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POTATOES.

The cultivation of potatoes, so well carried out on the Island of Montreal, is not carried out at all in this neighbourhood, unless a harrowing and an earthing up can be called cultivation. The prevailing impression seems to be, that, on such light land as this, the less stirring the land gets the better. But the fact is, that the idea of hoeing for any other purpose than killing weeds never enters the mind of the farmers; they do not imagine for a moment that each stroke of hand-hoe or horse-hoe sets fresh surfaces free to the action of the air, and that in truth a well managed root crop is as nearly as possible equivalent to a summer fallow.

A hundred years ago the cultivation of potatoes was little understood, even in England: they were planted in any out of the way spot, and all the manuring they got was a little stable litter scattered over them. I have seen the grandson of the man who astonished the people of Glostershire by devoting three-quarters of an acre to this crop! It became a

matter of discussion what he intended to do with such a quantity of potatoes; and the old inhabitants used to tell me, some forty years ago, how people thronged from the neighbouring villages to see so many potatoes growing together.

Should ripe potatoes be used for seed or unripe ones? Doubtful, I think; but I know of many good crops that have been raised from unripe potatoes, and we see every day such conflicting statements about seed-potatoes, that I am almost induced to think that, if the preparation of the land and its cultivation is correct, the condition of the seed, whether ripe or unripe, derived from large or small tubers, with one eye to the set or several, is immaterial. One thing, however is clear: the sets should not be allowed to sprout in a dark cellar—the weak, etiolated look of such condemns the practice at once. If very early potatoes are desired, the best way is to spread the seed out thinly in a warm, well lighted room, when the tiny buds can sprout in a healthy natural way—they should be, at planting time, about an eighth of an inch long, and dark green in colour.

A great many people here still use the hoe in potatoe planting, but I fancy, after this season, the double-mould-board plough will be more largely employed. The one I have used, made by M Lamoureux of Sorel, does its work fairly, though not perfectly—at all events, it is better than the hoe.

As the manure here is never turned, but reaches the potatoe-field in its primitive condition, the crop is covered up with weeds immediately after its appearance. There seems to be no horse-hoe or scuffler used, the hand hoe being the only implement to be seen, and that mostly in the hands of women.

I was struck, the other day, with the appearance of a piece of potatoes, about four acres in extent, in front of a farmer's house about a mile or so from Sorel. They had just been harrowed, and the soil was in a lovely condition. Upon inquiry, I found that the piece had been planted with potatoes for four years in succession, and for two years previously with Indian corn, receiving a heavy coat of manure with each of the six crops! It might well carry a fine skin; but a few hundred yards further on, towards the other extremity of the

farm, the land devoted to the oat-crop was in the usual state : miserably poor, raw, rough, and altogether disgraceful

My neighbour tells me that the true course of cultivation here should be : three years in grain and three years in *pacage* ! Now, *pacage*, being interpreted, means : land allowed to grow weeds, or anything else it pleases ; and this within a mile of any amount of dung, at ten cents a load, to say nothing of all sorts of refuse—gas-lime, ammoniacal liquor, bituminous coal-ashes, &c.—to be had gratis.

Potatoes, here, seem to be set about seven inches apart in the rows. Too close, I am sure, for it makes hoeing between the sets impossible, and I contend that all potatoes should be so treated as soon as possible after the rows of plants can be seen : the drills should be harrowed down first before the tops appear—with the chain-harrows, if the farmer has them, if not, with a short-toothed common harrow—then the horse-hoe between the drills, to be followed by the hand-hoe between the plants. One hand hoeing should be enough, but the horse-hoe should be kept at work until the earthing up is given.

Don't earth up much. What says Mr. Peter Mackenzie, of Stirling, N. B. ? "On well-drained land three modes of cultivating potatoes were tried, the dung being what is commonly called well-made farm-yard manure. The first was similar to the plan usually adopted, namely, earthing up the crop until the interval between the rows was two or three inches deeper than the roots and dung." This I find to be the common practice here. "The second plan differed only from the first in being less earthed, or what is called by some half-setting up. The third had no earth drawn to the stems of the plants, and the earth was only hoed between the rows. The dunging of the crop and the distance between the rows were equal. When the potatoes were dug, the advantage of the second mode of culture over the first was fully more than one third part of the increase, and better in quality ; for the potatoes grown by the first plan would not bring the same price in market which the second did. The produce of the third plan was nearly equal in bulk with the second but rather inferior in quality, many of the potatoes having their sides greened by being exposed to the light. While growing, the second and third lots had a much more healthy appearance than the first ; and when dug, what remained of the dung that was used was well mixed with the soil ; while the dung of the first lot was dry and little decomposed, clinging in clusters to the roots of the potato plants when they were dug." I have strictly followed this teaching since I first saw it, in 1851, and now, 33 years afterwards, I do not repent. The plan of earthing up potatoes 6 or 7 inches high is bad, because the fibrous roots of the plant extend themselves to a great distance from the set, and by drawing the mould from between the rows to earth up the stems, a great number must be cut off, exposed to the sun, and whitened. The only real benefits to be derived from earthing up are, first, to keep the wind from breaking them down, and thus keeping the stems erect, secondly, to keep the tubers from being exposed to the influence of the weather. The wider the earthing-bank the better, but four inches is high enough. On heavy land, I do not object the use of raw, unfermented dung, barring weed-seeds of course : there is nothing better to bring tenacious soils to a proper state of friability than to apply manure or farmyard dung in as fresh a state as possible, because, while in a state of fermentation in the soil it keeps the pores open, and the soil in a state of activity. On the contrary, dung cannot be too rotten for light soils.

I fear that the heavy rain of the 23rd and 24th of May will prove to have been very injurious to the potato-crop on heavy land. No one likes to draw water-furrows (*rigoles*) across a piece of newly planted potatoes, but on undrained land it is often a proper precaution to take, and this season,

even on Sorel sand, it would have saved something, for in one or two places on the college farm the water stood in the hollows longer than I cared to see it. (1) Another year, a few dollars spent in draining will cure the few *bas-fonds*, and *rigoles* will be unnecessary.

The plant of Belgian carrots here is the most perfect I ever saw. Sown on the 13th of May (not steeped), they were up on the 23rd ; horse-hoed on June 5th ; edge-hoed by two women—the best field-hands I have seen in Canada : they got through 1½ acres in 1½ days, leaving the rows perfectly clean, where 5 weeks before there had been a worn out, foul oat-stubble—horse-hoed again on the 11th ; and now, not a weed to be seen, and only the singling to be done. This will be done with a three inch hoe, leaving bunches to be thinned by hand.

The mangels (steeped) were up in a week from sowing ; they are now fit for the horse-hoe, and the growth of the plant is very rapid. Parsnips and red-carrots are long in coming to the hoe ; but a few days after the fine rain of the 12th will quickly fit them. The oats went in well. Some were sown with the usual quantity of seed to the acre—2½ bushels—the rest with my quantity—4 bushels—We shall see after harvest which gives the better yield.

Lucerne and saintfoin are, both, a good plant. They were sown on the dry light land near the St. Lawrence, after potatoes and corn. Land poor, but suited to the two plants. I hope a heavy top-dressing of dung in the autumn will prove both food and protection.

Mons. Ville, on being asked for advice as to the propriety of purchasing cattle, on entering on a farm, replied : "first grow food for stock, and when that is provided, buy the cattle to consume it." I quite agree with Mons. Ville ; and as, with the exception of newly sown crops, there is nothing growing on this place but couch-grass, which seems to flourish with a certain diabolical vigour, I shall lay no stock until the Hungarian grass is fit to mow, which, as it is just peeping through the ground, will probably be about the middle of August. There are 7 acres of what my predecessor on the farm is pleased to call meadow : it may cut half a ton per acre, but I doubt it.

The land here clearly wants lime and potash. The former can be given in the form of plaster, the latter is a difficulty. Hardwood ashes are worth 40 cents a bushel, and hard to come by. A few bushels of softwood ashes might be collected in the country, and a double dose of them would be beneficial.

ARTHUR R. JENNER FUST.

LINCOLN COLLEGE, SOREL.

April, 25th 1884.

For once in a way, I am in luck. The season is early, the weather is propitious, and the land in good order. But, good heavens, the former cultivators of the College farm must have had a lively idea of their business. I fancy it would be difficult to find a more thoroughly worn out piece of land. Grain, grain, grain, seems to have been the course of cropping, followed by what is called a *pacage*, i. e. the stubble of the last crop of oats left to itself to grow weeds and rubbish—couch-grass principally—on which the unhappy cattle are to feed, and from which they are expected to extract the elements of milk !

The soil is of the lightest, but not incapable of improvement. Sheep will change the whole face of it in a few years. Unfortunately, however, the place is full of dogs. Only last night, an irruption was made into the yard of one of my neighbours, and eight valuable ewes, in lamb, fell a sacrifice to a couple

(1) About one-tenth of an acre was seriously injured by this neglect of water-furrowing. My fault, entirely !

of ruthless curs. I trust, though, that the strict watch that will be kept up for the next week, will end in the slaughter of the marauders; for it would be a deadly blow to the prospects of improved agriculture if the wretched felons were allowed to continue their ravages. The island of Montreal has suffered long and patiently from this scourge; but a large city is one thing, a small village is another.

Many potatoes were planted here about the 22nd of April—all Early Roses—I have sown oats, and plenty of American Wonder and Maclean's Advancer pease for the College table—sixty boys will consume a rare quantity of such stuff—and I hope, if the weather continue favourable, to finish up the potatoes, mangels, and carrots, by the 3rd of May, leaving only the damper land to sow with oats, and the green crop—Hungarian grass &c.—the swedes and the fodder corn for the latter part of May and June.

We have here a curious implement for sowing grain broadcast. Spouts descend from the seed chest of a machine made like an ordinary drill, and the grain is covered by a number of grubber-teeth which follow after. The seed is buried deeply, and a cross-harrowing completes the job. The oats—on a very dry, friable piece of land, will be sown down with lucerne and sainfoin—the latter is an experiment in this country, I believe, but I have a good deal of faith in it.

The few implements I have here were purchased from a local maker—a M. Lamoureux—a most intelligent man, in spite of a slight deafness. No cows yet, as there is nothing for them to eat, but the horses are a useful sort, about 1000 pounds each—quite heavy enough for the land, and quick, active steppers.

We have already eight agricultural pupils who attend lectures three times a week in the class room, and every day on the farm. A good many more are expected, from England, after the mid-summer holidays, and I do not despair of seeing a dozen or more from the sea-board provinces, not excluding British Columbia.

The soil here seems to lack two important elements: nitrogen and potash. The former I shall try to supply by dried blood, and the latter by German kainit. It is a pity the Montreal gas-works will not lower the price of their sulphate of ammonia in accordance with the general fall in the market abroad. In England, the sulphate is worth £7 10 a ton less than last year, but the Montreal people charge within £2 of its former value! I think they might be satisfied with a more moderate profit, considering the enormous gain they make on their gas itself. A. R. J. F.

LAND PLASTER.

Sulphate of lime, or land plaster, as it is called here, affords one of the cheapest and simplest means of supplying the crops we grow with the indispensable element of lime. I have seen land on which it was used distinguishable half a mile off by the deeper green and more luxuriant growth of clover on which it had been employed. An experiment was made with it last year on potatoes. On land where superphosphate was useless, plaster gave an increase of over twenty five per cent in quantity, with larger and smoother tubers, the amount of plaster used not exceeding 3 cwt. per acre, and hardly more than a dollar's worth was applied. The trial is worth repeating in different localities, and with accurate measurement. A. R. J. F.

WATER-CRESS.

It is a strange thing that no one here attempts to grow water-cress on a moderately large scale for the supply of the markets of Montreal and other large towns, where the demand if the articles were once fairly introduced, would be, doubtless, very large. Nothing is simpler than the cultivation of this

plant, and every one knows what a delicious relish it gives to the breakfast, the luncheon, or the dinner.

The water-cress, *Nasturtium officinale*, contains like most of the *cruciferae*, mustard, turnips, cabbage, &c., a good deal of sulphur, and is therefore cooling and laxative in its effect upon the system. As it is a perennial crop, and once planted will take care of itself for years, and as it increases and spreads very rapidly and is not injured by any insect, it is not troublesome to cultivate. An aquatic plant, water-cress requires a clear running stream, with a sandy bottom—all the best water-cress beds in England are situated in streams formed by springs in the chalk hills.

To make a bed of this esculent, select a brook the water of which is clear, and, if possible, the site should be protected by steep banks. Drop a few cuttings of the stems of the plant wrapped in balls of mud, to the bottom. They will quickly take root and spread all over the place. The cress can be cut the second year and immediately throws out new branches and fresh leaves, affording two or three cuttings in the season.

As for the price, I find that at New-York a four-quart basket fetches 75 cents wholesale, returning at retail 50 cents per quart. Four square feet will fill a basket. A. R. J. F.

Manure for Tobacco.

As a very great quantity of tobacco will be grown this year in the province of Quebec, I will give, once more, my ideas as to the preparation of the land and the manure for this crop.

Animal manure is undoubtedly the best. But we can't get or make enough of it. As for ploughing in clover, I have often said that I cannot recommend such a wasteful use of so valuable a crop; but why not sow down white mustard? The seed is cheap, and if sown in early May it would be fit to plough in about the 10th of June, or it could be sown after harvest in the previous year, and, probably, that would be the best plan. In warm weather, mustard attains a height of 3 feet in about 6 weeks. Well, this will supply some organic matter, if we must have it, and for the rest we must trust to the various artificials: blood, bone-dust dissolved in sulphuric acid, kainit, and plaster, in, I think, the following quantities:

Blood.....	5 cwt =	\$ 9 00
Superphosphate.....	4 cwt =	6 00
Kainit	3 cwt =	3 00
Plaster	3 cwt =	1 00
		\$19.00

Where hard wood ashes can be bought for ten cents or 12 cents a bushel, I fancy their quicker action will render them preferable to the German mineral potash, kainit.

Please don't throw away the stems and refuse of the leaves of the tobacco. Collect them, and after burning them, restore the ashes to the land. Tobacco, as a farm crop, cannot be produced without a large expenditure of manure. Whoever attempts to raise tobacco on hungry soil without a lavish supply of its natural food, will give satisfaction neither to the buyer, the manufacturer, nor the consumer. One thing is sure: unless potash be plentifully present in the land—and it rarely is present in long-cultivated light soils—it must be supplied in a readily available form. There is plenty of potash in farm yard dung, but it is not in a state to afford nourishment to the tobacco plant during the earlier stages of its growth.

Talking of superphosphate, there is a good deal of nonsense going about the sulphuric acid contained in it being injurious to the land. Stuff! The acid is in a state of combination with

lime, and is none other than our useful land plaster. Mr. Jamieson is the originator of this absurd nonsense—he likes to keep his name before the public.
A. R. J. F.

COTTON-CAKE.

The proportion of oil in cotton-cake is higher than in the best linseed cake. In the best specimens of the latter the oil



ORNAMENTAL FLOWER STAND.

rarely amounts to 12 0/10; whereas, in the former 16 0/10, 17 0/10, and even sometimes 19 0/10, are found. Cotton-cake contains also a much larger proportion of flesh-formers than linseed cake. It should therefore be very suitable for young stock and milch cows: the dung will be rich in nitrogen.

ARTHUR R. JENNER FUST.

VETERINARY DEPARTMENT.

By Dr McEachwan, F. R. C. V., S. Eng.

In our last, we gave a few hints regarding the treatment of mares during the breeding season. Now, we think, a few remarks on the care sows should receive during pregnancy, and while suckling, will not be amiss.

Sows about to pig should always have a sufficient amount of wholesome and nutritious food to keep them in good condition. They should not however be allowed to get too fat, for when in high condition the animal is awkward, and liable to smother her young; besides, she does not milk as well as a leaner sow, and what she gives is of a much inferior quality. Several days prior to farrowing, the animal should be placed in a roomy house, and fed upon a laxative diet. To keep the sty clean and her bowels in a proper state she should be walked out for a short time before each meal. To facilitate delivery and to allow the animal to indulge her own inclinations, she should have a small allowance of short litter, which she will generally collect into a heap as parturition approaches, lying down upon it so as to raise the lower part of her body. It is the too common error to "sit up and wait on the pig." Now, unless the sow is very large, and excessively fat, this is not at all necessary; for they very rarely require assistance, and we have known more than once of whole litters being lost by this over-interference, the young being frequently taken away before the sympathy of the mother is fairly excited, and before they are returned, it has almost entirely ceased, and can only be maintained by the most skilful management. Thousands of pigs are lost in this way, for if the mother's sympathy for her young be lost, the milk in a great many cases dries up. The attendant, especially if he is a novice, sometimes, in his anxiety, breaks off the navel string too short; the young, consequently, either bleed to death, or become so weak that they are trodden down by their stronger fellows. The sow, although naturally a most affectionate mother, will sometimes eat her young, though living; this habit is acquired through the blundering of the attendant, who, from laziness or want of sense, leaves a dead offspring within reach of the mother. The reader will thus see that too much attention cannot be paid to the ridding of the sty of all foetal membranes, etc. After farrowing, the mother's appetite is rather capricious, and great care must be taken not to sicken her by placing a superabundance of food in her trough. All the food necessary for the first day or two, is a little sweetened milk given in small quantities, and given five or six times a day. If the animal is noticed to be in anyway costive, an injection of soap and lukewarm water is to be given, walking her out for a few minutes four or five times a day until relaxed. Particular notice must be taken of this; for often pigs are lost by letting it run on too long; the hardened fæces in the rectum pressing upon the neck of the bladder, and setting up inflammation of that organ. The breeding house should be well ventilated, white-washed, and all dogs, pigs, and strangers, should be prevented from disturbing the brood. Breeding from too young sows often prevents the size the progeny would otherwise attain. The boar may be put to common sows anywhere from twelve to eighteen months; if, however, intended for show purposes, they should be allowed six months longer or even more. Young pigs are very tender, and require much warmth during the first month after birth. If a sow farrows in cold weather, the chances are you will lose many if not all the young, unless great attention be paid; for they are not strong enough to get to the sow for warmth or milk. It is an excellent plan to sit up with them for the first two or three months, keeping them covered by the mother's side. In order to regulate the numbers, taking away when too many and adding to those falling short, two or three sows

should be put to the boar at the same time or as nearly as possible. This can be managed by taking away their young altogether, after which they will take the boar about the third day. Immediately after pigging, many pigs are apt to be feverish, when this is the case a light and sparing diet—as gruel, whey, &c. should be given for the first day or two. Others, again, become very debilitated, and require strengthening; for the, beer, soup, blood, serum, &c., will prove beneficial. The quantity of food may be increased gradually, and the meals become more frequent. The food, of course, must consist of wholesome, nutritious and succulent matters, as roots of all kinds steamed or boiled, but never raw. Bran, barley, butter-milk, Indian corn, are all perfectly well adapted for this season. By many, bean-flour is supposed to create an abundance of milk. Whenever it is possible, the sow should be turned out, for an hour at a time, on the grass; as the fresh air, grass, and herbage, will do her an infinity of good. The young pigs should be shut up for a fortnight, after which they will be old enough to follow the sow, and take their share of the benefit. The rations should be given at certain hours; small and repeated meals are far preferable to large ones; for indigestion, or indeed any disarrangement of the stomach, interferes with the milk secretion and produces diarrhoea and other like affections in the young. When the sow is weakly, and has not a sufficiency of milk, the young ones must be taught to feed as early as possible. A kind of gruel, made of bran or oat-meal, will be the best thing for this purpose or a soup may be made of potatoes boiled and then mashed in milk or whey, with or without the addition of bran or oat-meal. But for the first ten days the mother will generally be able to support the litter without assistance, unless, as has already been observed, she is weakly or the young ones are too many in number; in either of these cases they must be fed from the first. When the young pigs are about a fortnight old, warm milk should be given them. In another, week this may be thickened with meal of some kind, and as they grow and get strength, boiled roots and vegetables may be added.

As the food generally given to the mother is of a too strong and stimulating nature for the young it is advisable to feed them out of separate troughs.

WEANING.

Sometime before the young are weaned, the mother should not be so plentifully fed; for if she be kept on her usual meals, the secretion of milk will be as great as ever, and there will be induration, and perhaps inflammation of the udder. About eight or ten weeks is the best age for weaning. Many breeders wean them at a much earlier age, but in these cases, unless carefully looked after, they seldom do well. The plan adopted by most large breeders now, and what we consider the best is to wean them by removing them for a certain number of hours each day; thus they will, from hunger, become accustomed to eat from the trough, then they may be turned out for an hour or more without the sow, and so on, until they are completely weaned; allowing them to suck so often in the twenty-four hours and gradually diminishing the meals. Meanwhile, they must be proportionally better and more plentifully fed, and the mother's diet in a like manner diminished. However, if there should be one or two of the young ones weaker than the others, they should be allowed to suck for a week or so longer. The food of the young should consist of the most nutritious and succulent matters that circumstances will permit of—as butter-milk, whey, boiled potatoes, cabbage, oat and barley meal, bruised oats and barley, &c., &c.—At first these materials should be given to them warm, and be tolerably soft, in order that they may better assimilate with the state of the digestive functions; but when they become used to it, cold food is far better. After weaning, they require

five or six meals in the twenty-four hours, in about ten days one meal may be omitted, in another week a second, and then they must do with three regular meals a day. The food left in the trough after animals have done eating should be removed, and the trough thoroughly cleaned. The young boars and sows should be kept apart from the time when they are weaned.

THE PORTRAIT.

We gave last month a very satisfactory likeness of "Enterprise of Cannock," which may be called, so far as the Islington show goes, the Champion cart-horse of the year. Enterprise took four prizes. He was pronounced to be the best of the stallions rising 4, the best sire in classes 1, 2, and 3, the best male, and the best animal in the Agricultural Hall. These are very high distinctions, and it is not to be wondered that there were many inquirers as to his price. The Cannock Chase Company had let the horse for the season for £300 before the show, and eventually sold him at Islington to Sir H. ALLSOPP for £1000. The horse is of a rich bay, very fine in his coat, a capital mover, and, shown in the pink of condition, was as attractive a specimen of the heavy cart-horse as one can hope to find. Last year he was also exhibited at Islington as a 3-year old, but he took 2nd prize only in his class, Lord ELLESMERE'S Esquire (bred by Mr. BLUNT) being preferred to him by judges. Enterprise was bred in Shropshire by Mr. T. MINTON.

HOW A PASTURE IS MADE.

In Great Britain, Holland, and in some of the best dairy districts in this country, land is selected for a pasture as it is for any particular crop. Regard is paid to its adaptability to produce a large amount of fine rich grasses. The soil or sod is prepared to receive the seed, which is selected with special reference to the production of grass to be eaten while it is in its green state. Great pains are taken to render the soil as productive as possible. Water is supplied or drained. Weeds and bushes are exterminated or kept in subjection. Fertilizers are applied as they are to land devoted to cultivated crops. Loose soils are rendered more compact by the use of the roller, and very heavy soils are loosened by the employment of the harrow or scarifier. Most farmers in this country, however, neglect all these things. Land is not selected for a pasture. If it is too rocky, broken, or difficult to cultivate; if it is too wet or too dry to produce good crops of corn, grain, potatoes, or roots, it is devoted to pasturage. Land is selected for other purposes, but the land for pasturage is what was rejected as unsuited for any other use. Sometimes a piece of land originally productive is devoted to pasture purposes. If this is the case it is generally after it has been "cropped to death." It is first planted to corn for several years, then sown to grain for a period equally long, and then laid down to grass suited for mowing purposes. After the crop of grass becomes so light that it scarcely pays for the work of cutting, the farmer concludes that the only thing he can do with the land is to devote it to supporting stock during the summer when he expects to make the most out of them. There are no evidences of beneficent design in most of the pastures in this country. They are the work of chance or neglect.

Mr. Jamieson's Manure Recipes.

A little practical experience may be useful to those who are frightened by Mr. Kley's assertion, on the one side, that to produce any effect the quantities recommended by Mr. Jamieson must be doubled, and by Mr. Lloyd's assertion, on the

other side, that on poor land the crop to which they are applied would fail, or be all straw, and that on good land they will impoverish the soil. Last year, carrying out the results of several years' experience, I applied to wheat, oats, and rye a top dressing which, though differing in the ingredients, is as nearly as possible identical with Mr Jamieson's as regards the quantities and proportion of nitrogen, potash, and phosphoric acid. It consisted of $1\frac{1}{2}$ cwt per acre of nitrate of soda, two thirds cwt. ground Charleston phosphate, one-third cwt superphosphate, and three quarter cwt. sulphate of potash of 50 per cent. This cost 36s per acre. The land varied from a light loam to a poor gravel, the crops were all very good, and the straw nowise redundant, though the season was moist and sunless. In a field of extremely bad land (rented for many years at 5s. per acre) I gave to potatoes per acre 3 cwt. nitrate of soda, 2 cwt. muriate of potash, $\frac{1}{2}$ cwt. kainit, and $2\frac{1}{2}$ cwt. ground phosphate, costing £3 4s. and the crop was between 6 and 7 tons per acre. To turnips I gave 1 cwt guano, 1 cwt ground phosphate, 1 cwt superphosphate, 1 cwt. kainit, and 2 cwt sulphate of potash, costing 33s per acre. The crop, like all those in the district, was injured by dry frosty winds at the time of sowing and by excess of wet afterwards, but it ultimately was as good as those of my neighbours who applied more expensive dressings. The foregoing were the quantities used when no dung was given. Part of the potato and turnip land received 6 ton per acre of cake-made dung, and to these portions only half the quantity of artificial dressing was applied without appreciable difference in the crop on the two portions. I do not undertake to say that these measures would answer on heavy land, because I have no experience of it. But on the light class of soil above referred to which are situated in Fifeshire, and also on stronger loams in Gurrusey, I do know that such dressings are safe and profitable. They differ, as will be seen, from ordinary compounds in containing less phosphates and more potash, in fact they approximate to the amount of ingredients, including nitrogen, which each crop will carry off without giving more than it can reasonably use. Keeping this principle in view, I vary the raw materials from year to year according to the market price of the substances required. As a result I obtain good crops and of good quality at no heavy outlay, and certainly without impoverishing the land. Mr Jamieson's recipes so nearly resemble my own that I do not see why they should not give equally good results. At the same time I do not dispute that they are a minimum, and in certain cases might be increased with benefit and profit, if done judiciously.

J. Boyd Kinnear.

THE CULTURE OF MILLET;

IN NEW HAMPSHIRE.

EDS. COUNTRY GENTLEMAN—Although living in a higher latitude, and consequently a colder climate and a shorter season than those of Beaver county, Pa., I give D. C. S. the result of my experiments in testing the value of the different varieties of millet, trusting that he will make the necessary allowance for the different kind of soil and climate in determining which one to cultivate.

The common millet is sown here when the time for planting corn has arrived, and it is harvested when just past the bloom, if it is intended for fodder. It is cured in the same way that clover and the grasses are, but a majority of our farmers feed it green, and cut when a supply is needed for the cows or other stock. I have long since abandoned its culture, preferring fodder corn, rye or barley to it. Several years since, the novelty department of seedsmen's catalogues teemed with high encomiums and praise of Egyptian or pearl millet, and the COUNTRY GENTLEMAN afterwards contained many and

various accounts of its cultivation and value, but lately it has occupied the modest and retired position in public estimation that its merits deserve. With me it germinated slowly and imperfectly, and made slow and sickly growth until midsummer, when the few surviving plants usually made a rapid growth until cooler weather came to retard its growth. In a lunny location, a fertile soil, and with clean culture it invariably failed to ripen its seed, and generally it never got beyond the bloom. Possibly D. C. S. may be successful in cultivating it, but it does not seem probable to me, and my advice to him is to "go slow" with pearl millet.

Of late German millet is slowly but surely winning a favorable opinion from the farmers, and my observation and rather limited experience in its cultivation convinces me that it is entitled to it. It should not be sowed until the soil is pretty well warmed up, say about ten days later than corn is planted, and then only in a fertile soil. So far as I have been able to learn, it thrives better in a light than a heavy soil. Either in a green or a dry state the fodder is keenly relished by stock, but I have made no comparative tests of its feeding value. If it is intended for milch cows or young stock, my preference would be for cutting just before the seed begins to form. One's conveniences for binding and storing must weigh largely in deciding whether it shall be cured in the bundle or not, but the average farmer will probably cut and cure as he does his hay.

G. R. D.

IN MARYLAND.

EDS. COUNTRY GENTLEMAN—Your correspondent D. C. S., on page 146, writes for information about this grass. In 1875 with the Cahoon seeder, I sowed on $4\frac{1}{2}$ acres six bushels of Hungarian grass seed, which is not of so high a growth, and is in reality nothing but a dwarf millet. The ground had first been plowed, harrowed, cross-harrowed and rolled. The seed was then covered by a Bickord & Hoffman drill, which at the same time deposited 250 pounds of ground bone per acre. The summer having been dry, the yield was poor—not over three-quarters of a ton per acre. The next year, May 2d, I sowed the same quantity of millet on the same land, going through the same routine, and the season having been a wet one, the yield was, as near as we could come at it, 13 tons. Part of the field, 24 by 300 feet (about one-sixth of an acre) was reserved for seed, and in addition to the bone, 20 barrels of a £50 we call "ale-wives" were broadcasted on it before plowing. The yield on this part was tremendous, the average height being about $5\frac{1}{2}$ feet. It was cut August 3d, with the Wood mower, and was cured the same as other hay, but it required several days to get it into the proper condition for housing. Turning it over by hand was too slow and laborious, and having no hay-tedder, we were compelled to use the horse-rake, which is a pretty good substitute.

In buying millet seed, care must be used to get the German, or, as some call it, "golden" millet. If the color is a pale white, it indicates that it has been cut too soon, and half of it, as I have found out, will not come up. Before buying, test some of the seed in a tumbler of water, and the sound seed will go to the bottom, while the unsound and that which is not likely to come up will float. I have never yet handled any of this seed that is not more or less imperfect. It ripens very irregularly. Some heads will be green while others are dead ripe, and the grower is compelled to cut when he can save the most seed. It shatters very badly when left standing after it gets to a ripe condition. It matters not how much care and fertilizers are used, if the season is dry the yield will be poor.

For this reason, and farther that millet leaves no aftermath I advise D. C. S. to try clover in its place. The spring rains, that prevent the sowing of millet give clover so much of a start that it ripens six weeks earlier than the former, and in advance of an almost invariable summer drouth. Besides, clover will give him a second crop, which will come in first rate for fall pasture if he does not want to cut it. Taking into consideration the first and second crops, the product will be as heavy as that from the millet. Then, again, clover will last for several seasons, improving the land each year and leaving a sod to be turned under for the benefit of future crops, while millet will draw upon his land so severely that D. C. S., if he wants a good yield of any other crop on that same land the following year, will have to go deep down into his pocket for the fertilizer to produce it. I have found this out.

F. B. S.

IN VIRGINIA.

I have grown German and Hungarian millet (and pearl also to a limited extent), and I prefer German millet. It requires very rich, moist land to make a full crop, and on such will make 4 to 5 tons cured hay to the acre. It should be sowed early in May, and harrowed in lightly, and better still rolled; and out when in early bloom. If allowed to ripen it makes coarse and poor hay. On rich land and in a good season it will grow shoulder high and very thick. I cut and cure it as I would a very heavy crop of oats, allowing the gavels to lie on the ground and sun a day before tying up. A light crop can be cut with a mower and cured like timothy hay. It dries out well in the shocks or cooks, and resists rain well, being long and lying close like timothy. It is such a very exhausting crop that I do not think it pays to grow it except to tide over a time when you have no hay to cut for your horses. For cows I prefer corn ensilage, as making more feed and being less hard on the land. Millet, however, comes on the land early and thus enables you to make a good preparation for winter oats and timothy, and to seed them early, and thus (if they are well fertilized) almost insure a good crop of oats and catch of grass. If the land is not rich and moist, millet is very apt not to pay for the cultivation.

J. R. B.

The Michigan State Meeting.

EDS. COUNTRY GENTLEMAN—The Michigan State Horticultural Society held its winter meeting Feb. 26th and 27th. at Lapeer. A paper was read by Dr. W. B. Hamilton upon the vegetables to grow for a family of six. He thought the proper size for a garden is half an acre, and he would have it laid out in the shape of a parallelogram, six rods wide and thirteen long. All perennial vegetables, such as asparagus, rhubarb, &c., should be placed along one side. Next to this he would plant three or four rows of strawberries; then a row of beds, about six feet wide, for peas, lettuce, salsify, beets, onions, &c. He would sow beets thickly, so that some might be removed for greens.

He considered the pea to be standard among garden "sauce," and he would allot to it a generous space, and sow at different times, so as to prolong the season. If sown too early, peas might decay. To remedy this he would take an old tin pan and sprinkle in a layer of earth, then one of peas, then another of earth, followed by another of peas, and so on until the pan was full. This he would keep in a warm place until the peas sprouted, when he would improve the first warm day by sowing them in the open ground. He said that corn might be treated in a similar manner. Upon the opposite side of the garden he would plant two rows of early potatoes; next two rows of Stowell's evergreen corn, and next to the corn two rows of wax or butter beans and Lima beans. Among the

rows of corn he would plant Hubbard squash. The centre of the garden he would devote to tomatoes, cabbages, cucumber and other vines, but would plant the hills in rows so that the cultivator could be used. To allow for the turning of the horse, he would leave a space of six feet in width at each end of the garden. He thought that one-fourth of the cost of living might be derived from such a garden.

Prof. Tracy, formerly of the agricultural college, stated that in the main he agreed with Mr. Hamilton. He would advise the same size and shape, and the placing of perennial plants on one side of the garden. He favored raising two or more crops upon the same ground in one season. Those that mature first he would plant at one side of the garden, next in order those that would mature next. Those that would be left in the ground until the next spring, such as parsnips and salsify, he would have at one side of the plot, and the next year he would have them at the other side, thus securing a rotation of crops. He very strongly urged the sowing of everything in rows, so that a horse cultivator could be used. Only in this manner can a farmer secure a good garden at the least cost. If the hired man should come up a few minutes before noon, and is instructed to cultivate in the garden until dinner is ready, he could probably go all through the garden before noon. If told to put out the horse and hoe in the garden, he would probably find that the harness needed fixing, or some such excuse would keep him from the garden until about three minutes before noon. He advised the selection of a good location near the house, and not in the orchard where the trees would shade the ground, and the heavy manuring would injure the trees. If rightly managed, he thought the half-acre devoted to the garden would be the most profitable half-acre of the farm. Dr. Hamilton said that farmers who have plenty of land could put the rows in their gardens far enough apart to allow the use of a horse and cultivator, but the land in city gardens is too costly.

Prof. Tracy said that the White Plume celery is nearly all that is claimed for it. It is white without bleaching, hardy, fairly productive, and of good quality. He considers it a "sport," and said it is a diseased condition of the plant that causes the unnatural whiteness of the leaves and stalks. If people expect to find it possessed of that fine flavor that is the result of blanching, they will be disappointed. To destroy the larvæ of the cabbage moth, Prof. Satterlee said that at the agricultural college they found Persian insect powder effective. They put a teaspoonful into a pail of water and sprinkled the plants. Prof. Tracy said that pains must be taken to secure fresh, unadulterated powder, and he prefers to apply it with an old-fashioned bellows. He would put the powder inside the bellows, and eject it in a cloud by short quick puffs. He had also found kerosene oil excellent. He would mix it with twice its volume of sour milk, put the mixture into a jug and shake it until an emulsion was formed, which he would dilute with water at the rate of one part of the mixture to five or six parts of water.

Genesee County, Mich.

W. S. HUTCHINSON.

A CONVENIENT BARN.

The barn on Fenton Brook Farm, near Great Barrington, Mass, the property of J. L. OBERLY, was constructed in the summer of 1882, after he had made a thorough inspection of all fine stock barns in the vicinity of New-York City, and in the East. It embodies what he considered the best qualities of these, and was constructed by day labor in the most careful and durable manner. It is 133 feet long by 40 feet in width. The frame is made of heavy, well-seasoned white oak, hemlock, and chestnut timber, sawed to the proper dimensions. The weather-boarding is tight, matched pine

boards, and it is painted a durable dark olive color. The barn consists of a basement, stable floor, and lofts, the whole being planned entirely for dairy purposes. The extreme height from basement to comb of the roof is about 53 feet.

The basement is now used as a manure cellar, and is, of course, of the full dimensions, given above, of the barn. It has stone walls, tapering from three feet to eighteen inches, which rest on a very solid foundation four feet in thickness. This basement is well lighted, and can easily be converted into stables similar to those on the floor above. It is ten feet in height, and is well ventilated.

The stable floor can be entered on a level on the south side and east end, and by a slope on the north side. The arrangement of this floor is admirable. Standing in the centre of the building, you see two long lines of cattle fastenings, one on each side. The cattle face each other along this centre aisle, fourteen feet in width. The platforms on which they stand slope gently toward manure-gutters, extending the entire length of the building. These gutters slope toward manure-traps placed at intervals of twenty-four feet. In fact, the entire floor is so made that water at any point will flow directly into gutters. The fastenings afford ample accommodations for 80 head of cattle. As the basement can easily be made into a stable for an equal number, the barn will comfortably house 160 head.

Particular attention should be called to the ease with which this large number of cattle can be fed. The floor of hay-lofts is ten feet above the cattle floor. It is made of matched boards, so that all seeds and dust are kept from the stable below. There is a large opening in the centre of the loft through which the hay is thrown to the cattle-floor. There are no hay racks, and it is but the work of a few minutes for a man to scatter the hay along either side of the centre aisle in front of the cattle. There are small boxes for bran and grain on a level with the floor. Bins on the floor above, containing the bran and grain, are provided with shoot-tes, by which the feed is readily brought to the stable floor. The cleaning of the stables is made agreeably easy by means of the manure troughs mentioned above. It should also be noted that the manure, being kept in a well protected basement, can be carted out at any time during the winter, thus saving much valuable time for early spring and summer work.

The stable floor is well ventilated and lighted by means of twenty large, double-sash windows along the side. They are constructed for weights and pulleys, so that in summer-time they can be easily opened. Large, double rolling-doors on either side, and on one end, furnish ample means of egress and ingress. The flooring of the long and spacious centre aisle is tight, planed planks, making it easy to sweep and keep clean. The whole floor is admirably suited for a milking-room in winter and summer, and also affords a fine salesroom for the display of blooded stock.

At the western end of the barn Mr. Oberly has constructed and successfully used a large silo. On either side of it

are places for two similar siloes, the total capacity of the three being more than two hundred tons. The grass or corn-stalks can be hauled directly from the field to the stable floor, unloaded from the wagon to the platform of the cutter, carried thence by an elevator to the top of the silo, and stored at the rate of forty tons per day.

The large loft of the barn is thirty one feet in height to the peak of the roof, and is capable of holding two hundred tons of hay. The hay-wagon is driven to the stable-floor by the side doors. Through the large central opening the top of the load of hay is brought above the level of the floor of the loft, the construction of which is such that a horse hay-fork can easily distribute the hay to any part of it. The whole is ventilated and lighted by twelve double-sash windows, and two large cupolas; and is tightly roofed with the best quality of Pennsylvania slate, on which the name of the farm is lettered in light green.

TAR ON SEED CORN.

EDS. COUNTRY GENTLEMAN. — Having practised for many years a very simple and easy method of applying tar to seed corn, I will give it to your readers:

Provide a tub of convenient size. Then for every common-size water-pailful of boiling water poured into the tub, put in about three table-spoonfuls of gas tar, and stir thoroughly until the tar is mingled with the water. Then put the seed in, stirring it constantly for a few minutes, then pour off the water, and every

kernel will be perfectly covered with a very thin coating of tar. Sprinkle it with land plaster to prevent its sticking to the hands.

New-Britain, Ct.

L. S. W.

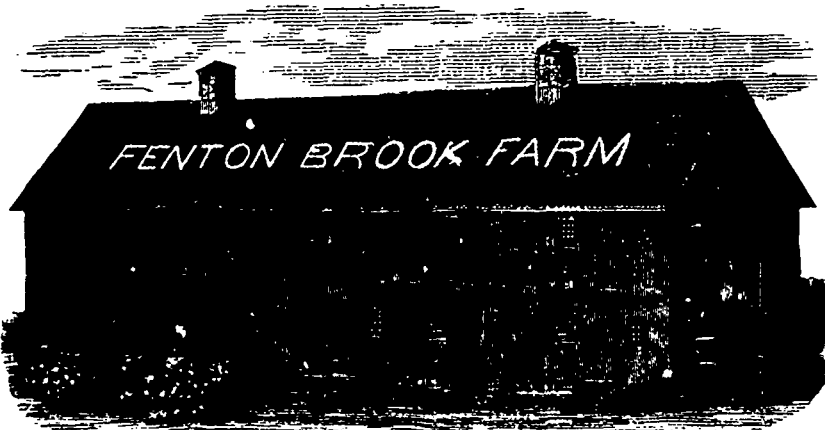
EDS. COUNTRY GENTLEMAN—This subject is discussed in a late issue of your paper. It will render planting disagreeable. It may keep off squirrels, but not cutworms, as they eat the corn at the top of the ground. A tea-spoonful of salt to a hill, just as it is coming up will keep off worms, and is a good fertilizer for the corn. Coal smoke is perhaps the best thing to keep squirrels from seed corn. Save the seed early in the fall, hang it up in a close room, and smoke it two or three days. The loft of a blacksmith's shop is the best place to smoke it. Seed corn is very scarce in the West now, and sells for \$1 to \$2 per bushel. A few careful farmers saved their seed early; others are running all over the country to find good seed, and some will use poor seed. I will give some experience, in due time, on selection and care of seed, and selection of varieties

Hansen, Neb.

J. W. F.

A TALK WITH A SCOTCH PLOWMAN.

"Boy, can you tell me what makes a square furrow?" This was asked me by a genial seven-footer from near Perth,



BARN, MR OBERLEY'S

as he watched me hitching up to my riding plow. My reply not satisfying him, he entered into the following explanation, given nearly in his own words :

In Scotland, when a man is hired to do anything, he does that and nothing else. If he is hired to drive horses, he drives horses, rain or shine, the year round. When a man goes to hire for a plowman, the first thing asked is, 'Are you a good plowman?' If you say, 'Y.' then the next question is, 'What makes a square furrow?' If a man can't answer that, he may as well travel on. Now it is very simple; just plow three inches wider than you do deep—that makes a square furrow. Every man has his little foot-rule in his pocket, and he measures and sets his plow so that it runs just right.

"They use big horses in Scotland, and plow deep. I have seen a field plowed *seven times* before the crop was put in. I hired out to work once on a clay farm. In the morning, before I went out, the foreman said: 'We plow deep on this farm; so put it down, boys.' So I struck across the field, and was plowing as deep as I had ever plowed, when I saw the boss coming; he said, 'This will never do; you must plow deeper than that.' I replied that I was plowing as deep as I ever had plowed. 'It makes no difference,' he replied; 'this farm must be plowed **DEEP.**' I remarked that it would kill the horses. 'It seems to me,' said he, 'that that is no business of yours; besides, I always carry a horse or two in here'—slapping his pocket; 'but if you keep on plowing as you have begun, I should soon have no horse anywhere; you plow as I tell you, and I will furnish the horses.'

"I worked on another farm, 200 acres; rent, £450. We had a field of potatoes, and when they were harvested we were set to cart them to Perth nine miles. We carted potatoes there, and brought back manure. One day we were loading, when the boss came along. We were talking of how many potatoes were gone, and one said, more than half. The boss spoke—and it was seldom enough he spoke to us fellows; he said: 'No they are not half gone yet, for the rent isn't half paid, and they will pay the rent.' Think of that, will you?—one field of potatoes paid the rent!

"A farm in Scotland is always divided into five fields—and one of these fields must be manured every year, whatever the difficulty.

"There will be a man and a plow to every 50 acres; a herdsman or two; two or more other hands; a foreman and ten or twelve women—at the house? No, *no*, in the field; they work the same as the men. Wages? I got £12 a year and board—rain shine, no stopping work for wet. This was 25 years ago, it may be different now.

"Now," added he, as I was ready to start up. "I'll give you a lesson in plowing. First, it is as hard to cut ten inches wide and six inches deep as it is to cut six inches wide and ten inches deep." [Is this so?] "You farmers don't plow deep enough. You can't do it all at once. The soil underneath is not fitted for the plow at first; bring up an inch deeper each year, or if you plow in the fall you may

bring up two inches. Of course plowing sod for corn is different. That pays best plowed shallow, not more than six inches. Old country ways are not always good for America. Now mind you, don't take wider than your share will out. If you do, your plow is fast at both sides and will pull very hard and can't do a good job. Remember the way to make the square furrow, 3 inches wider than deep. Go along with your riding plow; wouldn't have it if it does do good work; a plowman ridin—ha! ha!"

The maples, O.

QUIXOTE.

Pruning the Gooseberry.

The Gardeners' Monthly, in speaking of the culture of the English gooseberry in this country, says "they are usually ruined by pruning. In Europe it is customary to thin out the centre well, to let in the sun and air. Here it is the sun and air that ruin them, by inviting mildew; and so the more shoots the better. Our country farmers are the best gooseberry growers, where weeds run riot, and grass and gooseberry

affected a close companionship. Where in fact the gooseberry can find a cool corner, well shaded from the sun, and with a soil which is never wet, nor yet by any means dry, there will gooseberries be produced unto you." We have raised good English gooseberries, on the same bushes, for the past twenty years, under the shade of a large tree, when the requirements above quoted have been observed. Of course



IMPORTED GUERNSEY COW, COUNTESS OF FERNWOOD.

weeds are entirely unnecessary for their growth or success.

OUR ENGRAVINGS.

- Rennie's Ditching Machine.
- Ornamental Flower Stand.
- Hay-barn.
- Union Grain Drill.
- Guernsey Cow.—Polly of Fernwood.
- Barn, Mr Oberley's—see article on.

A Cheap Creamer.

EDS. COUNTRY GENTLEMAN—I notice in your issue of May 1st, on page 382, an inquiry for a cheap creamer, and as I was called upon to solve the same problem for myself, and did so successfully, my experience may be of use to him. I selected a large shade tree convenient to the cow barn, and built under it a framed structure, with dimensions as follow: 8 by 12 feet on the ground, and 8 feet high; the frame of 2 by 4-inch hemlock joists and covered with inch hemlock boards, roof and sides battened; no inside lining. A door is in one end, and a window in each end 12 by 24 inches, covered with fine wire cloth. The floor is of boards. I have a wooden box 4 feet by 7, and 36 inches deep, made of inch pine boards; the joints tongued, grooved, and white-leaded. This box sits crosswise of the end of the shed opposite the door, leaving a space 6 inches at each end and at back to be

filled with sawdust. I boarded up the front of the box, leaving a 6-inch space to be filled also. I made the cover of the box in two pieces, to slide on cloats. I put a rack of one-inch strips on the bottom of the box, setting the box to incline a trifle toward one end, and used a piece of lead pipe to carry off water, bending the pipe so that no air can enter.

I used this box for the milk of twenty cows, set in tin cans 8 inches in diameter by 30 inches deep, and skimmed every 24 hours. One hundred pounds of ice twice a week kept the box perfectly cool in the warmest weather. The cost of the shed was \$12 for lumber and hardware. I was my own carpenter. The box should be made by a good carpenter—mine cost \$6 at *K R Passaic County, N. J.*

SILOES AND ENSILAGE.

Mr. J. LONG read a paper on this subject. He said he did not consider it was necessary to consider whether silage was better than hay or roots, or whether the system was adapted to the dairy farmer, but to ascertain and show him what were the advantages to be derived from silage, and how he can best manufacture it at a minimum cost. As most of the barns were made with the framework inside, some people considered that a supreme obstacle was presented to the formation of a silo, the sides of which must be even and air-tight, but he believed that a little cost the barns might be converted into use in one or two ways. Among several suggestions of materials suitable for the lining of a silo he mentioned—and in this view he was supported by gentlemen who had made silage—that plain inch boards answered the purpose, provided they were of seasoned wood and the joints were covered or overlaid with strips of wood carefully nailed on. Capital silage had repeatedly been made in old barrels, and he asked why should it not be made in a wooden walled silo? He had obtained an estimate of the cost of converting the end of a barn into a silo—a space measuring 14ft. 6in. by 17ft. and 9ft. high, with a wall 19in. thick to be carried across the front, and the whole coated with cement inside—and the price was £24 without weights, doors, or cover, and he roughly estimated that this silo would hold 44 tons, costing about 11s. per ton. If, however, this same silo were made of inch wood the whole of the work would cost less than £10, and if tarred would last for many years. The British Dairy Farmer's Association had issued a number of questions on the subject of ensilage, and answers containing information of great value to the dairy farmer had been received. Sir John Dillon, in his reply, stated he considered silage much the cheapest food for cows, and that the cost per head for his own, including 9 lbs. of cake daily, was 7s. 7d. as against 12s. under the old system of feeding. In addition to this Sir John reckoned that he could keep 20 per cent. more stock. Mr Mackenzie wrote to the same effect; but another gentleman, Mr. Copley, who resides in the neighbourhood of Darlington, expresses his belief that silage butter could not possibly excel any really good sample made from the old system of corn and hay feeding. Another gentleman mentioned an instance in which the effect of feeding cows on silage was to impart an objectionably heavy flavour to the butter. This testimony was unique, inasmuch as the other gentlemen who sent replies answered the question on this point in an exactly opposite manner. Another gentleman—Mr. E. J. Smith—stated that he converted a loose box of 400 cubic feet capacity at a cost of £50, and the 45 tons of wet grass he put in turned out well. The same gentleman also expressed the opinion that silage would not answer well without the addition of the foods and fluids that cows require. He found silage extremely cheap, and his experience was that it produced more and better butter, while the cream yielded was also greater. Mr. Smith also found his

calves thrive well on silage, and he believed that double the stock could be kept by its aid. On this point all the writers were unanimous, though their statements as to the extent to which stock could be kept varied. Mr. Bateman, a champion of silage, declared it was cheaper than hay and mangold by 16 per cent, and expressed the hope that he would see the last turnip grown on his estate. Dr. Fowles, of Cowpar, described a silo, 4ft. by 9ft. by 7ft. made in a bank, which cost, in his own words, "little or nothing." Into this silo was put 28 tons of uncropped second crop clover, and the silage produced was much relished by the cattle. The milk yield was increased, and the cattle showed improvement. Some of the other reports stated that the cattle were given as much silage as they could eat, and not a single instance was recorded of the silage being refused. Mr. Nugent Everard, who farms largely in county Meath, successfully experimented with ensilage, and gave as his opinion that cows must not be overfed with it. The most remarkable report was that of Mr. H. Howman, who keeps 120 shorthorn, Ayrshire, and Welsh cows and who had experimented with each. He had converted eleven existing buildings into silos, which he filled with grass, clover, and vetches, and his conclusion was that ensilage was cheaper than hay, and about the same as mangels, and although it does not produce so much milk as the latter, the milk is of better quality. Mr. Howman experimented first by giving the cattle food without ensilage, and secondly by giving vetch silage alone, and in each instance he had the milk analysed. The results of these experiments were favourable towards the latter plan of feeding, and further experiments pointed to the necessity of giving meal or cake with the silage. With regard to the intrinsic value of silage, a French agriculturist named M. Nivière, who grew 17½ acres of artificial grass, stated, that in feeding, cotton cake was used in conjunction with the silage, and he then found he practically sold his hay at 10f. per 100 kils. instead of 6f., while it yielded per acre £8 16s., instead of £5 14s. The speaker remarked that the fact must not be lost sight of that crops converted into silage, and which produced the good results published, were either very good or were largely supplemented with cake or meal. He also pointed out that it was necessary to guard against teaching that silage irrespective of its kind or quality must necessarily increase the yield of milk and butter. He was of opinion that not only was maize ensilage over rated, but that it was unwise to claim for silage in general a power to produce more milk and butter. Everyone who had tried the system would, he thought, wish the dairy farmer to adopt it, but they would also wish him to grow the most suitable crops. The question might be asked—will the grass upon a given acre produce more butter or cheese if converted into silage than converted into hay? This question he did not think had been practically solved, but there was morally little doubt that the answer was in favour of silage. In conclusion Mr. Long said he believed that not only was there a future before the farmer in connection with ensilage, but also for the labourer. At present the labourer was unable to keep a cow in winter owing to want of hay, but if he was taught, as many of the French peasants were, to preserve green stuff of all kinds in barrels he would be provided with winter forage. He also looked forward to the sale of ensilage, and he could see no reason why long grass should not be conveyed into large towns and sold to those who now purchased hay and roots for their animals. He believed this would prove a more remunerative part of the operation of the farm than the conversion of silage into milk or meat.

Mr. TREPLIN expressed his disapproval of wooden silos; he considered those with cemented walls much preferable. A composition of three parts of sand and one of cement was comparatively cheap. Any one who had a barn could easily

make a silo by lining it with these materials. Bad hay often produced disease, but he had never known injury to follow from the use of ensilage of doubtful quality. In Germany, beet tops were largely used for ensilage for feeding dairy cows, with the wash from the sugar refineries.

Mr. HULBERT said he believed he was the only tenant farmer in the county who had made a silo at his own expense. Perhaps, therefore, a few details from him would not be unacceptable. He had cemented a barn round with cheap cement, and had run up a stone wall at the end. The whole expense of the silo, which held 40 tons, was £12. In making another silo from another barn, he intended to dispense with cement, as the walls would be sufficiently sound if they were pointed with cement. Where stone was on the estate the cost of a silo was nominal. The top part of his barn over the ensilage he used for the storage of corn, &c. He considered that ensilage was better than middling hay. He had never been able to make any prime hay for the last ten years. At the first he thought ensilage might produce scour, but he found it had the contrary effect. Of course the better the material of which the silage was made the better it would be. They must use the materials they had at hand. They must expect that the ensilage for three inches at the top of the silo would be waste. Salt was wholly unnecessary. They might of course allow their animals to have rock salt. The principal thing was to chaff the silage, so that it could be thoroughly trodden down. He had weighted his with only 70lb. to the square foot.

Major PROBYN asked if an uncemented wall would be suitable? If so, many old barns might be utilised.

Mr. TREPLIN gave further details, and he had used old horses for tramping down the silage. As to chaffing, if a small amount of silage was made it could be done, but not with a large quantity.

Mr. W. FRIDAY thought the conference were going into details before it had quite been decided that ensilage was desirable. Hitherto it had been purely experimental. As to ensilage dispensing with roots that would be undesirable. The great object of growing roots was to keep the land clean. He had had great difficulty in arriving at a decision as to ensilage, because he found its advocates so varying in their testimony. He criticised some of the figures given as the cost, which he considered was excessive. The question altogether was made too much of. Some went so far as to assume that the provision of siloes by landlords would render the lowering of rents unnecessary. It was important that farmers should be cautious in the adoption of such new practices as this, and on the whole he should advise them to make hay while the sun shines.

Mr. HULBERT justified the figures he had mentioned, and contended that it cost no more to make silage than to make hay—[From the dairy conference at Glo'ster, Eng.]

Lord Tollemache's experiments with Ensilage!

IMPORTANT SCHEME AFFECTING AGRICULTURE.

An important and highly-interesting scheme for the development of the dairy interests of Cheshire was inaugurated on Monday by Lord Tollemache among his Cheshire tenantry. Lord Tollemache recently constructed several large siloes at Peckforton Castle for the storage and preservation of grass, and, having discovered that cattle ate and thrived upon the ensilage, his lordship, with characteristic foresight and energy, determined to extend the system for the benefit of the tenantry on his extensive Cheshire estates, feeling that anything which tended to save the harassing and costly labour bill incidental to hay harvests, and the still heavier losses constantly arising

from damage to hay from rain storms, would prove of immense service to agriculturists in a great dairy county like Cheshire. Lord Tollemache accordingly issued a circular giving in a comprehensive and concise form the results of his personal experiments with ensilage, and followed this with a letter of invitation to discuss the whole question. Lord Tollemache presided on Monday, and in the course of his remarks said they had heard a great deal of nonsense asserted, such as that, if freedom of contract and all restrictions were done away with, tenants would carry out vast improvements independently of their landlord; and also that labourers ought to be the actual owners of their cottages. They knew full well that all great improvements could not and ought not to be carried out by farmers without the assistance of landlords. The offer which he had to make was that he should construct the siloes on the farms of his tenants himself, on condition that if the making of the ensilage proved an advantage they would pay 5 per cent. interest on the outlay, while if it proved a failure it should cost them nothing whatever. Any difference of opinion arising could be left to arbitration. He made the offer for the purpose of extending a scheme which, he was persuaded, would benefit, not only those engaged in agriculture in the dairy districts of Cheshire, but throughout the United Kingdom. Lord Tollemache's offer was received with applause. The tenants present unanimously agreed that the terms offered were most liberally conceived, and passed a cordial vote of thanks to his lordship for the consistent interest which he took in everything affecting the welfare of tenant-farmers and the success of the agricultural interest. (1)

Messrs. F. W. Reynolds and Co's Siloes.

After Lord Tollemache had concluded his speech a long and interesting discussion took place as to the construction of his silos, which was minutely explained by a representative of the firm of Messrs. F. W. Reynolds and Co., Edward-street, Blackfriars road, London, S. E., by the aid of models. The system adopted on the Peckforton estate, and most generally favoured, is somewhat as follows:—The buildings consist of a central barn with a bay at either end, and it is proposed to divide one bay with a strong brick portion into two silos opening into the barn, the walls to be covered with a coating of cement. The chaff cutting machines—driven by steam or horse power, as the case may be—are placed on an upper floor of the barn, on a level or thereabouts with the tops of the siloes, the green chaff being thus conveniently delivered into the latter; and when these are filled, the whole is covered with nicely fitting shutters and weighted to the extent of about seventy-two pounds to the square foot. At least, this has been the practice at Peckforton up to the present, but the Messrs. Reynolds have adopted and patented an ingenious and efficient process of putting on a very much larger pressure, at the same time obviating the necessity for providing and lifting so much dead weight every time it is wished to remove the shutter for the purpose of re-filling the silos. Messrs. Reynolds's system—which was also demonstrated by the help of a model—is as follows:—A chain is attached to the lower part of the wall of the silo in any suitable manner, either by taking it through the wall with a plate and bolt on the outside, or by weighting it in the ground with concrete or attaching it to a beam. Exactly opposite, on the other side of the silo, is a similar chain attached in the same manner. While the silo is being filled, the ends of the chains are thrown over the walls. After the

(1) Having, on the Lincoln College farm, about seven acres of luxuriant couch-grass, I propose to ensile it—if it spoils, there will not be much loss.

material is put in the pit, covering boards are placed over it, and a stout transverse beam is laid on the top stretching from side to side of the silo. In the ends of this beam are fixed brackets to carry moveable rollers, over which the ends of the chains from either side are led. A chain-tightener is then hooked into the links, and on turning the handle of the screw the ends of the chain are drawn together, causing the beam and covering of the silo to sink, so to press the material. Pins are then inserted in the links of each chain across the beam to hold it down, when the screw-tightener can be made to take a fresh hold on the chain for further pressure or be removed altogether. Any number of beams may be used, according to the length of the pit and the pressure required per square foot of surface but the chain tightener and rollers can be removed from beam to beam, so that only one set is sufficient for any number of siloes. What are really required for each beam are the two chains and two brackets or bearings into which the chain rollers are placed when in use. If for example, a silo of 15ft. long by 12ft. wide is to be pressed with a pressure of 300lbs. per square foot of surface, two

illustration, it will be seen by readers who are able to follow the above explanation that the whole mass of ensilage is thus brought into the condition of a tightly-bound parcel, somewhat after the manner of packing a bale of cotton, with the difference only that the compression is affected by the aid of screw contraction instead of by hydraulic power. Those present went fully into the subject, asking numerous questions and receiving full and satisfactory replies.

Ensilage and Siloes.

(1) I AM a firm believer in the advantages of ensilage and silos, but the difficulty I have is their application to tenant-farmer's requirements, on account of the cost of the latter.

I sent my firm manager to attend Mr. Jenkins, the talented Secretary of the Royal Agricultural Society, on his late visit into Yorkshire, and what he reported as having seen has removed my fears. So I await Mr. Jenkins' promised report with much interest. The subject is not altogether new to me, which I will explain if you will kindly allow me.



UNION GRAIN DRILL.

beams would be required, each having its two chains. In tightening the chains a pressure of 8 tons can be put upon each beam, or 16 tons on both, and this force, divided by the area of 15ft. by 12ft., equals 200lb per square foot of surface. The silo may be any reasonable depth; an extra length of chain being all that is wanted. Should a greater or less surface pressure be required, it is only necessary to place the beams nearer together or further apart. So easy and powerful is the action of the chain-tightener that it is found one man, by exerting a power of about 60lbs (theoretically 40lbs), can put a pressure of 8 tons on the beam; therefore one man only should use the screw, or unnecessary pressure may be obtained. By exerting the pressure once daily for about a week, it is found that the ensilage cannot be compressed further, except at considerable intervals; the application of continuous dead weight is therefore unnecessary. By these patent appliances, the pressure can also be instantly released and the boards removed to complete the filling of the silo, or when the ensilage is to be cut; the pressure can also be applied at any depth of the silo, either at the extreme, top or at any distance from the bottom. The covering boards for the silo may be two inches thick, and the transverse beam for a silo of 12ft wide should be about 9 inches wide by 7 inches deep. It is somewhat difficult to explain a process of this description without diagrams or models, but to use a familiar

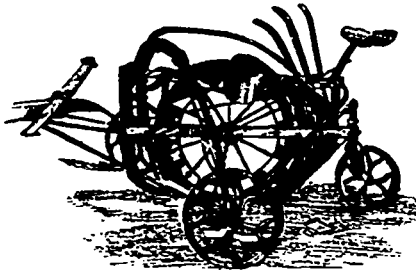
It is fifty years since my late father tried the experiment of "tubbing brewers' grains". He selected, I think, twenty butts of 108 gal., which were not sweet enough for trade purposes. These were filled with brewers' grains, hot from the mash tub, well trodden in by men, a sprinkling of salt every 3 inches (the expected benefit being in making the grains palatable to the cattle, and, rightly or wrongly, the salt was supposed to check excessive fermentation): over the tubbed grains was a layer of spent hops, and on the top of all a layer of moistened clay. At the end of twelve months the tubs were opened, and the grains were found to be as sweet as when put into them.

This successful experiment led me in after years, when grains were superabundant, to "camp" them. Boards of wood for the sides were used, and supported by stakes driven into the ground, the grains trodden and covered as before described. There is no occasion for this now, as the large quantity of grains made by the Burton brewers are taken as they are made, and siloed by the dairy farmers of Derbyshire and Staffordshire, and it would, I think, be of advantage if this system was inquired into by those interested. My friends at Burton-on-Trent, Messrs Allsopp & Sons—from which house I have retired, after being the senior partner for a great number of years—would, I feel sure, give all required information.

The two principal objects to be gained, I believe, are inexpensive pressure and the exclusion of atmospheric air. I believe lateral or side pressure in the silo is insignificant, and thick brick, cemented walls are not necessary.

If the above crude remarks will lead our experts to consider the best and cheapest form of silo, whether round, square, or oblong, and the indispensable pressure, I shall personally feel much indebted to them, as well as will also all interested in the feeding of cattle.—HENRY ALLSOPP, *Hindlip Hall, near Worcester.*

(2) While waiting the result of the experiments on the feeding properties of ensilage undertaken by the Highland Society, attention may be directed to some authorities who have already tested and given deliverance on the subject. At the ordinary meeting of the Teviotdale Farmers' Club, held on March 6, a most interesting paper on the origin and construction of siloes, was read by a member. Going on to the advantages obtainable from them, he says— "Reports on the feeding properties of ensilage are, without exception, favourable, more especially as regards its milk-producing qualities. I do not mean to say that there have not been unfavourable



DITCHING MACHINE.

reports, because there have been, but these have occurred in cases where the fodder has not been properly stored." May not this remark throw some light on "North Riding Inquirer's" "experience and local inquiry" (mentioned in last week's *Agricultural Gazette*), "which lead him to believe that ensilage causes the butter to have both smell and taste." May there not have been something wrong or as we say in Scotland, some "warp in the rape," leading to the disastrous results alluded to, and which, when we have the details very properly asked for by the Editor, will be satisfactorily accounted for. Some time back a correspondent of the *Agricultural Gazette* wrote that butter from ensilage was like summer butter in appearance and flavour; and Captain Yerstoun, one of the earliest experimenters on siloes in Dumfriesshire, writes thus:—"I am now giving my ensilage to two milch cows, with excellent results. When the first week's butter from the ensilage was churned and weighed, it was found to be nearly double the quantity got for the week previous from the same two cows that were getting nothing but hay before, now they are getting half ensilage, half hay." This is the more remarkable, as every cow-keeper knows how difficult it is to bring back a flow of milk at the dull season of the year, and, indeed, we have just been trying it ourselves in the case of a cow four months from calving by the aid of feeding meal, and failed.

It has been advanced that, as in ensilage, the albuminous properties of the grass were dissipated, and the lactoids increased, it would be useful for milk-giving animals, but of little service for fattening purposes, but as the latter is exactly the point being tested by the Highland Society, it

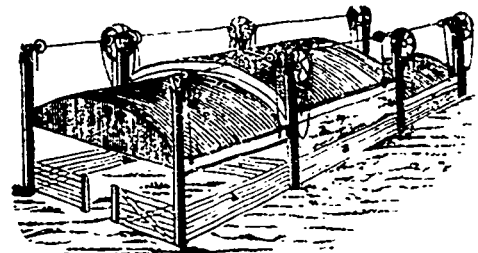
will be better to suspend judgment till their result is announced, though, by all that has been seen, it will probably go to prove that it is the dairyman, rather than the stock farmer, who is to be benefited by the system.—A. L. O. S.

DAIRY FARMING

ENSILAGE IN THE DAIRY.

The following particulars in respect of the use of ensilage in the dairy have been supplied to the *Cultivator and Country Gentleman* (Albany, N. Y.) by Mr. C. B. Benedict, superintendent of the Brightside Farm, Holyoke, Mass., U. S. A., and form part of an address read by that gentleman before the Hampden Harvest Club:—

As to the feeding merits of ensilage for beef, growth, milk, and butter, I believe I gave the club the results of our experiments of a year ago, and expressed ourselves perfectly satisfied with the system in every respect; and now, after another year's experience, including its use during the whole year, we have only to repeat what we then said, only with more force, for we have demonstrated by experience that ensilage is as good a feed in summer as in winter, or an all-the-year-round feed. We have more than half a hundred head of cattle in our stables that have not been turned out for



HAY-BARN

grazing purposes for more than a year, their principal food being maize and rye ensilage, with a limited amount of maize meal and coarse wheat bran, at a cost of less than ten cents per day, and they have done well, giving an even flow of milk, and of superior quality, as you will admit, when I tell you that our dairy of more than fifty cows, several of them natives and Durhams, averages 25 per cent cream, and so good that our neighbouring milkmen come and beg for it at the door at seven cents per quart. How they can do it I leave you who are experienced in the milk trade to conjecture.

The cry is raised by non-believers in the system that good milk and butter cannot be produced by this food, all of which our experience leads us to contradict. As good milk can be produced, and as good butter made with ensilage feed as any other, I care not what it may be, and I believe I am prepared to say at one-half the cost of production.

One of the main points in feeding, be it for beef, growth, milk, or butter, is to provide food that may be easily digested and a help to the digestion, fed with other richer foods, thereby causing as perfect assimilation as possible of all the food taken into the system, and this, in my mind, is the first consideration of ensilage. Grass, we all know, is a better milk-producing food than hay, simply because it is succulent and easily digested and distributed throughout the system. The by many-condemned silo will furnish you the same succulent, milk-producing food in winter, equally as well as in summer.

We are utilising our maize stalks—stover—this winter by a system of steaming, and are well pleased with the result, being able in this way to dispose of nearly or quite all of

them, the cattle eating them nearly clean. But why is steaming a benefit? Simply because it renders them more succulent and tender, therefore more easily digested, and for this reason the cattle do better on them than if they were thrown to them whole and in a dry state, and allowed to waste more than one-half at that.

We shall average keeping on Brightside Farm, from July, 1883, to July, 1884, 100 head of cattle—75 average matured—12 head horses, 30 sheep, and some 250 hogs (less than 200 acres of land), with the purchase of a few tons of wheat bran and meal; and in no other way than through the system of ensilage could we do it; and let me say that in the near future we anticipate to be able to keep double this amount. Many experienced in the feeding of ensilage base its feeding qualities, as compared with hay, at a ratio of three to one; others two and a half to one; a few say two to one. We have always made our experiments on a basis of three to one, but rye ensilage fed alternately with maize, I think we are safe in saying, is equivalent to two and a half to one. Now, if we can get 25 tons of ensilage per acre, our acre will produce an equivalent of 10 tons of hay. Your acre to grass, will, if good land and season, cut, say three tons of hay, which will keep your cow nine months if judiciously fed with grain. Our acre will, with the same amount of grain, keep three Jersey cows for one year, and our forage feed has cost us 1.76½ dollars per ton in silo, and I would guarantee a proportionate production for my cows, either for beef, milk, or cream, and at what per cent less cost figures will tell. Please understand I am not saying this to convert you to the ensilage system, but simply stating my view as to what I consider the best feeding rations for producing beef, milk, and cream, and I believe, so far as our observation and experiments have gone, I speak understandingly. The best is the cheapest if it will produce equal results. An acre of land in a state of fertility to produce two tons of hay, will produce 20 to 25 tons of ensilage without manure. Our ensilage costs in silo for 1883, 1.76½ dols. without manure, and averaged nearly 25 tons to the acre.

THE TEST OF PEDIGREE.

No observant, experienced stock breeder will deny that attention to pedigree is the touchstone to success in live-stock improvement; but a pedigree may be a good or bad one. If an animal belong strictly to any one of the various well established breeds, it is safe to assume that it will reproduce the general characteristics of the breed to which it belongs, unless paired with another of an equally well established but different breed. But there is such a thing as an inheritance—a well-defined inheritance—of inferiority, running back through many generations. Such pedigrees are quite as much to be avoided as are good pedigrees to be desired. A good pedigree has often been defined by the writer hereof as one which commences with a good animal and runs back through an ancestry all distinguished for unusual excellence for many generations, and the longer such pedigree is the better. It is important to know that the male which is to be placed at the head of a stud, herd or flock should himself be a good one; it is important to know that his two parents, and four grandparents and eight great grandparents were also distinguished for excellence in the points that it is desired especially to have transmitted. A pedigree, to be of any particular value, must be something more than a mere string of names. Instead of accepting the fashions that titled aristocracy may have set for us it is vastly better to ask: Do his steers make more and better beef from the same food than ours? What is the butter record of his cows? Have his horses proved themselves winners? Are his sheep more famous for wool or for mutton than ours? Are his pigs harder, and do they produce sweeter

hams and better bacon than ours from the same food? It is by such practical questions as these that we should try pedigrees; and we should be infinitely more concerned to know whether the immediate ancestors of an animal have been distinguished for especial excellence, than to know that the line of descent is straight from Booth or from Bates, or any other noted breeder of former years. The very marrow of pedigree consists in the *qualities* of the ancestry all along the line. If selecting stock from which to breed trotting horses, look at the records of the winners on the trotting turf, and judge of the merits of the ancestry accordingly. If for the dairy, search for the *butter* or *milk* records of the ancestry. This is the essence of pedigree as applied to stock-breeding.

The Breeder's Gazette.

THE CREAMERY SYSTEM.

The rapidity of the development of the American associated dairying system is one of the many marvels found in the growth of our agriculture. In many of its features this system is peculiarly American. Twenty years ago the cheese-factory plan was only beginning to attract attention, and was not introduced into the West. Ten years ago butter factories were little known. Five years ago little was thought of the most recent plan—that of collecting the cream for butter-making in a central establishment, leaving the milk to be fed on the farms. While it has attracted less attention, the growth of this gathered cream system has been perhaps as remarkable and as rapid in the West as was that of the cheese factory system. It has been estimated that there are now 1,600 creameries in the West, at least 600 in Iowa alone, and the number is steadily increasing.

The system is not an ideally perfect one. Objections can be found to it. There are localities for which other plans are better. But it has many advantages. It tends to develop interest in the dairy and in the rearing of calves in regions which would not sustain a cheese or butter factory to which milk must be carried, and which can not engage in milk selling for city consumption. Except home butter making, no other system is so well adapted for allowing the sweet skim milk to be used for rearing calves—a better use, as we think, than making cheese of it.

Cream can be collected from farms twelve or fifteen miles from the creamery, or much greater distances, if brought by rail. It is shown it can be carried such distances with little or no perceptible injury. The farmer, with only a few cows, can sell his cream, avoiding both the labor necessary to make it into butter without the loss of time incident to delivery of small quantities of milk to a factory. The cream, being skimmed and carried by representatives of the manufacturers, gives daily opportunity for noticing the care or cleanliness of the farmer or the opposite qualities. Only a low priced and a simple outfit is necessary for the farmer, and the factory buildings and fixtures need not be so costly as when the milk must be hauled. From \$2,000 to \$3,000 is all that is needed to supply the "plant" for a creamery with as much cream as can be raised in most regions.

There is no place so good for the manufacture of the very best butter as the farm or the village or town home where the milk is produced. The owner of one cow may be able to make as good butter as any one in the world. He does not have the same difficulties to contend with which must meet the operator in a large factory using the milk and cream from many herds. It is the truth, however, that factory or creamery butter ranks much higher than farm dairy butter; that much less of it is of poor quality, while most of it is good. There is no probability that skilful butter makers at home will find their occupation gone. In many cases they would be unwise to make a change from the present system.

We give a hearty endorsement to the creamery or factory system, for there are many regions in which dairying has now hardly a place, and where what is done in it is done at great disadvantage and little or no profit.—*The Breeder's Gazette*

Poultry—Pigs—Soot.

EDS. COUNTRY GENTLEMAN—I am arranging to go into the poultry business, on a half-acre lot, and a pond besides of one-fourth acre, in all, three-fourths of an acre. I am procuring ducks, and some geese and chickens, and now ask you some questions. Eggs and meat, and the money out of the business are the object. What breeds of chickens, ducks and geese are the best? If I can make enough this summer I wish to get a pure strain of small hogs; I am thinking most of the Essex, to raise pigs for sale as breeders. They seem to be quick and thrifty. The small York-hire I suppose is a good breed—which is the better? Of what account is scot as a fertilizer for corn; how much, and how is it best to apply?

A. L. La Porte, Ind.

The pond will be of no value in providing food for ducks and geese, unless it is shallow, and is filled with vegetation. Geese and ducks are not profitable unless they have a large and suitable range. With no other range than half an acre it would not be safe to keep more than 50 fowls, and the range should be divided into two parts, each to be used alternately. If eggs and chickens both are the object the best breed will be Plymouth Rock. There is little choice between the Essex and the Small Yorkshire pigs; the former are black and the latter white. Soot from soft coal is a valuable fertilizer. It contains ammonia, lime, sulphuric acid, phosphate of lime, potash, magnesia and a peculiar bitter substance which is exceedingly distasteful to insects. It is most effective upon grass, and is said to prevent the potato disease from affecting that crop. It has been used in quantities varying from 10 to 30 bushels per acre.

H. S. Bergen County, N. J.

CORRESPONDENCE.

Mr. Editor.—Sir, if I should not be encroaching, would you please insert in the Journal a little experience of mine about ensilage. Last season I had three arpents of heavy clover; when it was well in the blossom and time to cut it, the weather was so rainy that it began to decay on the ground. Fearing to lose the entire crop, I concluded to make a silo of wood in part of a bay in my barn; it was constructed with hemlock inch boards, doubled with tarred paper between; it was 12 x 20 and 7 ft. in depth, it cost two days' time to make it. As soon as completed, I commenced cutting with the mower in the morning, cut one and half arpent, then put the horses each of them into a waggon and commenced drawing in there were five of us at work, it kept one team in the barn all the time, the distance being short, there were two of us on the mow with one horse to pack and tread. When all was in, I cut another half arpent to finish filling, and when it was full put about six inches of straw, laid on loose plank, and weighed with stones the same day. It had rained a little that day, five days after it had settled about three feet, I opened it and cut the third arpent and put it in the same way until full again, covered as before. I was pointed at as an old fool by nearly all the neighbors. About the fifteenth of January I opened it, found around the edges the ensilage a little mouldy but the center was all right; my cows, as soon as they got a taste of it were very greedy for it, they would not eat anything else so long as that lasted, they increased in the quantity as well as quality of milk with one feed per day. There is sufficient heat in the ensilage to keep it from freezing. In so

far as to the curing of the clover, I am well satisfied that this method is much the best, as to profit in so doing will have to wait further developments.

If you consider this of any advantage to your numerous readers, I may have something more to say hereafter.

Yours, &c.,

ABBOTSFORD,
Feb. 6th., 1884.

O. CROSSFIELD

POULTRY-DEPARTMENT.

Preventing Diseases.

EDS. COUNTRY GENTLEMEN—Food that possesses acidity to a certain degree is wholesome; beyond that, it becomes deleterious. Indian meal for chicks should be freshly prepared each day. It should scalded, but should not be fed to any great extent. Whole grain is much better, for then the stomach receives it in a natural state, provided the grain be sound. It is poor policy to feed musty grain, or heated or mouldy meal. The fowls cannot get proper nourishment from it: consequently, they suffer to a greater or less extent. If there be a weakness in the channel that carries the contents from the crop to the gizzard, it soon becomes apparent in distended crop, which cannot be remedied by any mode of feeding. There is nothing like prevention, and this may be done by keeping the fowls warm and dry in inclement seasons, and giving only wholesome food.

The disease known as "gapes," which greatly afflicts the young poultry of every description, can also be produced or prevented in a great degree by the mode of feeding and care. The prevention consists in the promotion of rapid growth that produces vigour and strength. The lodging places of fowls should be warm and dry, especially dry, for when the fowls are in repose, they are liable to be surrounded with noxious vapors, the effects of which appear in sudden colds, sore eyes, swelled heads and black combs. Fowls are far too valuable to be exposed in this manner. They rank by the side of other stock in profit when good care is taken of them. This may not in all cases be realized. A dozen fresh eggs, or a well-grown chick, comes very convenient for the table when friends come in unexpectedly.

Duchess County N. Y.

C. B.

MEDICINES FOR THE GAPES.—I send you the following slip from our county paper, the Kent News:

Mr. Wm. Boyer, living near Sassafras in this county, gives for a sure cure for the gapes a mixture of a half peck of meal to one pint of Epsom or Rochelle salts, or smaller quantity in same proportion. Allow the chickens to eat freely of it and a cure will follow. Red paint mixed with meal is also good. Mr. Boyer has had large experience with poultry; he has thirty or forty hens now sitting and nearly a hundred young chicks out.

I know nothing about the success of the remedy, but from the relaxing, followed by the purging effect of the salts, I have no doubt good results might follow by absorption or discharge of the mucus before becoming attached to the wind-pipe, as in chronic croup, which my friend Dr. Conrad firmly believes is the cause of so much fatality among young chicks, not disputing, however, that there is often a worm found there, but not hatched from the egg of a fly, as described by one of your correspondents. It is not a maggot but a worm, male and female. Keep the chickens dry and warm.

Rock Hall, Md.

A. P. S.

PRESIDENTIAL FAVORITES.

Some Interesting Facts Concerning the Men Who Stand Closest to the Chief Executive.

Visitors who, from curiosity or business, have called at the White House, must have been impressed by the courteous yet systematic manner with which they were received and escorted through the mansion. The Gentlemen whose duty it is to receive all persons coming to the White House are Colonel E. S. Denmore, Mr. John T. Rickard and Mr. T. F. Pendel, and they have occupied their present positions through the various administrations since and even during the war. Mr. Pendel was president Lincoln's body guard; saw him to his carriage the fatal night on which he visited Ford's theater, and he now has in his possession the blood-stained coat which Mr. Lincoln wore on that memorable occasion. There is not a public man in America to-day who does not know, and who is not known by, these gentlemen, and the reminiscences of public and social life which they can recount would fill a congressional volume. During the weary yet exciting years of the war; through the more peaceful times of Grant's administration; while Hayes held the reins of government, and when Garfield was shot, it was these men who stood in the executive mansion, welcoming the advent of each new administration, bowing at its departure, and receiving both martyrs through its portals.

During that long, hot and never to be forgotten summer when President Garfield lay between "two worlds," the nation became aware of the deadly malarial influence which hung about the White House. But all through that period these three men never deserted their posts for a single day, although each one was suffering intensely. In conversation with the writer, Colonel Denmore said:

"It is impossible to describe the tortures I have undergone. To be compelled to smile and treat the thousands of visitors who come here daily with courtesy when one is in the greatest agony requires a tremendous effort. All that summer I had terrible headaches, heart-burn and a stifling sensation that sometimes took away my breath. My appetite was uncertain and I felt severe pains in the small of my back. I was under the doctor's care with strict instructions not to go out of the house but I remained on duty nevertheless. You would be surprised to know the amount of quinine I took: on some days it was as much as sixteen grains."

"And was Mr. Richard badly off too?"

"I should think he was. Why, time and again we have picked him up and laid him on the mantel, here in the vestibule, he was so used up."

"Yes," exclaimed Mr. Rickard, "I was so weak I could not rise after lying down without help, and could only walk with the aid of two canes, and then in a stooping position. Oh, we have been in a pretty bad condition here, all of us."

"And yet you are all the embodiment of health," said the writer, as he looked at the three bright and vigorous men before him.

"Oh, yes," said Mr. Rickard, "we have not known what sickness was for more than a year."

"Have you some secret way of overcoming malaria and its attendant horrors?"

"I think we have a most certain way," replied Colonel Denmore, "but it is no secret. You see, about two years ago my wife began to grow blind, and I was alarmed at her condition. She finally became so she could not tell whether a person were white or black at a distance of ten feet. One of her lady friends advised her to try a certain treatment that had done wonders for her, and to make a long story

short, she did so and was completely cured. This induced me to try the same means for my own restoration and as soon as I found it was doing me good I recommended it to my associates and we have all been cured right here in the stronghold of malaria and kept in perfect health ever since by means of Warner's Safe cure. Now I am not a believer in medicines in general, but I do not hesitate to say that I am satisfied I should have died of Bright's disease of the kidneys before this had it not been for this wonderful remedy. Indeed, I use it as a household medicine and give it to my children whenever they have any ailments."

"Yes," exclaimed Mr. Pendel, "I use it in my family all the while and have found it the most efficient remedy we have ever employed. I know of very many public men who are using it to-day and they all speak well of it."

"I weigh 160 pounds to-day" said Mr. Rickard, "and when my physicians told me over a year ago I could not hope to recover I weighed 122 pounds. Under such influences you cannot wonder that I consider this the best medicine before the American people."

The above statements from these gentlemen need no comments. They are voluntary and outspoken expressions from sources which are the highest in the land. Were there the slightest question regarding their authenticity they would not be made public, but as they furnish such valuable truths for all who are suffering, we unhesitatingly publish them for the good of all.

Wyandotte Fowls.

EDS. COUNTRY GENTLEMAN—The Wyandotte is now attracting considerable attention. Will some one please give a description of this breed, giving its origin, the circumstances and conditions to which it is adapted, and its merits and demerits? E. P. S. Mount Oliver, Pa.

We condense the following from the American Poultry Journal:

Like all new breeds made from the commingling of others, their improvement was unavoidably slow in the beginning. The first decade of their existence was spent in breeding out objectionable features, and fixing their color, shape, model, etc., so as to present a reasonable uniformity.

The Wyandottes are said to combine many of the most prominent qualities of their progenitors. They are of large size, almost approaching the Plymouth Rocks. They show in their plumage the principal colors of the Dark Brahma and Silver Spangled Hamburg. The plumage is white, heavily laced with black. In comb they resemble the Hamburg, not so large in proportion, but more closely fitting. Their faces and ear-lobes are bright red, their legs yellow and free from feathers.

Their flesh is fine flavored and close grained, which with their yellow skin, and plump appearance, adapts them for market purposes. They are said to be very hardy. They are easily confined within an ordinary village or city fence. They are good foragers when at liberty, and busy themselves like the smaller breeds. They are good layers of a large, buff, well-shaped egg, are not inveterate sitters, and soon return to laying. They make good and attentive mothers when allowed to sit and hatch out chicks; are content anywhere, and not much given to mischievous or destructive doings.

The Wyandotte, though comparatively a new claimant for public favor, has been much improved within a few years. Each generation has been bred with greater care, until they became clean legged, with beautiful plumage. They will probably have a large run for some time to come.