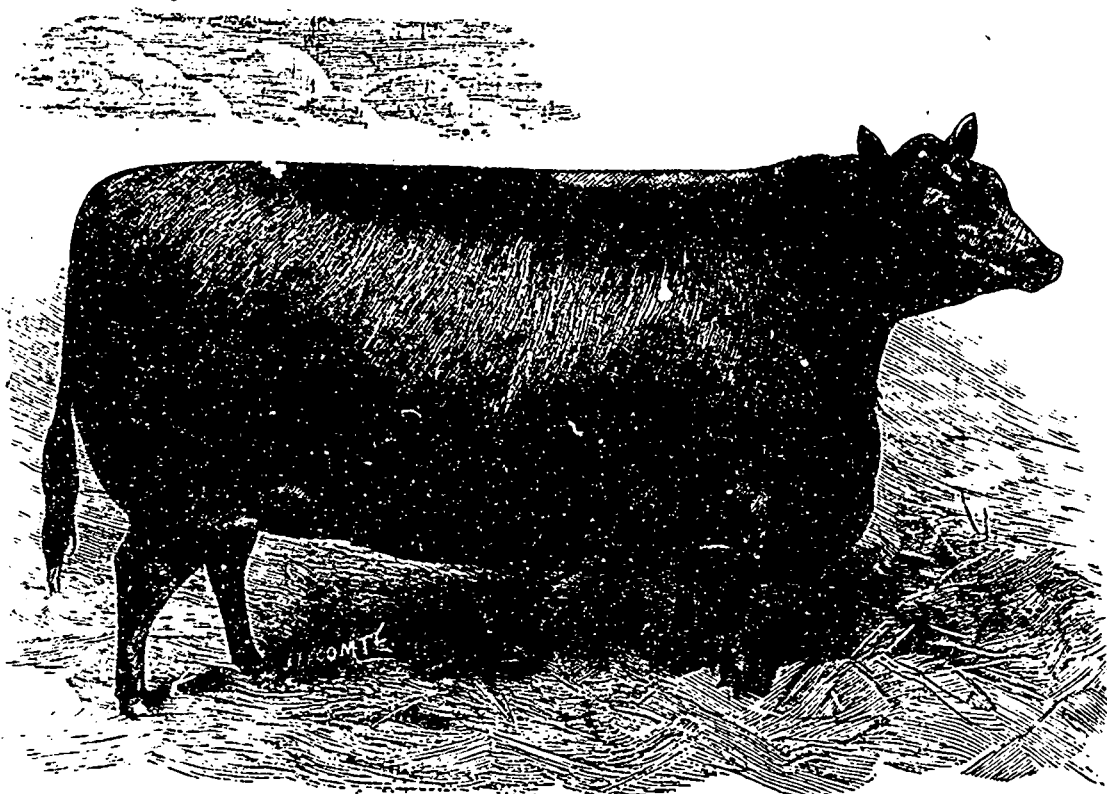
### Garden and Orchard.

#### THE MAGNUM BONUM POTATO.

The following appears in the *Land Agents' Record*:—

As the individual who actually introduced to my partners the nameless seedling potato, afterwards so famous as Sutton's Magnum Bonum, I may, perhaps, be best able to answer Mr. Abbot's letter in your last issue.

The late Mr. Shirley Hibbard, the well-known horticultural expert and



ABERDEEN-ANGUS HEIFER, BENTON BRIDE, 19,843.

Bred by and the property of Mr. Clement Stephenson, Sandyford Villa, Newcastle-on-Tyne.

Champion at the Smithfield Club and Birmingham Fat Stock Shows. (v. p. 47.)

to abate the plague. Even the Highland cattle on the place became affected with the plague, and it seemed as if the whole of the cattle stocks at Berkeley Cattle would have to be cleared out by way of stamping out the disease. At last, however, a method was suggested by which the plague was effectually stamped out. Mr. Andrew Montgomery, of Netherall, had sold to Lord Fitzhardinge a lot of Clydesdale mares, and some time after he had gone to Berkeley Castle to see how the mares had suited. On learning how the Berkeley Castle herd was being decimated by the plague of abortion, Montgomery advised Mr. Peter to try a method which, to his certain knowledge, had been followed with unqualified success by Mr. A. B. Matthews, a well-known breeder in the New World, arguing from the fact that carbolic acid acted effectively as a germicide when applied externally, Mr. Matthews determined to try whether it would not be equally effective as a

as to his experience in dealing with the plague; and the veterinary experts on that Commission were so astounded at the very idea of giving a half ounce dose of carbolic acid to a cow that they decided to take no notice in their report as to the remarkable evidence laid before them as to the use of this substance. stamping out the plague. It may, of course, be said that the plagues may have been about to die out of itself at the time this treatment was applied; but any one advancing such a contention must admit that it was certainly a most remarkable fact that, in the herds both of Mr. Matthews and Lord Fitzhardinge, the plague which had raged so virulently for years was stayed from the very day that this treatment was adopted.

N. B. Ag.

of the blame, but no satisfactory conclusion was reached.

Various remedies were tried, but they availed little. Finally a billy goat to run with the cows suggested and I purchased one, aromatic enough to suit the most fastidious.

As I had become a little more enlightened by this time and had discarded the club, the billy goat remedy seemed to be prolific of good results. Abortions became less frequent and business took an upward glance. But I still clung to the dog. He was so useful. He understood driving cattle perfectly, was intelligent, could sharpen up the memory and eyesight of a pig, as to where he got out of his pasture, without fail, hustle the cows out of mischief, and was great good to take with you to bring them to the yard, because as soon as they saw him, they bunched together like a flock of sheep, with heads in the air, ready to cover the distance to the house at a pace that would put Salva-

editor of the *Gardeners' Magazine*, wrote to me, in the year 1874, saying he had several seedlings, growing in his garden at Stoke Newington which had been sent him by a market gardener in poor circumstances, near Christ church, Hants.

They had been planted by Mr. Shirley Hibberd partly to test their value, if any, and partly to try a new plan of growing potatoes on tiles buried in the soil, which Mr. Shirley Hibberd had himself been recently recommending as a means of preventing disease.

Mr. Shirley Hibberd begged me to come up and see the trial, as a matter of much interest at the time, and I accordingly went with my father, Mr. Martin Hope Sutton, who has a lively recollection of the visit.

We examined many rows of potatoes of different sorts planted over those tiles, and when we came to one row, not more than three yards long, Mr. Shirley Hibberd, who was actually using the fork himself, turned out an enormous crop of potatoes, far exceeding that of any of the rows alongside.

I said "If that potato is as good for eating as it is for cropping, it ought to be called 'Magnum Bonum.'"

Mr. Hibberd replied: "Well, you can have it and call it Sutton's Magnum Bonum, if you like to buy the stock from the poor man who has sent it to me to try. It has no name at present, and he has asked me to introduce him to some firm who would purchase it, name it, and send it out to the public."

Mr. Shirley Hibberd immediately put me in communication with the late Mr. Clark, of Cranemoor, near Christchurch Hants. The purchase from him of the potato, with the right to name it "Sutton's Magnum Bonum," was duly effected, and in consequence of the extraordinary productiveness of the variety, sufficient stock had been produced for it to be sent out to the public in 1876.

On February 24th of the following year, Mr. Shirley Hibberd, in an editorial note in the *Gardeners' Magazine*, wrote—"Sutton's Magnum Bonum was selected by Mr. Martin Sutton from a set of seedlings. The entire stock was purchased by Messrs. Sutton. These facts will have some interest for those who are inquiring into the history of this useful variety."

And again, on September 5th, 1890, the *Times* published a long letter from Mr. Hibberd on "Disease-proof Potatoes," in which he said:—"The far famed Magnum Bonum was the first of this series, the original distribution of which, in the year 1876, we owe to Messrs. Sutton and Sons."

My firm has, from the first, mentioned Mr. Clark as the actual raiser of the seedling. He continued to grow potatoes for us, and raised other seedlings, until his death.

He was a man whom all who knew him respected highly, and many of his friends joined with us in raising a public money testimonial to him.

MARTIN J. SUTTON.

Kidmore Grange, Caversham, Oxon.  
December 3rd, 1894.

P.S.—The fact that in this year of 1894 the true strain of Magnum Bonum retains the same wonderful power of resisting disease which it possessed twenty years ago probably accounts for the interest which has lately been evinced in its history.

M. J. S.

## NORTHERN FRUIT CULTIVATION.

M. J. C. Chapais followed with an excellent paper on northern fruit cultivation, intended to teach fruit growers in the eastern section of the province the best species to cultivate, with a prospect of profit, as established by experiments at St. Denis, Kamouraska, ninety miles east of Quebec, in latitude 48° 30', where such varieties as the Cl. lotte Tholer, Red Astrachan, Duchess of Oldenburg, Summer Arabka, Tetooka, Alexander, Anlonovka, Fameuse, Wealthy, Red McIntosh, Golden Russet, Grandmother, Whitney, etc., had been successfully grown.

### PLUMS.

Professor Craig spoke next on the newer introduction of the plums of the American type. He said that a hardy variety a good shipper firm, productive and with buds well able to resist early spring frosts, was needed in the province of Quebec. The damson, small blue variety, common in the eastern portion of the province, was delicate, and the bud in the tree was, moreover, very subject to the disease known as 'black knot.' To kill this two cuttings a year were needed, say, in December and July. The New Orleans variety is subject to the same dangers, and is not very ready to take to all soils. The American plums, including the 'Prunus Americana,' were the better for this climate. The Chicago were not quite so hardy. The 'Prunus Hortulana' too, was of little value in the north. The first group deserves most attention, on account of hardiness, vigor of tree and productiveness. Its chief objections were that it was a rambling grower, had some times a defective flower and was inclined to be soft, the pit being sometimes large. The varieties of the 'Prunus Americana' recommended for commercial purposes were the Desoto, Hawkeye, Stoddard, Wogant, Wolf and Weaver. The description of the plums was interesting and instructive, and their propagation was next discussed. For market purposes they should be done up in very small packages. The photographs of the different varieties were extremely interesting.

### TREE PRUNING.

The Hon. Mr. Joly spoke on the proper pruning of trees. Instances of both good and defective pruning were shown, forming admirable object lessons on the folly of leaving long exposed parts of branches which it was desired to remove. These result in bringing ruin and rot to the very heart of the trunk of the tree. For good pruning the cut should be made so as to leave the tree quite smooth, even if the wound be larger. The object is to allow it to heal as rapidly as possible. The address was one of the most thorough and practical of the evening. Mr. Joly also showed excellent photographs of his collection, and a resolution was adopted recommending the insertion of a reduced form of the photograph, as a plate in the society's report. It was also recommended that the educational department have plates of the photographs made and distributed in the schools, accompanied by suitable directions and explanations.

### FRUIT RESERVING.

Mr. R. W. Shepherd, jr., Montreal, read the report of the visit made by him to Ontario and the United States

with the object of studying the canned and desiccated fruit industry. This commission was undertaken at the request of the Hon. Louis Beaubien, Commissioner of Agriculture, and the result is a very interesting document of great value. The same gentleman also read a paper, on the lessons learned from marketing the apple crop of the season.

Witness.

## HOW TO GROW GOOD BARLEY.

If we first make due allowance for seasons, there are certain rules which, in the long run, will give a fair modicum of success. As insisted upon in the letter already alluded to, a light, porous, well tilled soil is of the utmost importance. As to till, no words can over-rate the importance of a uniformly fine and not too deep seed-bed. It may be the result of one or of two ploughings, followed by rolling and repeated harrowings, all done in suitable weather. Next comes the important question of seed, and we cannot escape from the conclusion that the pedigree seed sold by our first-rate growers (whose several names we do not wish to particularise) is worthy of our best attention. The price per bushel is high, and perhaps may appear exorbitant, but the cost is, after all, not so great, because the amount necessary to seed an acre is so much less. Only once have we been disappointed, and that was in the disastrous season of 1893.

### EARLY SOWING.

There is no doubt as to the advantage of early sowing.

### MANURING BARLEY.

A practical question of great importance is how far manurial dressings influence the quality of barley? There are plenty of barley manures on the market, and testimonials are produced in numbers to show that their application has been followed with both quantity and improved quality. There is, however, a want of scientific evidence to show that any special manure can be relied upon to secure uniformly good quality. Agricultural chemistry is strangely silent upon this point, for most experimental results deal rather with the number of bushels per acre, than the quality of the produce. I am not aware that any special manure for barley is composed of ingredients beyond the ordinary range of phosphates and nitrates, with a dash of potash. If there are any occult and little known elements of fertility beyond those which exert an influence upon weight per bushel, colour, and quality, I can only regret that they appear not in the pages of Rothamsted results or in any accredited work on the chemistry of the farm. They must, therefore, exist as a trade secret in the heads of their manufacturers. It may be that the success of such special manures is due to the proportion and combining of the phosphates, nitrates, ammonia salts, and potash salts of which they are, we suppose, composed, and this may be the case. If their application has been followed by marked success, and a prize at an exhibition of malting barley, no one can grudge the manufacturer his triumph. After all, success is the true test of merit, but it must be shown to be fairly constant in order to secure a favourable reception by the farming public. For myself I look upon such special manures

as being good, if not too dear, but not as necessarily better than an application of superphosphates and nitrate of soda, applied together or separately. I am indeed open to conviction upon a sufficient array of evidence, and will go even further. It would be highly satisfactory to all barley-growers if a good special manure, capable of securing quantity as well as quantity of produce, could be proved to be uniformly reliable.

### FOLDING WITH SHEEP.

A good sample and heavy crop of barley are often grown after folding. It is, however, necessary that the fold should be regularly shifted and the land uniformly manured. Shepherds are accountable for much thin barley, due to irregular folding, and their bad habit of leaving the sheep troughs too long in one place. On the whole wheat or oats are safer crops after roots. It is, however, certain that many a good sample of barley has been grown after folding with sheep; and the practice of so growing it is backed up with all the authority of the famous Norfolk rotation.

### ODDS AND ENDS.

Here is a point in feeding which every farmer ought to know, but which all do not so carefully attend to as they might, with advantage, do. It is from the Maine Farmer: "An experienced feeder claims that ground grain is the cheapest form in which nutriment can be given to the working teams; but to secure the best results it should be mixed with cut hay in order to make it more porous in the stomach, and in this way more easily digested" (1)

In the early days of petroleum products, we were careful to cross the street before we got too near to the kerosene oil store. Yet that abominable oil was sold for fifty cents a gallon, while we are now buying oil as limpid and scentless as water, for five cents! Rockefeller may have handled his competitors ruthlessly; but no one can deny that he has been a great public benefactor; and he has also been very generous with his money in a number of beneficent ways.

An exchange remarks with truth, as every gardener will recognize, that the one great difficulty in growing onions is to get good seed. Put your onion seed in a pan of water, and reject all that will not sink after being thoroughly wet. And as for another grievance of the garden, the Onion Worm, the best protection is to sift unslaked wood ashes on the plants as soon as they are up, and while the dew is on, or right after a rain. It will not hurt the plants seriously, and it is a death to the worms. Kerosene emulsion, made with strong soap-suds and kerosene, well shaken together, will also kill the onion worms, but as there are several broods of these "cusses" these remedies should be repeated until the plants are well under way.

Wm. Housman in London Live-Stock Journal says: "Let certain breeds be bred for beef and certain breeds for milk, by all means; but, for all that, we want and we will have a

(1) No good stableman in England ever gives oats, or oats and beans, without chaff;  $\frac{1}{2}$  hay and  $\frac{1}{2}$  straw.—Ed.



cow that can yield an ample quantity of good milk month by month and at the end make good beef at small cost of feeding. That is the kind of cow we have seen, have bred and have kept, not singly, but in families and tribes, and we know that this kind in the hands of competent breeders will breed true. Here and there may be a 'misfit,' but the composite character—grazing and dairy—may be constantly maintained. We have seen it maintained to as great an extent as need be in both directions, and maintained through many generations of cattle upon Midland farms. And why should not the milking and fattening properties be as fairly balanced in a breed of cattle as the tendencies to produce wool and mutton are equally balanced in certain breeds of sheep?

A writer in the *Maine Farmer* says of a dairy bull, that his conformation ought to be "the very reverse of the beef type." It is true that the beef and the dairy types differ in a marked degree; but it strikes us that there is danger in such a branch, unguarded statement as this; and we may add that the carrying out of such an idea will be, in the end, the total destruction of our best dairy cattle. As you can build a vessel so narrow and sharp that she can carry no cargo, so you may breed down the dairy cow so fine that she will ultimately vanish from the stage of existence. You have got to have room inside your dairy cows for good lungs, liver, and other digestive and assimilative organs, or you will soon have no cow at all. A dairy cow must be something more than head, tail and udder. We think we have, (many of us, at least,) already got beyond the line of safety in this respect. The utterance we have quoted did not come from a very practical head.

Vt. Farmers' Ad

#### EDITORIAL NOTES.

(By Dr. Hoskins.)

There is at least one farmer in this country who is not satisfied with letting a general belief go without test. That is J. M. Sanborn of New Hampshire, late director of the Utah Experiment Station, whose bulletins are always mesty with facts, and not unfrequently fatal to old beliefs and unfounded assumptions.

Man's farm work goes by guess, because the "average farmer" has nothing better to guide him. Elaborate and accurate experimentation is rarely within his means or ability, and it is wonderful that so many of his guesses are confirmed by science. But not all; it would be more than wonderful if they were.

Mr. Sanborn has for some time been investigating many common beliefs of the farm as to cattle food; and we have before us in his bulletins 31 and 36, some facts worth knowing. In Bulletin No 31 he says, (referring to the belief that hay cut before or during bloom is more valuable, pound for pound, than when cut at a later period,) that he for four years conducted experiments in New-Hampshire on the influence of the time of cutting on the value of Timothy hay, with the result that the hay cut from ten to fifteen days after bloom was equally if not more valuable, than the hay cut in bloom. Now as all far-

mors know that in that time the hay increase considerably in weight, it is plain that there must be a material loss for early cutting. The same experience in fact is known to be true of clover. (But how about the 2nd cut? *Ed. J. Ag.*)

Now it is quite in order to ask whether this experience is conclusive, as regards the time of cutting? Is it certain that there are no drawbacks attached to the late cutting, in the way of injury to succeeding crops? This must depend a good deal whether the field was "in good heart," by which we understand its condition as regards natural or acquired fertility. *The weather which follows the cutting has also a decided influence,* and a method of cutting which, while it gives a greater weight of hay at cutting, materially affects the grass crop to its disadvantage, cannot necessarily be accepted until all points are considered. On low, moist meadows, such as border our rivers, large and small, especially such as are flooded in the spring freshets, it seems pretty plain that late cutting would be best, and that in fact, is the common practice, often made so indeed by necessity. (*Italic ours Ed. J. Ag.*) Vt. F. Ad.

On upland meadows the conditions are such as to require earlier cutting, but the chief lesson seems to be to keep our mowings rich by top dressing, and not to mow too early. (do.)

Another very interesting Bulletin from Mr. Sanborn is one on the relative value of corn and oats for horses. The results of these trials, as summarized, shows that corn meal and timothy did not sustain work horses as well as oats, wheat and clover hay. Horses did as well when receiving whole grain and when receiving ground grain. But further trials seem to show that there was no great difference, and the conclusion was reached that a ration consisting of a mixture of several foods is better than a ration with either of the foods left out. Yet during the winter when corn and timothy were fed against timothy, clover and oats, the rations were equal in value in maintaining the weight of the horse.

#### MISUSE OF HORSE POWER.

Nearly twenty years ago two brothers purchased each a team of Canadian ponies for work upon their farms. They were as nearly alike as two teams could be, and under the same management would have lived and done service an equal length of time. One brother always drove rapidly and would reach his home—four miles distant from the railway station in fifteen or twenty minutes less than his brother, although he lived a quarter of a mile beyond his brother's house. The other brother never urged his horses off a walk if he had a load on. If the horse chose to trot down the lower slope of a hill, he would allow them to do so. In guiding them he strove to avoid all stones, heavy ruts, and bits of sand. It seemed to be his constant aim to husband the resources of his team. The result was that, after twelve years of constant use, the slow and careful driver still had the same team and a good team too. Meanwhile the other brother had eight different horses and spent over \$900 in horseflesh.—'Our Dumb Animals.'

#### Swine.

The judges began at the bottom by ordering those that were not in it out of the ring, finally narrowing it down to three pairs: Featherston's Yorks, a fine, even pair of long, deep sided, bacon pigs; George & Son's Tamworths, also a typical pair of bacon curer's pigs, and a pair of cross-breds (Tamworth, Berkshire) shown by Geo. North Marden. They were finally placed in order named. A protest was, however, entered, claiming that these pigs were over weight. This proved to be the case with the first and second pairs, and after considerable cross firing, the Directors ordered Dr. J. Y. Ormsby into the ring to settle the matter, and he placed Geo. North's cross-breds first, with a pair of Yorkshires shown by J. E. Brethour second. The first prize pair were model packer's pigs, lacking, perhaps, in hams, but good even there.

Now, "after the ball is over," and one calmly looks back over all the different breeds represented in the various classes, we come to the conclusion that all the large breeds are coming to much the one type: The Berkshires, Poland-Chinas, Chester Whites are being lengthened out, and the Yorkshires shortened, brought near the ground, and made finer,—all aiming to give the packer the type he desires for export bacon, modified so as to be a profitable feeding pig for the farmer. (1)

Farmers Ad.

#### FEEDING SWINE.

The worst defect in swine to day is bad feet and legs, says F. D. Colburn, a Kansas authority. He says they have been bred for generations to run all to fat and meat till they can sometimes scarcely support their weight upon their feet. They have not enough bone structure. Mr. Colburn is clearly in the right, as to results, but only partially so as to causes. This defect in bone is largely the result of exclusive corn feeding, a food almost exclusively carbonaceous, and from which alone it is impossible to rear and maintain a healthful class of animals. It is high time that swine-feeders should awaken to this matter and to begin more scientific methods of feeding.

#### MUMMY SEEDS.

The old controversy regarding the vitality of seeds contained in mummy cases has revived again. Mr. Percy Newberry has tried to make such seeds vegetable, but has tried in vain, and he therefore expresses disbelief in their vitality. A valuable letter which Mr. Martin Sutton contributes to the discussion partly explains Mr. Newberry's failure: 'For the last sixty years,' he says, 'my firm has repeatedly had sent to it for experiment corn, peas, &c., of good germination, taken out of mummy cases, about the authenticity of which there can be no question. It is true that the Arabs will sell so called "mummy wheat" only grown the previous year, to unsuspecting tourists; but that neither proves that all mummy wheat is a fraud nor that true mummy wheat will not grow if sown immediately it is taken out of the mummy cases, under suitable conditions, and before the atmosphere has

(1) Which is, of course, the main point. Ka.

had time to destroy its vitality. Experiments I have carried on personally for many years past in the preparation and packing of seeds for the tropics make it clear to me that their vitality can be almost indefinitely prolonged by close confinement, absolute protection from the atmosphere, together with that high degree of desiccation before packing which was naturally brought about by the Egyptian climate but which we have to imitate artificially as nearly as possible.—'Word and Work.'

REPORT OF  
MESSRS. G. A. GIGAULT,  
Assistant-Commissioner of Agriculture,  
AND  
J. D. LECLAIR  
Superintendent of the Dairy School of  
St. Hyacinthe.

ON THEIR TRIP TO DENMARK, ENGLAND,  
IRELAND, BELGIUM AND FRANCE.

#### VI.

AGRICULTURAL INSTITUTIONS AND  
TEACHING.

Denmark has several agricultural schools of which three give a course of dairy-instruction. Many of these schools have gardens of from one to eight acres, that are cultivated for the purpose of initiating youths into the practice of agriculture. All the teachers in these schools follow the course in the agricultural school during one month each year. When we visited Lyngby, we found 30 of these teachers attending the agricultural course.

Despite the excellent organization that seems to exist in the different agricultural teaching institutions in Denmark, the unanimous opinion is, that the farming progress made in that country during a certain number of years past, is due to the propaganda made by the State-lecturers. There are nine of these latter, of whom three are specially occupied with the dairy-industry. These seem to discharge a duty identical with that of our dairy commissioners. They may be called upon by the makers to give their opinion upon the faults existing in their butter, as well as on the treatment of cattle; in a word, they are obliged to assist, in every way at their command, in the success of the dairy business.

These advisers, or lecturers, are paid by the State. Their business is also to give lectures. That practice also obtains in Belgium, where agricultural lectures are given by a farm expert and an assistant, in each of the nine provinces of that country. In one of the provinces there are two assistants, so that, in all, they number nineteen.

In France, the lectures are given by the Departmental Professors in Agriculture, whose offices are established by a law of the 16th May, 1879. Each department has its lecturing professor, and the department of Lower Seine has four, who divide between them the work done in each of the other departments. Their number is thus 89 for the whole country. These departmental professors have to:

1st. "Teach a complete course of agriculture in the primary normal schools.

2nd. "Give lectures to the country farmers.

"The course in the normal school is for the purpose of giving the future instructors a complete training, very extensive in all branches of agri-

ture, in order that they may be able to instruct the pupils of the primary schools, giving them solid ideas in the fundamental knowledge of agriculture, and knowledge of the principal applications of science to the cultivation of the soil, the care and food of stock, the propagation of useful breeds, the war upon all kinds of parasites, &c.

"The departmental professors become future masters for the elementary teaching of agriculture in the primary schools.

"Their lectures aim at teaching the farmers of a district that they should study beforehand the improvements that they can make in the working and cultivation of the land. The professor treats one special point: the choice or variety of seeds, or the use of chemical fertilizers, or vine culture, or the reconstruction (1) of the vineyard, or on the means of overcoming the effects of too much drought or rain. He gives a lecture in one commune, then, proceeds to give another in another place, but always on some question touching the local agricultural interest.

"The departmental professor points out to his audience of farmers the improvement or improvements to be made."

In his report of the 16th January, 1894, M. Tisserand, Director-General of Agriculture, makes the following remark: "Every one can appreciate the important services rendered by these useful auxiliaries, the considerable influence they exercise, the leading part they have already taken in agricultural development, in the propagation of sound principles of farming, the selection of crops, the suitability of fertilizers, and in the creation of agricultural syndicates.

"Their task is, moreover, worthy of the emulation of a distinguished body of men who, by their acquired experience, are gaining an authority more and more extensive among the rural population. An idea may be formed of the powerful diffusion of progress that the government effects through their instrumentality, when we learn, that they yearly teach, in the primary normal schools, 2,600 or 2,700 youths who are intended to become teachers of the children in the rural districts, and that their lectures throughout the country, in 1893, were followed by 300,000 persons, all farmers, land-owners, or school-masters.

"The departmental professors have thoroughly appreciated the importance of their mission; they have shown themselves worthy of it, and can already foresee the importance of the progress that agriculture will owe to their efforts, should they continue their apostleship for ten years more. The organization is good, and care must be taken that it is not interfered with.

"Lectures are also given by special professors of secondary and primary agricultural knowledge. These professors have, 1st, to give an agricultural course to the pupils of the two last years of study at the superior primary school, or at the college of the place where they reside, at the rate of two lessons per week and per division; 2nd, lectures, or, rather, little courses for adults, in some of the rural districts of their section, at the rate of one lecture per week, except during the seasons of seed time and harvest.

"Instead of isolated lectures, one given here and another there, it is a short complementary course, according to requirements, four, five, six or ten lessons that the special professor has

to deliver through the country districts.

"His object is to impart an instruction that may complete that received in the primary or in the superior schools, in the colleges, and even in the practical schools, in order to prepare his audience for the reaping of greater benefits from the lectures of the departmental professor. He should keep his audience well informed on all the discoveries, on the new theories, in a word, on all the new methods that exist or are being practised in agriculture.

"Is it not, moreover, a benefit for the young farmers, who have been three, four, five, six, seven or eight years—before having fulfilled or after having fulfilled their military service—out of the college, to review all that has taken place since then; to know the work accomplished and the discoveries made by science concerning the land, fertilizers, sowing, the selection of seeds, the varieties to be cultivated, the cattle, the ways of feeding, and the means of defence against extreme drought or seasons of rain; concerning the parasites, animal as well as vegetable, the different ways of battling with and destroying them; concerning the means adopted to strengthen the vineyard; concerning the new method of butter making, &c.?"

"This kind of annual review, done methodically and in an attractive style in eight or ten lessons, in six or eight different districts, each year, and on the subjects of the greatest interest to farmers, would keep a farming audience up to the mark. The special professor would thus initiate the adults into all the recent discoveries, would open out new paths for them, would show them new improvements and newer horizons, from all of which agriculture could not fail to derive great benefit! He would teach them all the things that the agriculturist should know in order to properly understand what is said and written on the subject of farming."

The number of these special professors is 114, and is 203, if we count the departmental professors. Agricultural instruction, as it is to-day in France, includes, (according to the report on agricultural teaching in France, published by order of M. Viger, minister of Agriculture)

1st. A superior course of instruction given by the national farm training institute, and which corresponds with the university teaching of the faculties;

2nd. A course of the 2d degree, comprising the national schools of agriculture, which correspond with the Lyceums (*Lycees*);

3rd. A course of the 3d degree, represented by the practical schools of agriculture, which correspond with the colleges and primary high schools;

4th. A course of instruction of the 4th degree, formed by the schools of apprenticeship. This group comprises the farm schools, the fruit-raising schools or cheese-making schools, the schools for silk-worm breeding, the dairy schools for girls, the schools of bird- and fish-culture, &c.;

5th. A mixed course, by the professors of agricultural chemistry in some faculties, by the departmental professors of agriculture and by the special professors of secondary and primary instruction—improperly called district-professors (*professeurs d'arrondissement*);

6th. A course of instruction by facts, to which is attached the working of the demonstration-fields;

7th. The establishment of agricultural stations and laboratories, of spe-

cial laboratories for the undertaking of researches and inquiries that affect agriculture, and with a mission to enlighten the agriculturists on the question of manures, of seeds, of agricultural implements, on the composition of the soil in the different departments, on adulteration, the diseases of plants, hurtful insects and the means of battling with them.

Mr. Tisserand speaks very well of the practical schools, among which is that of Trois-Croix, which we visited: "The pupils in these schools to the number of 35 or 40 on an average, are obliged to do all the farm-work. Their time is thus divided into two equal parts: half of the day is given to farm work, to the care of the stock, the preparing of food for the cattle, the working of the implements, the different garden-work, the pruning of trees, &c. The other half is reserved for the lessons, lectures, study and exercises in the laboratory. The pupils are thus divided into two sections comprising the pupils of each category. "Each one of these sections takes up alternately the practical work at noon, and continues it till noon next day, when the pupils of the other section replace them, and so on. When one section is at work, the other is at theoretical studies, and *vice versa*."

"This arrangement is to avoid excess of intellectual work on the one hand and bodily lassitude on the other, since study only takes up half the day, and practical work in the fields or in the farm buildings occupies the other half. This system has the effect of creating a remarkable physical development in the youths, while at the same time they are acquiring knowledge, they thus gain strength, vigor and the habit of rapid and correct work.

The French government has also farm experts abroad, whose mission is to inform the government of all that takes place, in the agricultural sphere, in the countries where they take up their temporary residence. One of these officers resides in Berlin.

The establishment of demonstration fields came into existence in 1885 under the administration of Mr. Gomot. In a circular addressed, on this subject, by the minister, in 1885, to the departmental professors, he referred to the efforts of the government to assist agriculture and to the necessity of increasing farm-production, after which he added: "These remarks explain why we attach such a serious importance to the diffusion of improved methods in even the remotest of our country districts. It is therefore necessary to give examples, so that the mind of the farmer may be awakened and that he may clearly perceive all that can be expected from the application of the discoveries which practice has to-day so fully sanctioned. Wherefore, I invite you, after you have become well acquainted with the agricultural requirements of your department, to establish demonstration-fields, whereon you will show the results of the improvements that you propose to accomplish. These demonstration-fields should be as easy of access and as conspicuous as possible; they should be established in the neighborhood of villages, be on the most frequented roads, and designated by placards mentioning the nature of the experiments being made, so that the farmers may have them constantly before their eyes and even be able to keep track, by themselves and without any trouble, of the advantages that the methods put into practice afford.

A special appropriation in the budget, for this object, was made in 1886.

For 1887 that annual appropriation was raised to \$32,000.00; since 1891, it is \$40,000.00. The Departments themselves, struck by the advantages that this instruction offered, sought to contribute towards its development. In 1893, seventy-one general councils voted for that purpose a total of 21,525 00, to which were added the amount contributed by the Agricultural Societies.

The demonstration-fields are everywhere under the direction of the teachers of agriculture. Their number in the last two years reached 3,362, on an average, per year.

We, however, met French farm-experts who assert that the demonstration-fields are far from realizing a benefit proportionate to the cost of maintaining them.

Mr. Proost, General Agricultural Inspector of Belgium, advises the confiding to State officers the entire control of the demonstration-fields. To leave the supervision to the Agricultural Societies, according to him, is bad policy.

If a few of these societies, governed by active and zealous officers, contribute greatly to agricultural progress, by encouraging with prizes the most useful and necessary improvements, many of them, on the contrary, follow a regular routine and do not show enough variety in their operations.

On account of the abuses that glide into the workings of these societies, the government should see that the subsidies given by it be employed so as to be of the greatest amount of service to the agricultural interest. They are supported by public money, and the operations of these associations should not only be useful to their own members, but also to the general public.

In Belgium and France, there are agricultural *comitia* and agricultural societies.

#### AGRICULTURAL INSTRUCTION IN THE RURAL SCHOOLS.

In Brittany, the Reverend Brothers of Christian Instruction (Christian Brothers) teach an elementary course of agriculture in their schools.

The Rev. Brother Abel thinks that the teachers in rural schools, instead of themselves cultivating land for the practical instruction of pupils, would do better to bring the pupils from time to time to visit some of the best cultivated farms of the neighboring farmers. (1) Let the farmer explain the operations that he performs; let the pupils, at times, take a share in the work; and let the farmer, on his side, visit the school, where he might act as professor of agriculture.

Each school under this community is thus organized, so that everywhere are to be found farmers who are favorable to this method of agricultural instruction.

#### SCHOOLS FOR INSTRUCTION IN THE DOMESTIC ECONOMY OF THE FARM-HOUSE.

In order to better grasp the object and the organization of these schools in Belgium, we take from the memorial published by the Virton School, on the occasion of the Antwerp exhibition, the following lines, which condense the history of these schools as well as their operation:

"The creation of farm household schools in Belgium dates from the 22nd May, 1891; it fills a want that (1) Precisely what is done at the Ag. College, Cirencester, Eng. and. There is no farm attached to the College.—Ra.

(1) Means, probably, the restoration of a vineyard that has suffered from the *oïdium* or vine-disease.—Ra.

existed in the rural economy of our country.

"The first school of the kind was open at Virton the 22nd May, 1891, with the aid of the professors of the regional agricultural school annexed to St. Joseph's College, and was established under the Christian Brothers of Nancy.

"This useful institution bestowed on Belgium is due to the initiative taken by Mr. Brayn, the Minister of Agriculture, and of Mr. A. Proost, the Inspector-General of Agriculture. Already, in the month of April, 1881, Mr. A. Proost, then Secretary of the Central Agricultural Society, secured the creation of agricultural schools for girls. He pointed out countries wherein the technical education of farmers' daughters was an object of their governments' care.

"As long ago as 1878, Wurtemberg started this special instruction. 'Will Belgium,' asked Mr. Proost, 'be the last to follow this excellent example?'"

"The farmer's wife," says Joigneaux, "is the soul of the house; she, too, needs elasticity of mind, activity, economy, a spirit of order, an knowledge of business, tact in giving orders and all the special information that constitutes an accomplished housewife. For our boys there are agricultural schools, and also masters who go into the canton, to the commune, and even to their homes to teach them useful matters. For you, farmer's daughter, there are neither schools, nor masters, as there should be. It is said proverbially that, the women make and ruin the house; but our girls are not taught what they should know in order "to always make and to never ruin it." The education in young ladies' boarding schools does not impart anything to create a love for country life, or that which should constitute the constant life of our house-wives. We desire special schools for our girls; when shall we have them?"

"In truth, we ask ourselves," says M. Jules Simon, "why we spend so much money and pains to prepare our boys for business, when we disdain to train our girls in the equally difficult task of household economy!"

"In 1890, on his return from a trip to Austria and Germany, on the occasion of the Vienna Exhibition, the Minister, M de Bruyn, and his able fellow-worker, Mr. Proost, full of admiration for the grand results obtained from the farm-household schools of Austria and of Germany, conceived the project of starting the establishment of similar institutions in Belgium."

"The 22nd May, 1891, the regional agricultural school, annexed to St. Joseph's College, at Virton, offered the Minister, M. de Bruyn, the assistance of its special professors to start, at the Virton convent, the first school of the kind, and to assure it an adequate technical instruction.

The 22nd May, 1891, the first household school was opened at Virton.

**OBJECT AND ORGANIZATION OF THE SCHOOL.**—The object of this school is to initiate farmers' daughters, by theoretical and practical instruction, in all household-work, in the work of the farm, and particularly of the dairy. The school, for farming studies, is placed under the direction of Mr. Mercier, an engineer, former agriculturist, and professor at the agricultural school, as well as director of the Virton laboratory.

**THE ESTABLISHMENT.**—The Household Farm-School of Virton is established after the plan of the German schools, and may be considered a ty-

pical school of its kind. It is established on a farm at Virton, St. Mard, and includes:

a. Orchard and gardens of over 11½ hectares, washed by a dam and the River Ton.

b. Vast dwelling houses.

c. Numerous out-buildings well arranged for poultry keeping.

The school forms an establishment entirely independent of all other boarding-schools; it is solely devoted to the professional education of farmers' daughters, is separated from the neighboring dwellings, and is thus sheltered against all outside influences; thus, presenting the best conditions of order, stability and development for a complete course of instruction adapted to the technical education of the daughters of farmers.

The school is expected to display in its exhibition, the PRACTICAL UTILITY of its teaching, as may be judged from the following tables which contain a list of its exhibits.

#### A HOUSEHOLD GUIDE-TABLE FOR THE CHOICE OF BUTCHERS' MEAT.

Bill of fare for dinners:

a. of small dinner parties, and expenses per individual;

b. of the middle classes, and expenses per individual;

c. of the laboring classes, and expenses per individual;

The bills of fare (1) of dinners and expenses varying according to the resources of the different seasons of the year.

Preserves, prepared by the pupils:

a. of smoked meat;

b. of fruit;

c. of vegetables

Hygienic liqueurs; the utilisation of fruit and plants gathered by the house-wife for family use.

The special products of the dairy:

a. Butter, cream obtained by the centrifugal process;

b. Different cheeses of the best standard:

1. Brie;

2. Port du Salut;

3. Camembert;

4. Munster.

#### AUTOGRAPH LECTURES OF MR. MERCIER, ENGINEER.

Technical instruction suitable to the farmer's daughter:

1. Elementary lessons in horticulture and garden-practice;

2. Ideas on agriculture;

3. Dairy lectures;

4. Elements of stock-raising (*élevage*), the hygiene and feeding of cattle; care of poultry yard;

5. Lessons on domestic economy; elements of pedagogy; principles of the development, corporeal and mental, of children;

6. Copybooks of ordinary letter-writing.

**BOOKKEEPING:**

a. Of the household:

1. Inventory of the furniture, bedding, linen;

2. Inventory of kitchen utensils;

3. " of the cellar, etc., etc.

**NEEDLEWORK:**

a. Cutting out and fitting;

b. Farmer's blouse (*smock frock*), etc., etc.

**MENDING:** 1. An example of pressed seams; 2. darning; 3. hemming; 4. tablecloth darned; 5. different patchings, men's trousers; 6. knitting on

(1) In England, we always use the word, menu.—Ea.

of heels (1) 7, needlework trimming of stockings; 8, trimming of stockings with cloth; 9, re-knitting (*remailage*.)

SWEDEN.

We find the following in a document on Sweden; The School of Higher Dairy-Instruction, under the control of the Government, is situated at Alnarp; the complete course extends over months.

**THEORETICAL INSTRUCTION.**

1st. Anatomy and physiology of the cattle and hogs.

2nd. Chemistry.

3rd. Feeding, raising and care to be given to cattle and swine; study of the different foods—their influence on milk.

4th. The most frequent diseases of cattle and swine and the remedies to be applied.

5th. Chemical and physiological studies of milk.

6th. Milk industries.

7th. Care of boilers and engines.

**PRACTICAL INSTRUCTION.**

1st. Chemical analysis of milk, of its products (butter and cheese), and of its sub-products (skimmed milk, butter milk and whey), with the different instruments used.

2nd. Plans and estimates for cow-houses pig-sties, butter and cheese factories.

3rd. Practical work, during four months, in the butter and cheese factories.

4th. Practical work, during two months, in the cowhouse and pig-sties.

5th. Weekly visit to a butter exporting house to learn how to judge of and discover the cause of faults found, etc. The pupils are accompanied by their teacher and the exporter, who also make an examination of the butter.

Admission to the school is only allowed to those whose instruction is sufficiently advanced, and who are highly recommended as makers of butter and cheese.

The fee for the course of instruction is 750 *crowas*, including board. The bedding and washing are at the pupil's expense.

The school furnishes the room, the furniture and the heating, and also takes care of the same.

The course is also intended for those who desire to secure teaching diplomas.

The examinations take place at the end of each term.

**PRIMARY DAIRY-SCHOOLS UNDER STATE CONTROL.**

There are two which receive, each, six pupils (girls). Lodging, board and instruction are free.

The length of a course is one year. Only pupils who can write and cipher correctly are admitted.

**VII**

**PUBLIC ROADS.**

In Denmark, as in the other countries that we visited, the public roads are in excellent condition. The great highways of that country, leading from one city to another, are under government control, and are kept in order by means of a tax on the ratepayers

of each district that they traverse. The front (1) roads are maintained by the farmers themselves; each of whom is obliged to furnish a certain amount of stone and gravel in proportion to the length of road under his care. This method of contributing seems preferable to a tax in money, since the ratepayers submit to it more willingly. The Danish farmers are the more anxious to perform this duty, as they consider the perfection of roads indispensable to successful farming. Moreover, the roads are now in such good order that the expense of keeping them so is small.

If we wish to imitate them in our farming progress, we should also follow their example regarding the roads. Unfortunately, in certain parts of our Province, the transportation of agricultural produce is very difficult, and often for weeks impossible in autumn and spring, above all in our most fertile parishes, where the soil is clay. It is at the close of navigation that the price of farm produce is generally the highest, and it is just at that period that in our country districts travelling is almost at a stand still. It is only necessary to mention this fact to give an idea of the incalculable losses that result therefrom to our farmers; the breaking of vehicles, of harness, all kinds of troubles, damages resulting from the many accidents that ensue... And all these things could be avoided, if we had good roads at all seasons!

We know of farmers who, without being obliged to do so, have macadamized their front roads.

This practice should become general, and to secure that result, our farmers might adopt the Danish system, which is to furnish each year a certain quantity of stone or gravel for road purposes. This yearly contribution should be more or less extensive according to the local facilities of securing the material, and with time, and with the aid of municipal by-laws to that effect, in a few years we might have most excellent roads.

The agricultural class would be the first to derive great benefit from such improvements. Our municipal code should be amended if it does not allow the making of by-laws authorising contributions in material.

In Denmark, the metalled roads are less rough than our stone roads, because they put on a great deal of gravel and the stones are broken much finer.

Let us hope that the Farmers' Clubs and the municipal councils will seriously take up this question, the solution of which so deeply interests the farming population.

**VIII**

**THE AGRICULTURAL SITUATION.**

The fall in the price of grain, caused by the large production and exportation of farm produce from Western America and Canada, is very prejudicial to the European farmers, above all to those who, having devoted themselves to the growth of grain, do not dream of attempting any other more lucrative branches of agriculture.

America and Australia have become their nightmare. Even the Danes complain, and declare that their position would be intolerable if they did not produce large quantities of butter and pork. What saved them from ruin was having followed the advice of Mathieu de Dombasle, when he said to the

(1) Perhaps, "turning the heel of stockings"—A. R. J. F.

(1) *Chemin de front*. road before the farmhouse?—Ea.



farmers of his day, "Work always with your eye fixed on the market." The Danes produce butter and pork on a large scale, because, having consulted the market, they found that of all agricultural industries these are the most remunerative.

All the same, they do not look favorably upon our agricultural development.

Knowing the object of our mission, a Copenhagen banker said to us: "In the place of the Danish farmers I would give you no information, you already do us great injury, and if by our information you improve your methods of cultivation and your manufacturing processes, you will offer us a still more disastrous competition."

In the countries we visited, the value of rural property has decreased by a fifth if not by a fourth.

To improve this state of things, all the European Governments rival each other in their efforts to afford the farmers opportunities of procuring all the information that they need to improve their methods of cultivation and the quality of their products, and thus to arrive at a remunerative tillage of the soil.

**LOVE FOR WORK.**—On their part, seeing that the battle of life becomes more and more difficult, the European farmers go at their work with an exceptional ardor. Their labor, so to speak, is ceaseless, and—let us say—is participated in by the women and the children, who work in the harvest field like the men.

We might add that this love for work exists equally among the other classes of society.

Agricultural products having so greatly increased that European farmers can no longer expect higher prices, and that they see them constantly decreasing; what they lose on that side they seek to regain by the increase in products and the lowering of the cost of production. To reach that end, they give the greatest care to the making and conserving of farm manure; they strive to increase the fertility of their land by abundant manuring, and they practise strict economy in the feeding of cattle. They also seek to improve the quality of their products, so as to out-strip those less clever than they who present articles of inferior quality on the market.

## IX.

## COMPARISONS.

If we compare the Danish agriculture with our own, we find that:

The Danish farmers try harder than we do to abolish weeds by means of fallows and rotation of crops.

Roots are cultivated on a much larger scale than in our Province.

More attention is given to the production of farm manure and to the conservation of liquid manure.

The stables and yards are better arranged than ours for saving manure and preventing the loss of the urine. The Danish farmers have nearly all got liquid manure tanks, and we have only a few.

There, the production of milk is greater both in the fall and in winter.

The Danes keep more cattle and can feed more animals on fewer acres of pasture and meadows.

At least half the cows in Denmark calve in the fall. The cows there receive more food than here.

The pig-pens are more solidly built and warmer than ours; the same applies to the other farm buildings.

The butter factories are more solid and expensive than ours.

The pastures are better and furnish more abundant grass.

The meadows get more fertilizing, and often give two crops in the summer.

Clover is cultivated on a larger scale.

Denmark has several beet-sugar factories, and the beet-root is cultivated there on a much greater scale than here.

Chicory for coffee is successfully raised by some farmers.

The Danish farmers follow more closely the laws of restitution, and try to give back to the soil the fertilizing elements that each crop removes.

The yield of the crops is generally larger than with us.

The raising and fattening of pigs is done in winter as well as in summer, so as to use up the skimmed milk.

Denmark exports its butter both winter and summer, the consignments of butter are made regularly every week. Last year the exportation of butter from Denmark to England came up to \$25,690,525.00, while all the butter and cheese exported from Canada only reached \$13,454,632.73.

The exportation of bacon from Denmark amounted to \$10,615,655.13, and ours reached \$3,247,594.80.

And we must not forget that Canada has a population of 4,833,239 souls, while Denmark has scarcely 2,000,000.

The purchase price of our farms is much less than that of farms in Denmark.

As the milk of our cows is richer in fat than that of the Danish cows, the cost of making butter with us should consequently be less than it is in Denmark, and we should be able, for this reason, to cope successfully with the milk producers of that country. The cows in Denmark belong to two breeds, the red Danish and the Jutland. The milk given per cow and per year varies from 4,000 to 6,000 pounds; it sometimes reaches 7,000 and even 7,300 with some mers.

In Denmark they require on an average 25 to 27 pounds of milk to make a pound of butter, while in our country, according to the information given us by Mr. J. de L. Taché, owner of butter factories, last year in these factories a little less than 22 pounds of milk were required to make a pound of butter. At that rate there would be a difference of about 18 per cent. in our favor. We have, then, every interest in keeping to our Canadian cows and not changing them for other breeds.

The milk from the Belgian cows seems to be even less rich than that of the Danish cows. According to a report submitted to the Minister of Agriculture on the question of the butter factories of the Campine Limbourgeoise, in that country, at least 27 pounds of milk would on an average be required to make a pound of butter. (1)

In Denmark the raising of horses is also an important branch of trade, and the exportation of horses is quite a large business. The farmers of that country know the necessity of keeping only first-class breeding animals; so they have horses that for quality and appearance are striking. We do not there meet with those worthless breeding animals, such as in a great many of our parishes only help to diminish the value of our horses, and prevent our farmers from raising stock that would become far more

(1) The average of England is 25 of milk to 1 of butter.—Ed.

remunerative than it is to-day, if carried on in a reasonable way.

At Skandorborg we saw a thoroughbred stallion, valued at 20,000 crowns (1), the stallion belongs to an association consisting of ninety farmers.

## SECOND PART.

## THE ENGLISH MARKET FOR OUR AGRICULTURAL PRODUCE.

## I

## BUTTER.

In conformity with the instructions you gave us, we collected in England as much information as possible regarding the requirements of the market and the means to be adopted to increase still more the commerce between this Province and that country.

In the appendix to the present report will be found the replies of several leading traders of the principal English cities to the questions that we asked them concerning our trade in butter, cheese, pork, apples, poultry and hay.

During the past few years, Denmark and Australia have considerably increased their butter exportation to the English market, while ours is far from being large, and can only be extended by means of a radical change in the mode of transportation heretofore followed. It must not be forgotten that the price of that article tends to decrease, on account of the large production of the commodity in all agricultural countries, and of the amount offered for sale in consequence.

All the English traders, with whom we conversed on this to us important question of the exportation of our butter to the market, gave us in substance the following answers:

"1st Improve your methods of making, so as to produce a butter more commendable as to quality and uniformity; 2d. The steamers that carry your butter should be provided with refrigerators to keep it safe from the changes of temperature, so that it may be delivered to the consumer in the same state as that in which it leaves the factory; 3d. Despatch your butter regularly every week, so that it may reach the consumer fresh, and that it may not get that "stale" taste which lowers its value and prevents its sale at remunerative prices; 4th. Send a less salted butter than that which you have been sending heretofore."

These traders acknowledged that we have at times sent butter of excellent quality, and are of opinion that we could largely develop our trade in that article were we to put their advice into practice.

The low price of margarine, which is used largely amongst the poorer classes in England, will always make it impossible to sell at a suitable price butter of an inferior quality. And certain countries, too acquainted with the state of the market add margarine to the butter in order to compensate for the difference in price between butters of first class and butters of inferior quality. As to us, our products are free from any blame upon that score, and we should be able to count upon the honesty of our dairymen, to the extent that they will never expose themselves to the reproach of adulteration. The English traders assure us that as soon as our butter corresponds with the requirements of English con-

(1) The krone of 100 ore=13d. sterling.

sumers, we may sell large quantities on their market.

Even in Paris, there is a good deal of complaint about the quantity of French butter with which margarine is mixed, a fraudulent trick that seems to be growing more and more general.

France finds her exportation of butter to England decreasing. In 1889 it amounted to £3,073,473, and in 1893, it came down to £2,679,120, say a decrease of £394,353, or, in round figures, \$2,000,000. This decrease is attributable to the fact that the French butter is inferior to that of Denmark, the production and exportation of which is on the increase.

This fact shows the importance of making a choice article, and the great loss to the producers in consequence of their want of attention or of ability. If the Danes sell their butter easily and at high prices, it is due not only to their good methods of making, but also to the care they take never to send to market an article suspected of containing any foreign matter.

In all the countries we visited we found the governments as well as the farm experts engaged in the study of the most improved methods of butter-making. We have consequently no time to lose, but we may still hope to win a place on the English market, where all imported butters are not equally valued, especially those from Australia, whose butters have a special taste that the consumer does not like, as will be found by the information given in the appendix to this report.

## IMPORTATION OF BUTTER BY ENGLAND IN 1893.

Countries exporting.	Cwts.	Value.
Russia.....	53,880.....	£ 270,013
Sweden.....	267,401.....	1,452,039
Norway.....	22,576.....	119,399
Denmark.....	933,787.....	5,278,871
Germany.....	161,485.....	830,706
Holland.....	142,811.....	763,897
Belgium.....	31,049.....	178,343
France.....	468,317.....	2,679,120
United States of America.....	22,930.....	104,220
Other foreign possessions.....	1,131.....	5,579
Channel Island.....	310.....	1,698
Bengal.....	1,672.....	3,899
Central Australia.....	1,825.....	9,615
Victoria.....	105,904.....	547,178
New South Wales.....	19,805.....	101,341
New Zealand.....	41,815.....	212,536
Canada.....	43,160.....	194,924
Other British possessions.....	26.....	147

Total..... 2,327,447 £12,753,593

(Equivalent to \$62,067,485.93.)

## II.

## CHEESE.

The dealers in dairy produce admit that, especially during the last year, the reputation of the cheese from this province has considerably improved. Still, it is sold at from a shilling to a shilling and a half less than that of Ontario per cwt. This difference arises from the use of boxes of bad quality, from a want of finish in the appearance, and the absence of uniformity in taste, colour and weight.

In 1881, cheese of our Province sold at 1½ to 2 cents a pound less than that of Ontario. At present, that difference is reduced to ½ to ¾ cent pound. It is still too great, and we need only make up our minds to do so, and we can produce as fine cheese as our sister province.

To this end, we must generalize the forming of cheese syndicates. Those makers, who imagine that they have no need of joining such associations

have, on the contrary, as much interest therein as have the less competent cheese makers, for they suffer as much as do the latter from the inferiority of our cheese.

If our Province yearly exports 50,000,000 pounds of cheese, and if there is a loss of 1/2 a cent a pound, on account of the lack of uniformity in quality, the annual loss becomes \$250,000.

This inferiority, which results in great part from the lack of uniformity in the product, causes us considerable loss; and which is worse, it risks our losing the English market. The maritime Provinces and the other countries increase their production of cheese; and if they succeed in offering the consumer a superior quality to ours, they will ruin our cheese trade with England, just as that in butter has been ruined.

Some traders complain that our cheese is too moist and not ripe enough when exported, that it loses a portion of its weight in transportation, and arrives in bad condition on the English market. They add that we do not take sufficient care in the getting up of each cheese; the cloth is often carelessly put on, and makes irregular wrinkles, which take from the form and general appearance of the cheese.

The weight of each cheese should not be more than seventy-two pounds. Retailers do not want large cheeses that sometimes weigh eighty pounds, and which are more difficult to sell. All the traders admit that we can, without fear, increase the production of our Cheddar cheese.

As we remarked before, there is a complaint in England as to the unripe state of our cheese, and, above all, that made in the fall leaves room for great improvement. This fault arises from defective buildings, insufficient to protect the cheese against the lowering temperature. These structures, which are neither thick nor solid enough, do not allow the maker to deliver a perfectly seasoned cheese.

It is to be hoped that managers and farmers will see to it that factories are built in their midst that can ensure the making of good cheese at all seasons.

Cheese should never be delivered before it is well started towards its maturation.

In 1881 the United States and Canada exported to England 1,543,888 cwts. of cheese, and in 1893 1,691,999 cwts., thus giving an increase of only 148,051 cwts.

The United States exported cheese to England:

In 1881 to the amount of..... \$17,304,416 40  
In 1893 to the amount of..... 7,682,184 20

A decrease of..... \$ 9,622,232 20

Canada exported cheese to England:

In 1893 to the value of..... \$12,536,912 60  
In 1881 to the value of..... 4,110,610 53

An increase of..... \$ 8,425,402 07

We thus see that the exportation from the two countries united has scarcely increased. That of the United States has decreased and ours has increased almost threefold. It is the superiority of our cheese over that of the American that caused this change in favor of Canada. But our neighbors want to make up the lost ground; they are improving their method of making and the quality of their cheese, and the price of which is now higher than in the past. The State of New-York has made remarkable progress in this respect.

These facts and results show that the production of our cheese can only remain important and remunerative as long as we learn to conform to the

requirements of the markets and of the consumers. Countries which produce wares of inferior quality invariably behold their export-trade decrease. The United States is an evidence of this in the matter of cheese production.

The following table shows the countries that export cheese to England:

Countries whence imported.	Cwts.	Value.
Germany.....	2,965	£ 7,935
Holland.....	269,364	6,110,001
Belgium.....	15,829	39,245
France.....	58,346	181,703
United States of America.....	645,235	1,578,531
Other foreign countries.....	1,875	4,494
New Zealand.....	37,943	96,739
Canada.....	1,046,704	2,575,894
Other British Possessions.....	101	257
<b>Total</b>	<b>2,077,462</b>	<b>£5,160,918</b>

(Equivalent to \$25,116,467.60)

THE EXPORTS OF CHEESE FROM CANADA HAVE BEEN.

Year	Cwts.	Value.
In 1889 of.....	675,415	£1,564,904
" 1890 ".....	837,890	1,914,232
" 1891 ".....	857,841	1,991,597
" 1892 ".....	1,338,599	2,493,625
" 1893 ".....	1,046,704	2,575,893

Value of a cwt. of 112 lbs in 1889. 46s 4d or \$11 28  
Value of a cwt. of 612 lbs. in 1893. 4s 2d or \$11.96

DESCRIPTIONS.	CANADA.		UNITED STATES OF AMERICA.		TOTAL.	
	1881	1893	1881	1893	1881	1893
Butter	78102	43160	242438	22030	320540	262468
Cheese	299469	1040704	178246	645235	477715	1685469
<b>Total</b>	<b>1,080,561</b>	<b>1,472,364</b>	<b>420,684</b>	<b>665,265</b>	<b>1,501,268</b>	<b>2,137,629</b>

III  
BACON AND HAM  
In England the demand for these meats is large and rapidly supplanting that for salt pork. Last year, bacon and ham there represented the

sum of \$55,334,326.07, whilst the importation of salt pork and of fresh pork only reached the sum of \$3,626,255.53.

All the provision merchants in England to whom we spoke on the subject admitted that Canadian bacon is very superior to American bacon, and that it commands a higher price.

In the United States they fatten the pigs on Indian corn, which makes the pork oily. (1) Our pigs, on the contrary, are fattened on peas and barley, food that makes a pork more firm and highly appreciated by the consumers.

Last year Canada supplied England with bacon and ham to the amount of \$3,247,594.80, and the United States to the amount of \$39,955,771.33.

In improving the quality of our cheese we have succeeded in supplanting the American in a remarkable degree on the English market, for to say our exportation of cheese is greater than theirs, which goes on decreasing, while ours is constantly in the ascendant.

What we have done in cheese we can equally do in bacon and ham. To do this we have only to modify the feeding of our pigs so as to produce these two varieties of the same meat.

We met in London the proprietor of a packing establishment, who said he was ready to establish a similar one in the Province of Quebec as soon as we could furnish him with the raw material in quantities sufficient to allow him to keep the establishment at work from year's end to year's end.

Bacon comes from long pigs with plenty of lean meat. The crossing of the Canadian breed with that of Yorkshire would give, on that score, a product that would satisfy all demands.

(To be continued.)

(1) And this is an important point.—Ed.

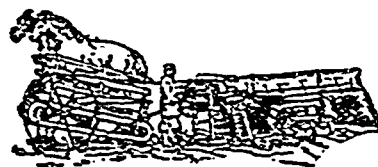
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ANNUAL FEE \$1.00. Members for 1895 will receive copy of Annual Report in English or French, 10 apple root grafts of varieties suited to their district, also, plants from the Experimental Farm, Ottawa. Send subscriptions to W. W. DUNLOP, Secretary, Outremont, Que.

A. J. C. C. for sale.—Three young bulls fit for service. Two bull calves, 50 op Victor Hugo, all solid fawn, a few heifers and young cows. Also, high grade cows and heifers, Baron Hugo, of St. Anne's, heads the herd. First prize winners at Ottawa, Toronto and London, 1893. Prices moderate. H. F. WILLIAMS, Sany Lea Farm, Knowlton, Que.

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As the threshing season is about over, we are ready to sell our Threshing Machines at the usual prices and make the first payment to come due in 1896. You can use the power to run a feed cutter for the balance of the season, to run a mangle saw to cut your fire wood, or for ANY other WORK which needs a Horse Power.

See our Agents or address us direct.  
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Jersey Bulls for Sale. Jersey Bull two years old of grand family, reg. in A. J. O. C. Co or silver gray with dark points. Large and handsome. Not dangerous, use him in our herd. Also, Bull calf eight months old, silver gray, whole color, except small white patch on shoulder. Extra light. Correspondence solicited or come and see them. H. W. FRANK, Kingsbury, Que.

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The Widow of Jos. Lacombe being left alone to carry on the well known Côte des Neiges Nurseries, having lost her only son, who was in charge, is determined to wind up the whole concern and sell off at half cost all the FRUIT TREES and PLANTS on the Farm.

Reference, by permission, Hon. L. Beaulieu, Minister of Agriculture. 2-95-11

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**MAMMOTH BRONZE TURKEYS**, weight 35 to 40 lbs., a few young birds to sell, price per trio \$10.00, 1 cock and two hens.

**GOLDEN SILVER WYANDOTTES** from Imported American and English strains.

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**REPORT CONFIRMED.**

We are the cheese manufacturers to whom the milk from the cows above referred to by E. M. York, Esq., was delivered. We have examined our books and find the above reported differences correct. VANLUVEN BROS. Moscow, Nov. 27th, 1894.

N. B.—The cost for Horses, Cows, B.eyes and Hogs is only 1 cent per day. For Calves, Colts, Sheep and Young Pigs, about 3 cents per week. It is valuable for hens and turkeys and for their chicks. If not sold in your town or village write to

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