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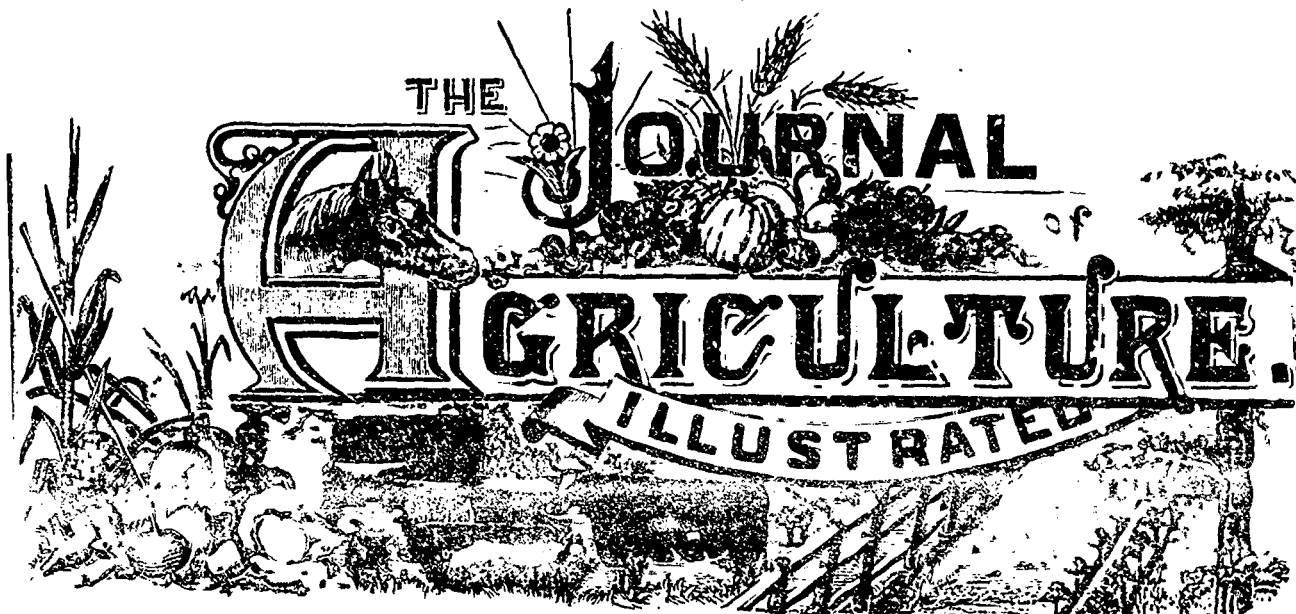
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OUR ENGRAVINGS.

Hereford Cow; Lucy.
Jersey Bull; Pedro.

I regret to say that some very neat illustrations of oats and tares cannot be engraved on account of parts of them being in two colours.

TARES OR VETCHES.

Sorel, August 13th, 1885.

I observe a general error prevalent in this province. It is supposed that tares will yield a crop if sown without manure!

Now tares are just like every thing else, they will not grow without food. It is true that on certain heavy loams in good condition fair crops of tares can be produced without dung, but this is a case of such rare occurrence with us that we may neglect it. No forage plant pays better than tares, if the land is properly prepared, and no crop pays worse if the land on which they are sown is poor and in a rough condition: the roots being very fine require a thoroughly pulverised soil to spread in.

There are two sorts of tares: the winter and the spring tares. The seed of the latter is larger than that of the former, and the yield perhaps greater in bulk of green meat, but the quality of the winter tare is so much superior, that with us, in England, no farmer who understands his business ever sows spring tares at all: the winter kind is sown in the spring by preference.

The tare belongs to the order of the *Leguminosæ*, the order to which the bean, the pea, the clovers, &c., belong. Therefore, theoretically, plaster should aid the crop, and as usual, what is true in theory is true in practice: plaster does aid the crop, and very much too, but it won't do every thing. Ashes, both of wood and of soft-coal, do a great deal of good to this plant, but they won't do alone. Phosphoric acid, in the form of bones or superphosphate, is an excellent application, but, in spite of M. Ville, without nitrogen the largest amount of this crop cannot be grown. Ville, a decidedly thoughtful man, has gone a long way with Sir John Lawes, but he stops short of the latter's conclusions in more places than one. Here is M. Ville's formula of manure for tares:

Superphosphate of lime.....	352 lbs. per acre.
Chloride of Potash.....	176 " " "
Plaster.....	352 " " "

According to his idea, nitrogen is not required. I have grown tares for many years, and I always found that, within certain limits, the crop was in proportion to the dose of nitrogen administered. In fact, so strong is my opinion, founded on long experience, on the point, that I should prefer a simple nitrogenous manure, sulphate of ammonia for

instance, as a dressing for tares, to any combination, however rich it might be in the other manurial constituents if it were devoid of nitrogen. Why, the very reason for not using nitrogen for turnips—the over-luxuriance of leaf—is a reason for using it to produce luxuriance in a fodder crop.

I do use nitrogen for turnips, if the land is poor, but cautiously. An over dose often causes rotting after an early frost, and the quality of swedes is never so good as when plain superphosphate and wood ashes are used. However, if bones contains $3\frac{1}{2}$ per cent of nitrogen, and 16 bushels are the usual dose, it is clear that 24 lbs. of nitrogen are added to an acre of land when this manure is used. With guano, the case is still stronger, and with farm-yard dung, the quantity of nitrogen used is enormous—at least 90 lbs. supposing only ten tons are given to the acre. In the last case, the nitrogen must be in a peculiar state, as it never injures the root-crops.

My own formula for tares is this :

Superphosphate (plain).....	200 lbs.	per acre.
Wood-ashes.....	20 bushels	“ “
Plaster.....	2 bushels	“ “
Sulphate of ammonia.....	1½ owt.	“ “
Or Nitrate of soda.....	1½ “	“ “

This is for poor land where no farm yard dung is to be used. With dung, half the respective quantities will suffice. Harrow the superphosphate and ashes in before sowing, and when the tares are well up, add the plaster and nitrate of soda. If the sulphate of ammonia is used, it can be harrowed in with the ashes and superphosphate. By plain superphosphate, I mean that made from Carolina rock or coprolites dissolved in sulphuric acid. It is a great pity that the Americans have given the name of superphosphate to manures containing all sorts of constituents. As I think I have said before, all Europeans understand the original term to mean a mixture of phosphoric acid and sulphate of lime, but here it conveys quite a different idea.

Preparation of land—In the case of heavy land, I should plough the dung in before winter. There may be a loss in this mode of farming in countries where the land is unfrozen throughout the season; but here, when for six months the soil is bound as with iron fetters, there is not much chance of the nitrogen escaping. The furrow need not be deep, as regards the tare-crop alone, but as you will probably follow it with roots, or rape, or mustard, you had better plough as required for those plants; seven or eight inches deep will do. Why don't people get some *real ploughs*? The flatness of the furrows I see every day is really shocking; no harrows can work the land properly with such ploughing.

Will any one, please, tell me whence the word *tare* is derived? *Vicia* is, of course, the parent of *velch*, from *vincio*, to bind, because the species have tendrils by which they bind themselves to other plants.

Quantity of seed.—Never sow tares alone, and don't mix rye with the seed, unless the crop is to be out very early. Rye is the hardest of all white-straw crops and shoots up into ear with great rapidity, when it is worthless. The mixture I recommend is, per acre: Two bushels of rye, one bushel of wheat, and one bushel of oats. This, where the crop is intended for mowing green or for hay. Where it is meant for sheep-feeding, I should omit the oats and wheat, substituting three pounds of rape-seed per acre. I see a lot of nonsense in some of the American papers about tares being cut several times in the season! It is not so: they should be fed off when young by sheep, and then they come again; but when mown for cattle or horses, they should not be touched till in blossom, and only one cutting can be had.

I do not recommend any one to trust to tares for a sup-

plementary hay-crop. Not that good tare-hay is not famous fodder, but if nearly cured and a shower comes on, it is almost worthless. Hungarian grass is quite as easy to grow and much easier to make into hay.

How and when to sow.—I don't see anything gained by drilling tares: they may be sown broadcast and harrowed in, or, preferably, let in with the grubber. At any rate, the harrowing should be continued till the land is fine and equal to the tread all over. The roller should follow immediately on light land; but on clay soils, the rolling may be delayed until the plant is up, and if a good rain has fallen, every clod irreducible by the harrows will moulder down in powder. If the land is at all bound by hot sunny weather after much wet, it might be as well to pass a light set of harrows over it before rolling, as recommended in the case of cereal crops. If the rolling is omitted, your mower will waste many a minute in sharpening his scythe.

Tares should be sown at intervals, beginning as early in the season as possible. A fortnight is sufficient between the sowings at first, and three weeks, later on. Every animal on the farm will rejoice when the tares come in, and none more than the pigs. They will eat up the leavings of the horses and cattle with avidity, and with a little meal or a few pease will do satisfactorily. To consume them in the most economical fashion, I should have two yards, or rather one yard divided by bars; one for the cattle and the other for the horses, with free access for the pigs under the bars. The tares, or any other green-meat may be given in cribs, and each division should have a shed—any rough affair will do—for the stock to run under, as a protection against rain or a hot sun. If you have a very luxuriant crop, you had better begin to cut early, as it will probably go down on its knees after even a moderate rain, and the lower half will be worth little or nothing. We have a prejudice in England against giving tares to milk cows, but I don't think they can injure the milk, and, theoretically they ought to increase the percentage of cheese. One thing is certain: they ought to be mown some time before they are eaten, or they are apt to cause *hoven*, like almost all green-meat, particularly clover.

Seed.—I see by the circulars that seed-tares are \$2.50 a bushel, so you had better grow your own. In case you determine to do so, I recommend you to sow two bushels to the acre with one bushel of beans. Horse-beans, I mean, called frequently in this country, *Cafe du pays*. The tendrils of the tares will bind themselves round the beans and be thus kept from sprawling about, and the beans can easily be separated by a sieve. If you have more seed than you want, the pigeons will be very grateful for it.

There have been many inquiries this year about tares, and so I have written the above, containing pretty well all I know on the subject. As a general rule, tares are rather a disappointing crop in this country. I have seen them come up—on good land in good heart, too—and then die away in a most mysterious manner. Anyhow, it is hopeless to grow them unless a great deal of labour and pains are expended, and I do not think many of our people are likely to fulfil these conditions.

ARTHUR R. JENNER FOST.

De Omnibus Rebus.

I see that my friend Mr. James Cheesman has taken in hand *The Dairyman*. The paper, which is in its infancy, is very well got up, the engravings particularly, and the printing is clear and the matter well arranged. I hope the future life of this new brother will be long and prosperous.

I paid a visit to Quebec on the 12th ult. What a charming place! I never saw it before in summer, and was inexpressibly delighted. The view from the government buildings over towards Beauport is one of the loveliest landscapes I ever saw. But what detestably dirty markets those are in the lower town! The market people complained dreadfully of the stunginess of the corporation. Is the complaint well-founded?

Rain, rain, rain, and no heat! Oats must be good, but I fear pease will be too late, as they keep growing and blossoming all the time. If potatoes don't rot, there will be a prodigious crop. The cabbage-worm is almost extinct, apparently! At least I see hardly any here, even in the village gardens; and as nobody has come to ask me for my recipe for their destruction, I presume it is the same all round the district. Cabbage growing was about or quite at an end here, but, encouraged by my success last year, a good number were planted this spring, and they have done well, even very well.

A great many very inferior tobacco plants were brought into the Sorel market this spring, I am sorry to say. It will cause a sad loss to many a small man who only cultivates enough for his own use. It is a pity people don't grow their own seed. A few barrow loads of dung and a sash 18 x 18 inches would be large enough to produce several hundred plants. As long as people persist in blowing out of doors and late—15th May sometimes—so long shall we be annoyed in the streets with the horrible odour of immature tobacco. By the by, my favourite *Myrtle Navy* is losing its quality! Exhaustion of potash in the soil is the cause I fancy. It won't keep alight without constant attention. This to the address of Messrs. Tuckett and Sons, who of course will reply—if they do reply—that they have no complaints! I have stuck to it for eight years, and I hate change—in every thing but politics.

An immense quantity of very bad hay will be on the market this year. The timothy stood till it died on foot, and the aftergrass (*in foie*) will form the bulk of the crop. The finest piece of clover on Mr. Sheppard's farm! Two and a half tons to the acre, certainly. Unfortunately, it stood too long, was *kneed* down, too much exposed after mowing, and, consequently, lost its leaf.

I sowed a bushel of Manitoba wheat on the 16th May. The land had been in potatoes (dunged) two years running, and I added 2 cwt. of Messrs. Brodie & Harvie's manure per acre. Unfortunately, the wire-worm got at it and it is not thick enough, but there will be, thanks to a fine blooming-time, between 25 and 30 bushels to the acre. By the side of it, is an acre of ordinary bearded wheat—same treatment exactly—which is far inferior. (1) My *Stratagem* pease have done well; the pods are long, and the pease immense. They ought to be worth money, as I see them quoted, in the last year's list, at the rate of \$1.00 the bushel!

What a curious idea people have here about cultivating root-crops on the drill-system! It is universal in Scotland and

(1) Cut to-day (Aug 24th) The bearded wheat is 'Black Sea,' and there is not half a crop of it.

in the North of England, but in the South cultivation on the flat is equally general. Mangolds are always sown on drills, but for the other roots, humidity of the climate, or the contrary, must be the guide. Two men, here, who grow a few market-garden crops, have even their carrots on high-raised drills! Not to save manure, by any means, but because they had seen some one else do it. Almost all the good points of farming, here, have been learnt from the Scotch settlers, and, as they brought the drill system with them from their own country, so, the Canadians, in this dry burning climate, have followed suit. Where land is very foul and horse-hoeing is practised, the drill is all right for swedes and other roots, but the idea of sowing carrots in raised drills at 32 inches apart on rich land is a horribly mistaken one,—half the crop is lost. Drills are for damp climates and where economy of dung is necessary. The tendency in Scotland is to narrow the drills to 24 inches, and grow the swede-plants closer together, so as to secure firmer and sounder roots—they are set out at 9 inches, instead of at 12 inches apart as heretofore.

It is very odd that no one can discover the law upon which the nutrition of the bean and pea crops depends. Compared with cereals they contain about double the amount of nitrogen and potash, and about equal quantity of phosphoric acid. The chemist can tell us how much nitrogen any of these crops remove from the soil, but he cannot tell us where some of this nitrogen comes from, or why it is required.

Capt. Nelson of the Steamer, Quebec, asked me the other day what treatment I should recommend for a soil composed of peat, thickness 4 to 6 feet, on a subsoil of clay. Burn it, of course, to begin with, but when one talks of *burning down to the clay*, it startles one. Lime we should use, but here it is much too expensive to even think about. Plaster and bonedust would raise a crop of rape, and the treading of the sheep's feet in feeding it off would consolidate the land. But if people won't hear of growing rape, or of feeding anything off with sheep, I don't see much good in talking about it. One thing I am sure of: farming never will be anything to speak of in this country until sheep-feeding on green-crops during the late summer and the autumn is practised. Why, last year my sheep were on rape with the ground frozen as hard as iron! And they did well, too. I drew them out of the fold, every other day, took one man an hour and a half—say, 12 cents—and as for the effects; well, a dressing, or *folding* as we call it, is supposed in England to be worth £3.10, and is so charged to an in-coming tenant! Will it not be, relatively, as valuable here? Consider for a moment: you must allow that dung is not to be bought, except near the larger towns, and you can none of you make above one fifth of the manure required to keep your farms in good cultivation. Hence, the quantity of unproductive soil in pasture, so called, or *pacage*, which is worse. And here you have the very things you want; cheap seed—less than a dollar an acre—and no hoeing necessary! If sown in succession, rape will afford food from the 1st of July to the 1st of December, and during those five months the land will receive such benefit, that by the time you have gone over the first season, you will have determined to grow twice as much the next year.

Hallo! This must be a misprint: "In the collection of the Royal Horticultural Society of England, there are more than 15,000 varieties of apples."

What an amount of good cheese-factories are doing in England! One of Lord Vernon's tenants—farm, 200 acres, of which 40 acres are arable—received at the factory for his milk, last year, £1,100—\$5,500—equal to \$27.00 an acre over the whole farm! Now putting the price as the same at which our own tenants in Gloucestershire sold theirs, viz. 60s. a cwt., this would give the yield as 2 cwt. per acre. An enormous production indeed. I should like to know how many cows were kept. Our rule at Hill Court is that a cow requires three acres for winter and summer food. If Lord Vernon's tenant, then, kept 66 cows (exclusive of other stock), their yield would be worth \$83.00 each, or \$27.00 an acre, which brings the account out pretty square. Our cows, I regret to say, only give 4 cwt. of cheese each, which amounts to \$16.00 an acre, or \$48.00 a cow! Something must be wrong. However we shall see what our new tenants will do.

I observe that the Irish still prefer churning the whole milk to skimming off the cream! Their butter seems to keep well, at any rate, and no salt butter can be better than "mild cured Corks." Still, I prefer the Devonshire plan, particularly where a good price can be had for a first-rate fresh butter. In the Irish way, the milk is allowed to stand in shallow pans to cool for 12 hours, and is then transferred to wooden tubs to sour. When thick, or *clabbered* as I believe it is called, it is put into the churn and allowed to remain from evening to morning, when it is churned by horse power. The very way, I should have thought, to make the nitrogenous matter mix irremediably with the butter, and, as every one knows, it is the nitrogen that decays first and superinduces decay on the other parts.

I forget to mention, in my article on tares, that on all but heavy clay soils turnips or rape may be grown after the crop is severed with only one ploughing. As thus: pass the grubber over the tare-stubble cross-ways; plough the land in narrow furrows; and drill in the seed at 26 inches apart, if turnips are chosen, but if rape, then broadcast 5 pounds to the acre after harrowing the land fine. The roller will cover the rape-seed sufficiently and complete the job neatly. Both turnips and rape would be benefited by an application of superphosphate, say 2 cwt. an acre.

Ensilage.—This process is exciting great interest in England. Sir John Lawes has entered into the discussion in earnest, and is experimenting on the effect of *silage*, as it is called, with his usual assiduity. Woburn, too, under the direction of young Voelcker, is not behindhand. The question there is evidently this: Does ensilage as a food surpass roots? It will take another season at least to settle it, but when Voelcker and Lawes have given in their verdicts it will be a bold man who disputes their conclusions. At present it seems as if the Woburn manager had started with inferior grass.

Mr. Jamieson, the Scotch agricultural chemist, is at daggers drawn with his brethren as usual. The truths laid bare at Rothamsted hold good at Woburn, at Guelph, and at Vincennes. It is only when Mr. Jamieson makes inquiries of the soil that confused replies are forthcoming. My readers may remember that in answer to my question as to the benefits to be expected from the application of *ground apatite* to the

land—apatite being a *crystalline* form of phosphate of lime,—Sir John Lawes, Mr. Aitken, chemist to the Highland Society of Scotland, and the late lamented Mr. Voelcker, chemist to the Royal Agricultural Society of England, all expressed the same opinion on the subject. Mr. Voelcker says "I go so far as to maintain that a hard crystalline material, such as apatite, ought never to be applied to the soil merely in a finely ground state. If such a thing has been recommended, the following of the recommendation must inevitably do harm to the best interests of the farmer." "All my experiments" says Dr Aitken, "with ground *Canadian apatite* have been such as to prove that phosphate to be unsuited for a manure until dissolved. Where I have applied it to roots, the result has been usually equal to "no phosphate," and I have never seen any effect produced by it on succeeding cereal crops." Sir John Lawes, if he used phosphate of lime for cereal crops and not for turnips, "would be quite content to use a certain portion of phosphate in the ground state, provided; 1st, that the phosphate was derived from some *non-crystalline* source, such as *coprolites*, or *Carolina rock*." For turnips, "as the manure is required to push the young plant out of the reach of the fly, and as soluble phosphates act far more rapidly than insoluble phosphates, however finely ground, soluble phosphates will continue to be used." You see that we have here the three best known chemists holding but one opinion. Mr. Jamieson protested against the doctrine most strenuously, he alone, *Athanasius contra mundum!* And, now, he is raving about the injury done to the soil by sulphuric acid. He states that "widespread disease in the turnip crop is due to the extensive use of dissolved phosphates," page 19, 1883 report of the Sussex experimental farm. Again, page 17, he says "two spare plants taken from plot 3 displayed unmistakable club-roots... I mention this to show that the disease was actually there, as far as the leaves showed, the disease existed chiefly where sulphates had been given in excess." Would any one acquainted with the *club*, or as it is commonly called in England "finger and toe," be justified, after reading this, in doubting whether Mr. Jamieson's club-root existed, especially when, on the same page, it is said that "it had previously been stated to me that the club-root disease was unknown in Sussex." Surely the disease cannot be widespread and unknown! If, however, the use of *sulphate* produces widespread disease in the turnip crop, the fact ought to be known to every farmer. If the statement be but an imaginary figment, all who have been misled thereby had better examine the matter carefully for themselves. It would be a difficult matter for the Sussex experimenters to show a difference between the sulphate of lime which is natural to the cultivated soil and that portion which has been added in the application of gypsum (land plaster) or by any ordinary phosphate of lime. I see by Appendix 1, 1882, the soil of the experimental ground at Preston is said to contain .194 per cent of sulphuric anhydride, which would indicate the presence in the two top feet of 7½ tons per acre. As this sulphuric anhydride exists in the form of sulphates of lime and of magnesia, the presence of some 20 tons of these bodies is indicated. A dissolved bone manure would contain 25 0/10 of gypsum. Hence, in applying 5 cwt. of dissolved bones per acre to this soil, we should increase the 20 tons of sulphates by 1½ cwt., and Mr. Jamieson gravely asks us to believe that this trifling addition "poisons" the soil and disseminates finger-and-toe disease.

Again, Mr. Jamieson applies large quantities of farmyard dung to the experimental land—as much as 25 tons to the acre, sometimes. Let us see how about the sulphates in this dressing. In appendix 1881, table 5, we see that the percentage of sulphuric acid in the dung is .11. Hence, the quantity of this "poison" added to the soil in the 25 tons of dung is

$\frac{1}{2}$ of a cwt., equal to $1\frac{1}{2}$ cwt. of gypsum, a greater quantity than is found in 5 cwt. of dissolved bones. There is no good to follow the scent any longer, for every Canadian farmer will admit that sulphate of lime, or gypsum, or common land plaster, is not poison, but, when used for the proper crop, a most valuable manure. And it only remains to give a practical example of the effect of superphosphate on turnips: Lincolnshire, Cambridgeshire, and Norfolk, are the most famous turnip counties in England. In these counties the turnip crop recurs, as a rule, every fourth year. The fields are now receiving, and have, generally speaking, for the last 40 years, received dressings of from four to six cwts. of a dissolved phosphate containing from 20 to 45 0/10 of plaster, and scores of farmers in this district can be found who never saw a case of finger-and-toe!!!

I began, at the request of a friend, to publish Mr. Fry's "Theory and practice of Sweet Ensilage," but finding it rather long, and too purely scientific for the majority of readers, I discontinued it after the second number. The book is divided into two parts, theoretical and the practical, and I annex a few passages from the latter which are plain enough for any body. "In what way is ensilage to benefit the farmer? There can little doubt that were the fodder crop is to be consumed on the farm during the winter months, ensilage is preferable to hay making, in that it preserves in an easily digestible form more of the constituents of the original crop than the hay-stack does.

"Then, again, there are many excellent fodder crops, such as *trifolium incarnatum*, or crimson clover, in my opinion the finest of all British fodder crops, tares, green rye, green oats, sainfoin, lucerne, &c., from which it is extremely different, if not impossible, to produce good hay, but from which excellent silage may be made. (1)

"Farmers who last winter fed large numbers of cattle with a mixture of sweet silage and oat or barley straw chaffed together, will appreciate the value of such an addition to the resources of the farm.

"My advice to farmers is: Try it on a small scale until you learn how to make it as well as you make hay, and then extend the system to suit the circumstances of your farm.

"It is quite clear that good sweet silage produces milk in every respect similar to that produced by feeding with good hay, but if the silage contain considerable quantities of butyric acid, the dairy products will not be good in flavour or quality.

"I do not believe that acetic acid would have any deleterious effect on the flavour of the dairy products; but a large quantity of acetic acid taken daily, if long continued, cannot but be detrimental to the health of the cows.

"Lactic acid of itself would not affect the flavour or quality of the milk, but it is difficult to imagine much lactic fermentation going on without a certain amount of butyric acid being produced.

"It is my opinion that if the plants ensiled have reached the proper stage of maturity, then the resulting silage, whether sweet or sour, may be safely given to dairy cows; but if young, succulent, flaccid herbage be ensiled, the resulting silage will be of a quality unsuited for the production of good dairy products." (2)

(1) *Trifolium incarnatum* is the best British fodder-crop, is it? I should think it was! And those provoking unpractical managers of the American Agricultural colleges go and sow it at the wrong time of year, fail utterly in its cultivation, and thus lead their readers to suppose that it is an imposition. I said enough on this subject last month.

(2) Lactic acid is, as its name implies, formed from the sugar of milk: acetic acid is in other words vinegar, and butyric acid has an oily, limpid odour of rancid butter with a nauseous ethereal taste.

Condimental food.—I see that there is still a good deal of this rubbish in the market. And the worst of it is that the price is so high that many buyers are attracted by it, as they argue: Surely if the price is so high and sales are made there must be something in it! So there is, no doubt, but it is only valuable as an appetiser. A hundred dollars a ton indeed. And corn meal only seventy dollars or so! Look at the analysis of Thorley's notorious "food":

Water	12.00
Albuminoids.....	14.92
Oil.....	6.08
Sugar, gum, &c.....	56.86
Woody fibre.....	5.46
Ash.....	4.68
	100.00

And now at the analysis of cotton-seed meal:

Water	7.2
Ash.....	5.8
Albuminoids.....	41.5
Woody fibre.....	3.1
Sugar, gum, &c.....	24.4
Oil, fat.....	18.0
	100.00

And yet one is more than three times the price of the other. Well, I say again, people are very easily deluded; for Sir John Lawes long ago exposed the pretensions of Thorley's Condimental Food for Cattle, showing that it had no such value in fattening animals as the price put upon it would lead one to expect. It was sold for \$160 a ton. A little sugar or molasses will give the sweet taste, which animals seem to like, and a pound of *fenugreek* will add an aromatic flavour which they do not dislike. Gentian and coriander-seed are not to be despised as tonics, and a pound of ground mustard per 100 lbs. of the mixture will contribute to the wholesomeness of the food.

Sales of Jerseys.—In May, over 600 head of Jerseys were sold, in New York, in six days. The highest price obtained was \$2,650, for a yearling bull, Eurotas' Black Prince. Two years ago this bull's brother fetched \$12,500! I do not mean to say that the price of the breed has fallen generally in this proportion, but it is clear that the crazy fit is over, and we may expect in a few years to buy well bred Jerseys for a reasonable amount of money. Jerseys have always been a "fancy" stock in England, that is, they were kept more for beauty than for use; their points and colour were more regarded than their yield in butter. In the States, nowadays, the wiser plan is being followed up: the tendency there is to patronize those families only that have produced exceptionally large butter makers. Upon the whole, then, we may look upon Black Prince as the "top-lot" of the breed, as nothing can be superior to his dam Eurotas, she, as it will be remembered, having made 778 lbs. of butter in less than twelve months.

¶ Hear from New-York that ships can be loaded with skim-milk cheese at from 25 to 50 cents a box! I wonder whether this is true. Certain it is that the best cheeses in this district are only fetching 6½ cents a pound. All farm produce is fearfully low. At Quebec, August 12th, I was offered smoked hams, of really good quality, for eight cents a pound, and the butcher said he would cut them for nine cents! He meant, of course, that he would sell small pieces at that price.

Separator.—It is not generally known that milk from the separator can be kept sweet for several days by heating it up

to 150° F., and then cooling down to 50° F. Several apparatuses are made in Germany for the purpose.

Bone manure. A correspondent wants to know if bone manure is worth the money paid for it; would not mineral superphosphates with some nitrate of soda added be just as good. Is phosphate of lime in Carolina rock not as good as the phosphate in bones?"

There is not the slightest difference between soluble phosphates derived from bone and soluble phosphates derived from any source whatever. Does not my correspondent see that what is wanted is soluble phosphoric acid. That is why sulphuric acid is added to the phosphatic material and whether that be bones, Carolina rock, coprolites, or apatite, the result is the same. phosphoric acid and sulphate of lime, i. e. plaster. As a matter of fact, no such perfect result is ever arrived at, but a good superphosphate should contain at least 15% of soluble phosphoric acid. Four cwts. of mineral superphosphate and one cwt. of nitrate of soda will be a richer application than five cwt. of bone superphosphate, and less in cost by \$8.00 a ton. There is a new manure just put on the market in Germany—Thomas, precipitated phosphate of lime.—It is dissolved out of the slack in the basic iron works by hydro-chloric acid and lime, washed, and dried. It contains about three times as much phosphoric acid as ordinary superphosphate, and is of course in a much finer state of flour than any grinding can make it. I have not heard what the price is.

Hops.—Hops are looking well. No fear of insect damage with these heavy downpours, though perhaps mould (1) may be prevalent. Prices are abnormally low, good sound hops bringing only ten cents a pound. As I told my readers three years ago: leave hops alone, unless you are fond of gambling.

Meat.—The price of meat in England, is lower than it has been for many years. Good wether mutton is only fetching 14 cents and fine short-horns 12½ cents a pound. Some of you perhaps do not understand the quotations of the London markets; I will try to make the thing plain. In London all live stock is sold by the stone of eight pounds. There is no weighing alive: the butchers don't like the idea, as from constant practice they are capital judges of weight. Suppose a sheep is in question; the butcher guesses his weight at 10 stone the four quarters, and if the marked price is that day four shillings a stone, the sheep will bring to the owner forty shillings—*sinking the offal* as it is technically called. The offal consists of the viscera, pluck, head, skin, and loose fat, and is generally supposed to be worth one-fifth of the value of the carcass, so in the case I mentioned it would sell for eight shillings, and this is supposed to be the whole of the butchers legitimate profit, though, in reality it is a very small part of it.

ARTHUR R. JENNER FUST

Firm Cheese and overheated Milk.

One of the best cheese makers in the province writes to the Director of Agriculture as follows:

I have given a good deal of thought to the making of cheese and butter together and have now struck upon something, I think, that ought to place it in favor at least in some districts.

Mr. Jocelyn on teaching how to make full-cream cheese advised heating the curd up to 98° but no higher, as do most of the best authorities in the States. Now those very buyers who speak so loudly against making the half-skim cheese would not buy our cheese if only heated up to 98°, as

the cheese—from this milk at least—would not be firm enough for their tastes. To get a fine good firm cheese from our milk herd this spring time I heated up as high as 102°, and it would even then have borne higher heating. I know of others round here who heat up to 104° and 106° even. Now, at 99° any little bits of grease floating at the top of the whey will melt, and so must it do the same in the curd. Now if to get a firm cheese it is necessary to heat up to such a high degree, it is not the whey only that we drive out of the curd but the fat or butter, which melts and runs off into the whey tank. I think then that this is pretty good proof that all the cream cannot be worked into the cheese and that in some districts at any rate, we ought to take this cream before hand and while it is still fit for use.

Our cows are most of the time in deep and very nice pastures, and so the milk is very rich.

Another thing I notice in your letter is an allusion to factories arranged after Mr. Jocelyn's plans. I can truly state that in all the factories I have yet seen,—and I have already seen a few—I have not yet found any to come up with the one Mr. Jocelyn fixed up at St. Denis, for convenience in arrangement.

We should like to hear more on this subject.

LARGE AND SMALL POTATOES FOR SEED.

The past season's experiences ought to solve the question as to whether small potatoes are as good as large ones for planting. The scarcity of potatoes last spring occasioned the planting of many small inferior tubers, and the resulting crops will convince many that there was little lost from using the small seed. At least this has been the result of my observations in this section. In my own experience small-sized potatoes of the Beauty of Hebron variety, have produced a crop of excellent quality and size, but of small yield. The same is true with the Burbank variety planted later, both varieties yielding as fine tubers as I ever grew—the yield, however, being small. A circumstance has lately come under my observation, which has had considerable weight in my mind in deciding this question. A party came to me last spring after I had finished planting potatoes, and after I had sold all of my surplus seed with the exception of a bushel or so of my small potatoes—the culls from previous assorting, which averaged but little larger than a hickory nut in size. Seed being very scarce, the party referred to decided to take these small specimens, and although I freely expressed my belief that they were too small for seed, they were planted. The soil was favorable, being a clover and timothy sod, and somewhat to my surprise, the yield and size of tubers is large for this season. I am decided in my own mind that the only advantage in large potatoes over small ones for seed, is in the extra amount of nourishment which the large potatoes afford the young plants during their earlier stages of growth. The difference is much less on rich than on poor soil, because on rich land the young potato plants require less early nourishment, and are better able to take care of themselves. For this reason I am not in favor of cutting potatoes to a few eyes as recommended by some potato growers. Much better results will be secured, I believe, especially on light soil, by planting whole tubers and thinning out the stalks, leaving but two or four to a hill. In this way large, stout tops are produced, which are better able to resist the effects of drouth or the depredations of insects, and usually such strong-growing tops (unless of over-size) will produce large potatoes and a desirable yield.

(1) Formed by certain fungi or parasitic plants—not by insects.

THE BEREA ONION FARMS.

THE SAVING OF ONION SEED.

EDS. COUNTRY GENTLEMAN—Not among the least interesting things to be seen here connected with onion culture, is the growing and the saving of onion seed; and it now would seem that the Bereans, instead of importing each year at least \$2,500 worth of onion seed from the eastern fields, will in time not only supply themselves, but also become exporters as well. The high price for seed this year (the best kind bringing from \$5 to \$6 per pound),⁽¹⁾ has called attention to this subject, and success has rewarded those who attempted the raising of their own seed, encouraging those who never attempted the thing, to resolve at least to raise their own the coming year. The great cost of raising seed is largely in imagination, and those who have succeeded will not be likely to be found again in the market as purchasers, unless their plants fail, owing to the season operating against them. What is quite as important, is that the home-raised seed will not only grow, but will have a strong resemblance to the parent; it is hinted that the crop from purchased seed does not always perfect itself so as to bear a striking likeness to the well executed chromo that is sent out by the enterprising seedsman.

What is also very important about onion growing, and the planting of home-raised seed, is that the better and more vigorous the seed parent, the more sure the crop, so that if the finest onions are set out for seed production, the onion farmer is almost guaranteed a general improvement in his crop, and he has not only made a saving of at least \$20 per acre to start with by sowing his own onion seed, but he has also gained a much larger amount by having good seed which will all germinate, and produce a superior quality of onions.

The soil for seed onions need not be the valuable muck lands. Clay loam, well enriched with well rotted manure and a little sprinkling of phosphate, is quite as well adapted to the needs of the seed.⁽²⁾ The land must be well worked, to incorporate the manure thoroughly. In setting out the onions, there is a diversity of opinion between ridge and level culture, but the more general plan is to form the ridges as the onions are "worked." The rows are two feet apart, and the onion bulbs are placed six inches apart, and at least four inches below the surface. Then as the hoeing progresses, the ridge is enlarged so that it finally acts as a support to prevent the tops from falling, so that frames are not absolutely necessary, though caution must be exercised in the matter, for when a top has once come into contact with wet soil, it is very liable to blast, or produce "light" seed, which may possess enough vitality to come up, but will result in an inferior onion.

It is very necessary that the onions be kept "clean," so that the changing color of the stalk, which indicates the ripening point of the seed, may be due to that cause and not to contact with weeds, or "starvation." The last days of August will show a strong yellow color to the tops, which calls for immediate attention. The tops are cut off with a few inches of adhering stem, and thoroughly dried for threshing. The best way is to purchase some fine cotton cloth, and make a sheet some ten or more feet square, and after placing the heads in the centre of this, they are beaten with a light rod until they have become finely powdered, when the operation of separation takes place. There are two processes to do this

(1) At six lbs. per acre, the least sowable quantity. \$36 an acre!

A. R. J. F.

(2) The new tenant of the "Fosbrooke Farm," at Sorel, has just sown (June 17th) an acre and a half of onions on the very poorest worn out land, without manure, and the strangest thing is, that only yesterday (July 20th) the onions being about an inch or two high, he told me that he expected a crop!

A. R. J. F.

—one to fan it out from the chaff, and the other to subject the seed to the test of specific gravity. If for sale, it is quite likely that it will be inconvenient to procure tubs, water and skimmers; so the seed will be "tested" upon a blanket, and the chaff removed. If for home use, a large shallow tub of some kind will be found, and partially filled with water. Upon this the seed and chaff will be thrown, and the whole mass thoroughly agitated for a moment. When left, the light seed and chaff will quickly rise to the surface, and the solid, vital seed will as quickly settle upon the bottom.

This operation needs to be performed on some hot sunny day, for the seed must be dried at once. This is best done by stretching light cloth upon frames, so that they can be easily shaken, and often; for a few hours of continued moisture will ruin the seed, by destroying the germ. One day's drying will not be enough, it should be repeated for several days, and at last the seed should be carefully put into oiled paper sacks, and put beyond the influence of moisture and mice.

A bushel of good onions will produce three pounds of good seed, worth at least \$14. This quantity has been surpassed by careful attention, but even the amount mentioned seems a paying return for the labor—one that the extensive onion-grower cannot well afford to overlook. Now, when the new varieties are making their appearance, and often very desirable kinds, the onion farmer can soon supply himself with seed by raising—the expense being either a few bulbs or a limited quantity of seed from some reliable seedsman—and he will soon be quite independent of seed-sellers. Besides, he will have the satisfaction of seeing onions true to name, which is certainly a source of pleasure as well as profit.

J. G.
Berea, O., Sept. 7.

A BIG EGG.

I have an egg dropped May 1st, by a Plymouth Rock hen, weighing a little over 7 oz. It is $7\frac{1}{4}$ inches around crosswise, and $9\frac{1}{2}$ around lengthwise. Have you any account of one as large? I should like to preserve it; can you tell me how it can be done? A. O. *Coxsackie, N. Y.* [We have kept large eggs for many months in a warm, dry room with no preparation or alteration whatever. The contents seem to dry out gradually through the shell, leaving a hardened mass like India rubber, perfectly inoffensive.]

THE POULTRY-YARD.

CARE OF YOUNG CHICKENS.

EDS. COUNTRY GENTLEMAN—Every well regulated farm-yard will by this time have its full quota of young chickens, and how to successfully raise them to adult chickenhood is a question that will be revolving in the minds of many an anxious person. Especially will this be the case with those who have made up their minds to try some thoroughbred fowls, and have procured at considerable expense a sitting or more of choice eggs of some pure bred variety.

Many think it is an easy matter to raise chickens. "Why," they say, "all you have to do is to place the eggs under some old hen, give the chicks a little corn meal and water for a few days after they come out, and the thing is done." But it is not such an easy matter after all. There never was a more truthful and suggestive adage than "don't count your chickens before they are hatched," and to this I would add don't count your money received for fowls until you have

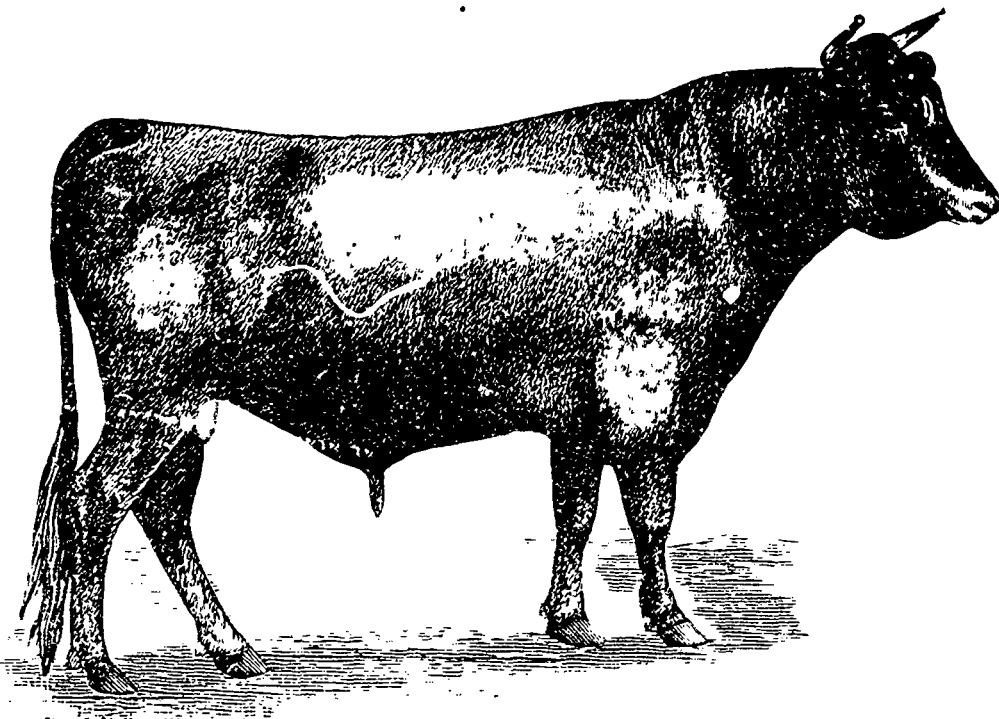
raised them. It is half of the battle to hatch them, and the other half to raise them successfully after they are hatched. Which is the more difficult matter I will leave you to decide, after you have given it a trial.

To be successful in raising chickens, they must have the best of care from the shell up. For the first few days, give them hard boiled eggs chopped fine, and mixed with crackers or stale bread crumbs moistened with milk that has been scalded, giving only what they will eat up clean each time, and feeding five times a day; for the last meal in the evening, however, feed dry food, such as coarse oat meal, rice or barley. *Never* feed soft food just before going to roost. As they grow older, an occasional cooked meal of boiled rice, oat meal, potatoes, &c., will be relished, and cracked corn, screenings and wheat for the evening meal. Cakes made of oatmeal, barley meal, cornmeal and wheat-shorts mixed, well baked,

house, or, rather as to the arrangement of it inside? Would it be best to have a board floor, or not have any floor in it? And would it be best to have the nests made in the upper part, or in one end below? H. B. O. [A smooth earth or hard brick floor is preferred by many. The nests should be easily accessible, and quiet and secluded.]

ENSILAGE AND DAIRY CATTLE.

Further evidence has been taken before the Ensilage Commission,⁽¹⁾ and so far as it related to the use of silage in feeding dairy cows, confirmed that previously referred to. The Vicomte de Chézelles, the most extensive ensiler in France, who keeps over a hundred cows and sends milk to Paris, said



Jersey Bull PEDRO 3187, Son of Eurotas 2454, owned by Col. H. S. RUSSELL, Milton, Mass.

in the same manner you would make a corn cake for your own use, will also be found to be one of the very best foods to build up a strong, vigorous constitution, and the chickens will eat it with avidity. Where there is not much insect food for them to glean give occasionally a little meat, either raw or cooked, but if cooked so much the better.

Provide plenty of fresh water, and if you have milk, and can give it to them in any form, it will be appreciated, and they will thrive amazingly upon it. In very hot weather plenty of shade is also a very important luxury, and will protect their partly nude bodies from the scorching rays of a summer's sun.

Attention to little things is the key to success. It will pay to be ever on the alert, and supply your chickens with all their little wants, as well as to keep them clean and free from vermin.

MENTOR.

POULTRY HOUSE.

Will you please inform me in regard to building a poultry

house, or, rather as to the arrangement of it inside? Would it be best to have a board floor, or not have any floor in it? And would it be best to have the nests made in the upper part, or in one end below? H. B. O. [A smooth earth or hard brick floor is preferred by many. The nests should be easily accessible, and quiet and secluded.]

that he had not found any flavour of silage in milk, butter, or cheese. Mr. Grant, of Abbotswood, Hants, declared that butter from silage-fed cows had no taint, and that although he had sometimes fancied he could detect the scent of silage in milk, he attributed this to the neglect of the milkers to wash their hands after handling the fodder. Mr. Green, of Boroughbridge, York, expressed the opinion that milk and butter were improved by feeding cows partly on silage. Other witnesses gave similar evidence. The value of ensilage as a means of economising food for stock was strikingly shown by Mr. Eekersley, M. P., who said that in the north of England immense quantities of green fodder were wasted where the system was not applied. In his own county—Lancashire—he declared it did not occur more than once in twenty times that they could get a second cut of a green crop made into good hay. (2) This witness and another spoke of giving up

(1) England.

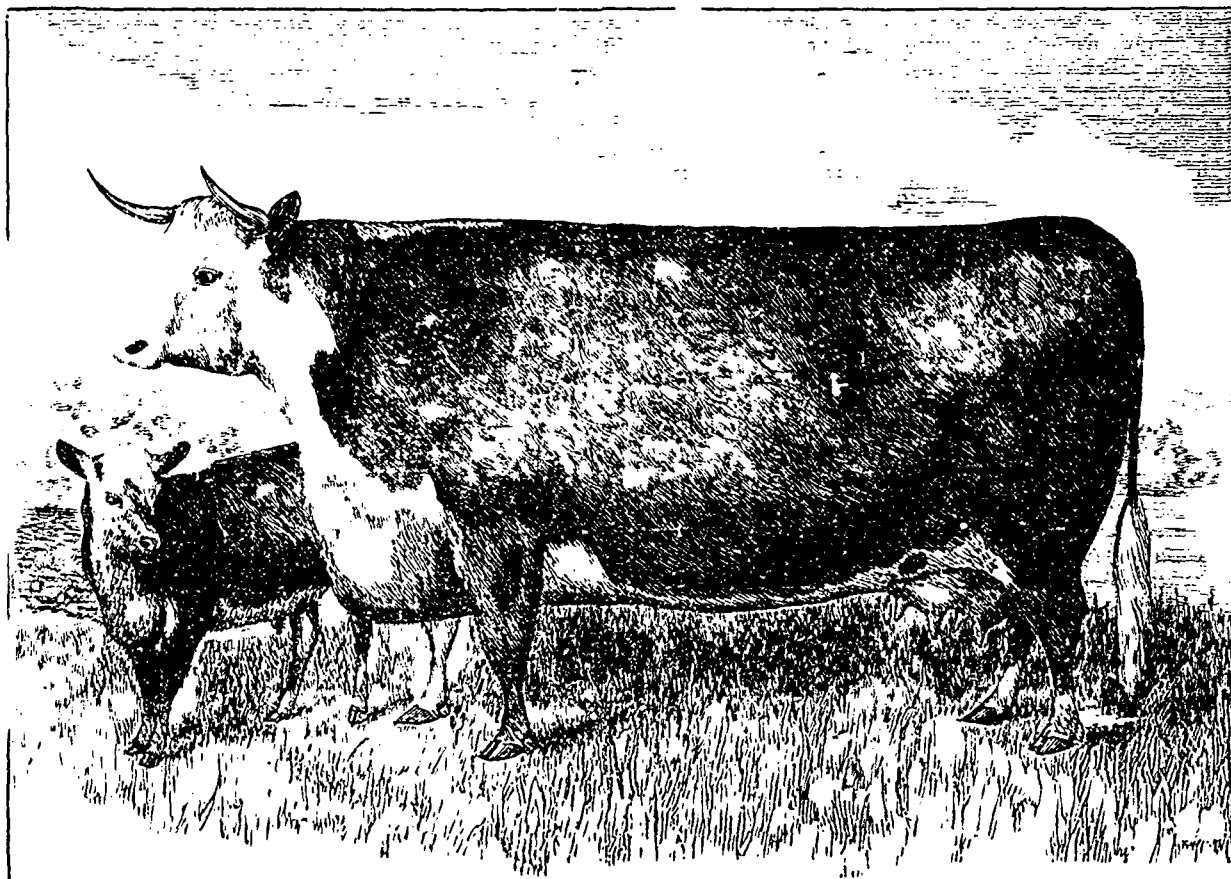
(2) In the counties round London, even, where one-third less rain falls than in Lancashire, it rarely happens that good aftermath hay is made.

wheat-growing in favour of fodder crops for the soil. It is, of course, to be borne in mind that nearly all the witnesses examined before the Commission are partisans on the ensilage question, and some of their statements, therefore, should be received with caution. For instance, we imagine that few hunting men will be convinced that ensilage is good for their horses by the statement made by the Vicomte de Chezelles, to the effect that he had fed a hunter mare on that fodder and on nothing else since October, and that she was in excellent condition. (1) The Commissions has now adjourned until the autumn, and it will no doubt be a matter of general interest to agriculturists of this country to learn that Mr. Ellis Lever, of Bowden, Cheshire, referred to in the report

shortly be published in a cheap and popular form, so as to place the work within the reach of the agricultural classes of this country.

WHAT IS A WEED ?

A LONG discussion has been carried on in the columns of the *Agricultural Gazette* as to the laying down of land to grass. I have ventured to point out that "land will lay itself down," if it is only let alone, but that we can greatly hasten the process by sowing the refuse seed from our haystacks and haylofts, and I have asserted that if the sward so obtained is only grazed with cattle the first two summers, and oilcake



HEREFORD COW, LUCY, 1258, owned by William Constable, Becoher, Ill.

of the American Ensilage Congress as one of the early pioneers of ensilage, is engaged collecting evidence from most eminent and practical authority, both here and abroad, as to the advantages of the system. Mr. Lever has for a long time persistently advocated the system of fodder preservation adopted by Mr. Goffarts, which has proved so signally successful in America, France, and also in this country. On Mr. Lever's authority it was stated at the recent New York Congress that the number of silos erected in this country within two years was upwards of 700, and at the present moment they are nearly double that number. The result of Mr. Lever's researches, the object of which is to show what are the most profitable crops, and the simplest and best form of silos, will

given to the beasts while so grazing, the result will be in a very few years as good grass as it is possible for that land to produce.

Now a few days ago my head shepherd came to me and begged that the hay in certain fields should be stacked therein, and kept specially for the sheep this next winter; and as I knew these fields to be full of wild flowers, or "weeds" as arable farmers would term them, I was rather amused at the request, for it fitted in surprisingly with my own theory for grazing land—that there is no such thing as a weed.

Two of the fields which were specially bespoken for "sheep hay" were old meadows never broken up since the days of Adam, very wet in spots, and very dry in other spots, and filled with wild flowers of every sort (I counted over thirty), many of which are looked upon as most unmitigated weeds. Nevertheless, the hay was beautifully fragrant. It was cut

(1) I fear she would not stand long "below Harrow with the Queen's;" with the Fitzwilliam in a sharp burst from Bythorn Tollbar; or with the Quorn from any covert. A. R. J. F.

in wet weather, and as soon as the weather took up it was spread out thin; but fresh rain came on, and it lay in that position for nearly a fortnight, when the weather again cleared up fine and allowed us to get the hay together; and yet, in spite of its "misfortunes," it was beautifully fragrant, and as superior to rye-grass hay in scent as a sweet pea is to a buttercup.

Now here is a list of the "weeds" to be found in these two meadows:—Speedwell or veronica, milkwort or polygala, stitchwort or stellaria, ribwort plantain or fighting-cocks, silver potentilla, creeping potentilla, tormentilla, strawberry, eyebright, cuckoo plant, blue scabious, yellow hawkweed, wild thyme, oxeyed daisy, common daisy, buttercup, self heal or prunella, vervain or verbena, yellow rattle, peppermint, bedstraw, meadowsweet, tansy, chickweed, field gentian, mill-foil or yarrow, dandelion, crowfoot, hardhead or centaurea, blue vetch, yellow vetch, bitter pea, thistle, milk-thistle, nettle, dock, sorrel, pansy, violet, cowslip, primrose, horehound, fever few, orchis, betony, deadnettle, hyacinth, and blue campanula—forty-eight in all! Now the whole of these "weeds" are to be found inside the gates of those two fields, and nearly the whole of them pretty thickly through the grass, yet the hay from those meadows is considered the best hay in all the district round; and twenty years ago, when the farmers' wife was a good dairy-woman, the butter from that farm was quite celebrated. It always had very healthy stock, and had the reputation of being a thoroughly healthy farm, although henbane, nightshade, and foxglove (all deadly poisons) are to be found upon it, the foxglove especially in great profusion. Well, then, will anyone tell me after this "what is a weed," and will anyone explain, on the principles of plain common sense, why we should spend 35s. or 40s. per acre in buying "pure grass seeds" from a seedsman when we want to lay down a field to permanent pasture, and why should we spend something like £4 per acre in "cleansing land" before laying it down in grass?

In another field specially asked to have the hay reserved for the sheep, nearly the whole of the plants I have named above are also to be found, except that those which grow in damp soils are wanting, because this bit is extremely dry soil, but at least forty out of the forty eight abound in it. Now this field was broken up by myself about sixteen or eighteen years ago, was kept under plough for four years, being in oats, roots two years in succession, to clean it, and then oats, sown down with Italian and perennial rye-grass, red, white, and yellow clover (all bought at high prices from a first-class seedsman) and nothing else! The rye-grass has wholly disappeared, and the grass is now the natural grasses of the country; the clovers still remain, although in much smaller quantity than the first two or three years, and the whole of the "weeds" I have named above have come up spontaneously. The grass when cut was beautifully fragrant, so that you quite remarked it when walking where the mowers had been not two hours before, consequently it was not the ordinary scent of hay which struck the sense of smell, for none of it was withered when I walked across, but in reality that of the wild flowers which were thronging it. However, the crop was very scanty, for it will certainly not give more than 18 or 19 cwt. of dry hay per acre after it has some weeks in stack to settle down. But I quite believe my shepherd is right when he says 1 cwt. of that hay is worth 2 cwt. of rye grass, or any other coarse and "weedless" hay.

If this article should be read (as I feel sure it will be) by any of the landlords in the midlands who are embarrassed with "dirty" farms thrown on their hands, I ask them to ponder well over this field, broken up eighteen years ago, and then laid down with "pure seeds." My pure seeds, the clovers alone excepted, are all gone, and their place has been

taken by at least forty so-called weeds, goodness knows how many different kinds of natural grass; and yet, in spite of the weeds, the hay is deliberately selected by an experienced shepherd as the best possible hay for his sheep next winter! These so-called weeds are, in fact, "wild flowers," whose fragrance adds sweetness to the hay, and makes it palatable to the stock which is to eat it; and to set about exterminating them before laying down land to permanent pasture seems to me about as sensible an act as would be that of a French cook who deliberately threw into the fire the whole of his salt, pepper, spices, sweet herbs, and sauces, and then expected to serve up a palatable dinner.

Now, if the advice I have ventured to offer as to laying "down land to permanent pasture" is consistent with common sense, I think any midland farmer may safely follow the dictates of his own common sense, and ignore the lugubrious vaticinations of interested high-priced seedsmen, and the timid fears of farm managers (1).

AGED FOWLS VALUABLE.

EDS. COUNTRY GENTLEMAN—It is the rule of many poultry keepers to kill off or otherwise dispose of all their old stock, and depend entirely on pullets for the subsequent season's eggs. Whether this is good policy or not in all cases, they probably cannot say, for they have never given the matter a thorough trial. Many are governed by mere habit in this respect, while others are led more by what they hear than by what they see. This may do for some breeds, especially for the majority of the Asiatics, as in the second year they are apt to be more broody than in the first; and every one who has had any experience with them knows how trying an old hen can be, especially when eggs are 50 per dozen. The rule also holds good with farmers, I think.

There are, however, many breeds that do not arrive at the fulness of perfection in egg-production until their second summer. This is particularly true of the Leghorns and Spanish. The number of eggs is greatly increased, as well as the size and quality, in the second year. Pullets may be, and are, better for autumn and early winter eggs; while the older ones will begin to lay in January and February, just when the price is at its height. There is a vast difference in fowls of the same breed. Many are barely worth their keep the first year, but yield a full quota of eggs of good size in the second. It is not just to condemn a pullet as unworthy and send her to the block, because she gave few eggs her first season. Many of the earliest layers are, after all, of the least profit. Their bodies are small, from the fact that they commenced egg-production before fully matured. From this same cause, also, their eggs are small and of inferior quality. The matured bird is of the greater value, not only as a breeder, but where great production of eggs is required.

The non sitters frequently do the majority of their labor in the second and third years. As far as the Cochins are concerned, there may be no objection to killing off the old hens, or even the two-year-olds, for they do all their work in the first season or winter, if hatched early. The Leghorn and Spanish are of most keeping value, where the desire is to make the fowls pay for their keep, and a profit besides. Their eggs are always fine. The Spanish are large, and the Leg-

(1) If there is any point on which I insisted in my course of lectures during the last year, it is this. In making permanent pastures, remember that the sown grasses will die out in a few years, and the natural ones take the ground into their own occupation.

horns, medium. Taken all in all, there is no fowl to be compared for all purposes with the Brown Leghorn. They are steady and persistent in egg-production. They are quiet and easily controlled; hardy both as chicks and adult birds, submitting to confinement and thriving therein. There may be objections raised on account of their smallness of body, but the flesh is fine and the bone and offal small. Even these early layers are better the second, and oftentimes the third year. It is the food which tells on the eggs, both in number and size.

C. B. *Duchess County N. Y.*

FRAMLINGHAM; ENGLAND.

FIELD CABBAGE.

[At a late meeting of the Framlingham Farmer's Club, Mr. Meers, representative of the firm of Messrs. James Carter & Co., the Queen's Seedmen, High Holborn, introduced the subject of "The Cultivation of Cabbages as a Field Crop." The following are extracts from his paper:—

THESE are few plants which exhibit so great a tendency to vary in form through cultivation as the *genus brassica*. The following vegetables—Scotch kale or curled greens, colewort, savoy, kohlrabi, cauliflower, broccoli, Brussels sprouts, &c., drumhead, tree cabbage of Jersey, are all varieties of brassica. The varieties used in agriculture may be classed under two heads, namely, the compact and the open headed, of the former, the Drumhead, and of the latter the thousand headed, may be taken as typical specimens. They are especially useful in autumn before turnips come in, and again in spring when turnips are all consumed. Stock of all kinds thrive well upon them and they will fatten sheep without artificial food probably better than any other green food. The cabbage will do well on almost any soil, and much better than turnips upon soils containing a large proportion of clay, the heaviest returns being obtained from the stronger loams and alluvial deposits. Where a good market is within reasonable distance, and suitable varieties are grown, very profitable results are sometimes obtained; for instance, such figures as 40 tons per acre at £6 per ton have been recorded. The thousand-headed kale is particularly well suited for feeding off with sheep. Mr. Russell thus speaks of it:—"It is the least known and most desirable of any green crop I have ever seen. It is a plant that produces more feed per acre than any other, does not disagree with any stock, nor does it impoverish the land. With me it has never caused a sheep or a lamb to blow or scour. Eighteen perches per day, with a little oat straw, have kept 270 sheep for three months without the loss of one." But, besides this, there are other varieties which are admirably adapted for sheep feeding, notably the drumhead, which sometimes produces upwards of 50 ton per acre.

Where cabbages are grown on a large scale, they should be drilled and thinned out as with turnips. On a small scale where the work can be properly superintended, or on very stiff land, where it has not been possible to get a sufficiently good tilth, transplanting may be adopted. There are several objections to transplanting, which has made drilling more popular of late years. In the first place, the plants are often carelessly pulled from the seed-bed, and thus receive a check, which is aggravated at planting time by thrusting them into a hole without any regard to the disposition of their delicate rootlets. Besides which, moist weather is essential to successful planting, and while waiting for this, the season often becomes too far advanced for a full crop. The additional labour, too, which transplanting incurs must not be over-

looked. There is no doubt that drilling would be more universally adopted were it known that the method is applicable to the cabbage crop. (1)

But, besides the main crop, it is a good plan to have a seed bed in readiness from which plants may be taken to fill up blanks in any crop, to replace "runners" which may occur in the main crop, or to plant out where turnips have failed. The first seed bed may be made in February, and for this purpose the soil needs not be very deep, but should be in good condition and fine tilth. About a pound of seed will be required for every 5 or 6 perches, which should be well raked in and rolled. A good dressing of soot will be found useful to keep off slugs. Another seed bed may be made in March, and the main crop drilled in March and April at the rate of 4 to 6 lbs. per acre. Cabbage seed should also be sown in July and August, by which means a good succession will be secured. Thousand-headed kale should be sown in March, July, and August, at the rate of 4 or 5 lbs. per acre, and will succeed well under the same conditions of soil as the drumhead. The land for cabbages should be well and deeply prepared by autumn cultivation and manuring, the latter consisting of as much farmyard dung as the plough will turn under, which may be supplemented at seed time with about 4 cwt. of special cabbage manure or guano. (2) A good plan is to ridge the land in the autumn, spread the dung in the furrows, split back the ridges, and let it lie thus for the winter. In the spring horsehoe and harrow the ridges and drill them up afresh, the distance between the ridges being from 2 to 3 feet, according to the fertility of the soil and the variety of cabbage, the greater distance being suitable for the larger varieties, and where the land is in high condition.

On poor peaty or light soils it is better to drill on the flat, and, when singling, the plants should be left in as good a line as possible, in order that the horse-hoe may be used both ways, which will save much hand-labour in hoeing the crop. When planting on the flat, a marking frame or drill with the coulter set the desired distance should be used for marking out the ground. The implement should be taken across the field both ways, thus marking the exact position for the plants. The land for autumn-sown cabbages should not be very highly manured, or the plants will not stand frost so well. There is no doubt that the cabbage should be more extensively grown than has hitherto been the case. The reason for its comparatively limited cultivation probably lies in the fact that it has been described as expensive to grow and exhausting to the land. But it is a pity that farmers should be dissuaded from growing a valuable crop by such unfounded statements as these. For, where the matter has been intelligently investigated, it has been found that, value for value, the cabbage is no more exhausting than the turnip, which is so widely grown. Certainly they assimilate a larger quantity of plant food, but not relatively to their greater value. Surely then, it is just the kind of plan the farmer should desire. For our definition of the most profitable plant would be as follows:—One which can assimilate the largest amount of inorganic matter, and convert it into a relatively large amount of nutritious organic matter. And we consider the cabbage answers to this description better than any other plant of the same class with which we are at present acquainted. With regard to its being expensive, we fail to see why this should be the case, considering they may be cultivated exactly as turnips or mangels, even to drilling the seed. Among the most interesting communications we have lately read, which bears directly upon these two points, is the following:—

(1) In England the seed is cheap, in Canada dear. Six pounds per acre, at \$2.50 per lb., is expensive seeding! A. R. J. F.
 (2) Sulph. am.; 2 cwt.; 20 bushels hardwood ashes; and 2 cwt. of superphosphate, with 30 tons of dung. A. R. J. F.

"There exists in many minds a prejudice against cabbage, arising from the belief that it is an exhausting crop, or that it requires expensive manuring or good land, or that the labour connected with its planting or required in its cultivation makes it an expensive crop. My experience, after many years of growing the crop, is the reverse of all these. I have for many years grown it on poor land without any manure, and in no instance found it to fail as a paying crop. The greatest money value I ever made off any land was with a crop of cabbage on a piece of very poor chalk land, with only 20 loads per acre of dung, in which case I sold 3 acres of cabbage for over £100 per acre; that, of course, was an exceptional case, and near a good market. But in ordinary cases, I find that cattle cabbage will grow profitably on the poorest land, and that nothing leaves the land in better heart if the crop is fed on the land. Nothing feeds sheep or cattle better in the autumn, and no root will produce an equal weight of food at so small a cost. My plan is to plough very foul ground early in spring. When mellow, run the heavy drags across it. Follow with a drill with coulter set 30 inches apart. I provide two men with a line each 50 to 60 yards in length, and a stick each, carefully measured to 30 inches in length. I provide an active lad or boy to drop the plants. The two men stretch their lines the full length across the drill-marks at the distance apart of their sticks. The boy drops a plant at each drill track, the men start planting at each end of one line, and presently meet in the middle; they then shift over to the next line, and work away from each other till they reach the end of the line again, they are then in a position to shift their line, and the boy has in the meantime laid a fresh set of plants ready for them. In this way two men and a boy will plant in a day from 6000 to 10,000 plants, according to the state of the land. The plants will be in drills at right angles to each other, and consequently in the best possible position to allow for hoeing up and down or across, or if desired at any other angle, and all the future cultivation required is hoeing; and the more frequently this is done the larger will be the crop, the cleaner will be the land, and the larger will be the present and future profit therefrom. I have grown them on some of the poorest clays of Surrey, on some of the poorest chalk, on some of the poorest stone brash of Somerset, and on some of the best loam of the same county, and in every case I may say with profit. The last crop I grew was on a poor stone-brash without any manure, and when I was carting off two thirds of a 25 ton crop to my cows, a neighbour passing said, "Well, I would not have given 5s an acre for those three months ago. (1)

FEEDING COTTONSEED MEAL.

ITS PROPER OFFICE—CARE NEEDED.

In reply to J. L. (page 666). I will tell what I know of cottonseed meal as a stock feed, both from my own experience during six years since it was extensively introduced by the present dealers in the Northern States, and also from reports from the best sources in England.

About six or seven years ago I began to feed cottonseed meal to my cows and have continued its use ever since. My cows are kept for making butter, and it is necessary to be careful of the effect of the feed both upon the quality of the butter and upon the health of the cows, so that it required a

(1) Worth reading, particularly as to the advice not to manure too heavily for cabbage to be kept over the winter. I do not try to grow very large cabbages; but setting them only a foot apart, I get about 18,000 to the acre, and if they weigh only 5 lbs. a piece, that amounts to forty-five tons.

A. R. J. F.

long time and careful noting of effects to learn what I have discovered in regard to this feed. In the first place it may be said that it cannot be compared with corn or any other feed, excepting for the purpose of estimating or fixing a mixed ration for an animal, just as we cannot compare beef with potatoes, or butter with bread, excepting so far as to proportion the quantity of one to be used with the other in our ordinary diet. No person can consume beefsteak or essence of beef solely, and remain healthy, and no more can one feed only cottonseed meal and keep his stock in good order, excepting for a short time when finishing them for the butcher. This will be obvious when we consider the nature of this highly concentrated food. I take the following table from Prof. Atwater's valuable Report of Work of the Connecticut experiment Station—1877 8:

COMPOSITION OF FEEDING STUFFS.

Substances..	Organic Matter.				Vegetable Matter.			Nutritive ratio.
	Albuminoids.	Fiber.	Other carbohy- drates.	Fat.	Albuminoids.	Carbohydrates.	Fat.	
Cottonseed meal...	41.5	3.1	24.4	18.0	33.2	17.6	16.2	1.8
Corn meal..	8.9	2.0	70.8	4.1	8.2	66.8	3.1	9.2
Bran.....	12.6	2.5	67.0	2.2	10.1	50.0	2.3	5.3

This offers at a glance what I want to show, viz., that although cottonseed meal contains a great deal more nutritive matters than corn, it cannot therefore be used in place of it with corresponding advantage. In estimating fat as nutriment, in place of starch, gum, &c., one equivalent of fat is held to be equal to $\frac{2}{3}$ of starch, so that we have—
Cottonseed meal equals 91.3 per cent. of nutritive equivalents.

Corn meal equals 82.7 per cent. of nutritive equivalents.

But we must not lose sight of the fact that cottonseed contains nearly five times as much albuminoids as corn meal, and right there is its most important characteristic to the feeder, because therein it becomes analogous to the flesh meat of human food.

Nitrogen cannot be used in the animal economy in anything like the quantities in which carbon can, because a very large portion of carbon is needed for the sustenance of vital heat, and if nitrogenous food is too largely given, it unduly enriches the blood, and produces an excessive strain upon those organs whose office is to remove excess of nitrogen from the system—chiefly the kidneys. In feeding cows too largely with cottonseed meal, then, we might expect the circulation to be unduly stimulated; and this is precisely what happens, and it appears very quickly in an increase of milk and cream, and, if anything goes wrong, in an attack of garget. In pigs and horses it appears as congestion of the brain, which we call staggers. Now I know this, because I have experienced it, and therefore maintain that for horses and pigs cottonseed meal is a most dangerous food, and should never be given; besides, they do not want it, having other feeds that are better. For cows and sheep it is the most valuable feeding stuff we possess, if given in moderation, just as I find a beefsteak is the most valuable food for a man, but it will not do to consume it voraciously, or all the time, to the exclusion of starchy food, as bread, potatoes, rice, &c.

After several years' feeding, I have found one quart of cottonseed meal—free from husk—one quart of corn meal, and one of bran, to make the best and safest feed-ration, given twice daily, for a cow in full milk. The husk of cottonseed is indigestible, and will make trouble very surely if

fed to a cow. When I say bran, I mean either rye or wheat, but I like rye, best. The effect of cottonseed meal on the butter is to harden it, to give it a good texture, and a fine, nutty flavor. Linseed meal has quite the opposite effect, and palm nut meal will make the butter soft, and greasy too, although it largely increases the butter. (1) But it is necessary to watch a cow very closely when feeding cottonseed, and never to give any of it within 'wo months before calving, or within ten days afterwards, and then begin gradually. Two ounces a day is quite enough for a calf under six months old, and indeed I have never yet found it of any advantage to a calf, while it can have corn and bran; I avoid using it for any animals except cows, or for fattening a beef animal.

The English feeders give as much as 12 pounds a day of cottonseed meal to their beeves, but as this is fed with turnips and straw largely, it might be quite safe to use this even for a three-year-old—of course gradually leading up to a full ration. The cake is made at the oil mills in the South, and J. L. could no doubt procure it through any of his local merchants who have correspondents at Charleston, S. C., Memphis or New-Orleans, where it is made largely. It comes from the mills in small, flat, oblong, cakes, which can be easily broken up and ground in a common farm mill, or in a country mill where corn in the ear is ground. It costs at the mills about \$20 a ton, and retails at the North at about \$30, bags included. It is somewhat surprising that in view of the great interest existing in regard to this feeding stuff, we do not see it prominently mentioned in the advertising columns of the COUNTRY GENTLEMAN, but it may be perhaps because nine tons out of every ten made in this country are shipped to England, where it is very popular for feeding to fattening cattle, and making "baby beef" and mutton.

I have not learned all this without paying dearly for my experience, as I very early lost a valuable thoroughbred cow by an attack of garget from feeding cottonseed meal in a forcing experiment, and no more than four quarts was used in the day at two feeds. The effect was to cause the udder to become hard and the milk to cease, and when this trouble was removed by a long course of treatment, the udder gave only blood. Since then, I have had occasional trouble from the stupidity of hired men who, knowing it was rich food, supposed four quarts would be twice as good as two, and so enlarged the quantity, or fed it to pigs, and killed them very quickly. Finally I mixed one ton of meal (34 bushels of corn ground), a ton of bran, or wheat sharps, as I could get it the most conveniently, and a ton of cottonseed meal, very thoroughly on a floor and then put it into the bin, and since then have had no trouble. Three quarts of the mixture is the regular feed when the cows are in full milk in the winter, which is my dairy season

Bergen County, N. J.

H. S.

Culture of Pansies.

To obtain choice, large blossoms, pansies require very rich soil in a somewhat sheltered location. A bed which has been used as a hotbed the previous season and left over makes an excellent place for them. Either of the following methods of growing plants will be found successful: Sow the seeds in a box of rich soil about the first of April, and set in a south sunny window. About the middle of May transplant them into the bed where they are to blossom. Another way is to sow the seeds in a bed, where they are to blossom, about the first of September, and on the approach of freezing weather cover the bed with straw manure. Or, they may be sowed in any bed of good soil and treated in the same manner. They will come out fresh and strong in the spring, and can be left to

(1) Bosh, about linseed making butter soft!

A. R. J. F.

grow, or may be transplanted to any desired location. Good seed, rich soil and good care bring fine blossoms.

W. F. WHITE

FALL MANURING OF MEADOWS.

EDS COUNTRY GENTLEMAN—The fall and winter application of manure has been recommended, and is more or less practiced, especially the fall application, the only objection being the necessity of keeping the manure over summer. Even this is found to pay, as it favors early application in autumn, which starts the grass and stimulates the growth later, manure and grass forming a twofold protection, with a better start in the spring. This is one of the most important points in grass culture, especially that of meadows, for the month of May decides the success of the hay crop in the Northern and Eastern States, especially a belt between the 42d and 44th parallels. The reason is clear; in a dry time early in the season (which is also usually a cold one), grass fails to start well, and does not spread enough for a thick set, so that the stand is comparatively thin and short. This occurred two years ago, and largely lessened the hay crop. There was hardly an average of half a ton of hay per acre, many fields not paying for harvesting. These last were almost invariably on poor soil. But even rich land disappointed. The best success was where fall manuring was practiced, whether on poor or rich land—the best of all where a good quantity of manure was applied and well distributed. The fall application of the manure thickened and protected the grass, and the stimulating effect sustained it during the trying time in May, keeping the ground moister, and pushing the growth more rapidly when moist weather favored. The spring frosts also have less chance; in well-drained soil none.

I know of no way in which manure can be used to so much advantage as on meadows in the fall, say in September. This gives a chance to start the growth well. The next best way is to apply in the winter and spring, and spread from the sleigh or wagon, doing the work carefully, for it is highly important to spread evenly, so that the entire surface of the land gets the strength, as the rains and the melting snows wash it out before the brush, drag or harrow, at the opening of the season, can be used. Some farmers here make it a business to apply manure on their meadows in the spring, after the spring floods have subsided. This is done on the river flats to prevent the carrying away of the manure by the water. Whether the hay is as well relished by stock may be a question, though I hear no complaint. Those who practice this way hold it in high esteem. It lacks, however, the start given the grass in the fall, and the protection in the winter which fits it much the better to withstand the May drought. Should May be favorable, the treatment will not be lost, as the grass will be proportionally heavier, except on rich land with a good sod.

There is very little meadow that is not profitably benefited by a good coat of manure, heavy enough to produce two cuttings, and with orchard grass three, in a season, securing each in a tender state, the thick growth favoring a large yield, and the quality, especially for milk cows, being superior. Some of our dairymen, who use such hay, pronounce it superior to any other winter feed for milk, both for quantity and quality. Let us save our meadows from the mishaps of the seasons, and at the same time increase the profit. (1)

F. G.

Fort Plain, N. Y.

(1) In following out our south of England system, dung is always applied to the meadows in winter. I doubt it being a good plan in this country, for it often happens that the ground is frozen hard under the snow, and when the thaw comes, the greater part of the dung would be washed into the ditches. I prefer the month of September for the purpose. If dung is well made and covered with a few inches of earth, very little loss can be sustained by keeping it a few months: the ammonia is all fixed, so to speak.

A. R. J. F.

When Deep Plowing is Profitable.

EDS COUNTRY GENTLEMAN—Your article on deep cultivation, page 780, touches upon several important points in managing the soil, which it is to the farmer's great advantage carefully to consider. Let me add that river soil will at all times admit of deep plowing, whether the custom has been to plow shallow or otherwise. This soil, from its thorough drainage and porosity, admits readily the warm rains and air, with enough washing to carry fertility to the depths, the whole being thus sufficiently aerated and acted upon to put it in a fertile condition fit for immediate use. Hence deep plowing—running the plow up to the beam—is an advantage. This should be the rule, as the surface soil, from long cultivation and with little manure applied, has deteriorated in fertility. Whether my explanation is correct or not, certain it is that bringing the soil up from below increases the crop, in all the cases that have come under my observation, not only to the full depth that the plow reaches, but much deeper.

We have an instance here where the West Shore railroad is throwing up an embankment on the river flat, removing the soil to the depth of three to four feet. Part of this was thrown up the past fall, the embankment being about eight feet high and several hundred yards in extent. On the surface of this embankment the present summer, one of the most luxuriant crops of weeds grew. The weeds that grow in the cultivated fields on the flat are puny as compared with this growth, showing conclusively that the under-soil is better than the long-worked ground at the surface. Any soil with similar drainage, if not too porous, will admit of the same deep culture; and so will clay if well underdrained, only more time must be given to the deepening. After that it may be worked to its full depth, if working it when wet is avoided; and if kept enriched as needed, from the barn, or by turning down green crops, it will improve and be one of the best soils for almost any crop. I would not advise deep plowing of light sandy soil in any case, as the strength is at the surface, and most of it would be buried out of reach of the young plants and be lost. The manure here is to be kept as much as possible at the surface, and barnyard manure is the best, as it has vegetable material to give texture to the soil and hold the fertility. This in no case is to be buried and sand brought up to occupy its place.

Referring again to clay soil; three years ago I spaded an elevated plat of this soil, of a foamy character, that had never before been worked. It had good natural drainage. I turned it up in the fall twelve inches deep, and gave it a good coat of manure. In the spring I worked it again to the same depth, mixing manure and soil thoroughly, and planted with corn and tomatoes, getting a full yield of each. It has been worked to the same depth the two succeeding years with continued success. Had the drainage been bad, as in cases I know, there would have been no such success, as the raw character of the soil would not have admitted it. Judgment must be exercised in the treatment of soil, or loss will be pretty sure to result. *F. G. Fort Plain, N. Y.*

F. G. would not plough sands deeply! I would. Does not he see that his gardens won't grow much without deep digging? Trench sands two feet deep, and if the manure does sink, the roots will follow it. All drained land (artificially or naturally) benefits by deep cultivation, but it should be given before a manured crop and in the autumn.

HOW TO MILK.

It is not every dairyman who knows how to milk—some cannot, others will not learn. Vast numbers of good cows are ruined every year by carelessness, by neglect and by bru-

talities of milkers. The manner of milking, and the circumstances connected therewith, are often not understood, nor fully appreciated, by dairymen. I heard two farmers recently comparing the yield of milk from their respective herds for the past season. The receipts of one were about a third more than those of the other, and the latter said: "I cannot understand this; my feed, my water supply and my cows are as good as yours." The reply was: "Yes, but when my milkers go to milk they understand that it means business. I will not have a poor milker around at any price, and I talk this over when I hire him, and he understands what I will have." It was evident the subject had a value which carried conviction. The quantity of milk that a cow gives depends much upon the mode, time and regularity of milking. Cows do best that have one regular milker, and the time of milking should be carefully attended to, and not be subject to variation from day to day. The udder should be brushed, and in case of any dirt on it should be cleansed by washing with a cloth and water; for if the cow has been driven through any muddy place and thus become besmeared, any dirt accidentally falling into the pail will communicate its taint to the milk. Wetting the hands and teats with milk before milking is a very bad practice. This should always be avoided, both for the comfort of the animal and the cleanliness of the milk. The milker should have short finger nails, for long nails will be sure to hurt the teats and cause irritation to the cow. There are two methods of milking—the one may be called stripping or catching the teat between the finger and thumb and stripping down the whole length of the teat. This plan is not to be recommended. The better way is to grasp the teat, one in each hand, diagonally across the bag, and press on the milk, the second, third, and fourth fingers doing the main work, while the upper portion of the hand and first finger prevent the milk from returning to the udder; the milk should be drawn rapidly, and the udder completely emptied of its contents. In the flush of the season, or when cows are yielding the most milk, from eleven to twelve cows per hour will be about the rate for a competent hand.—*From Canadian Breeder.*

PLANT CULTURE IN POTS. This is a good time to give advice on this subject. Gardeners, and especially amateurs, are so much accustomed to grow plants in pots, that we dare say the idea is a common one that that is the best way to grow them. It is not the best way, however; on the contrary, except under exceptional circumstances, it is the worst way. Very many of the ills which afflict plants are directly or indirectly traceable to their culture in pots. When a plant is newly potted in abundance of soil, and freely watered, the roots are not so much affected, but when they reach the sides of the pot, which they soon do, and there is nothing between them and the sun and air but about an eighth of an inch of porous earthenware, they are liable to serious injury if not watched attentively. When the soil becomes parched in the pots it shrinks away from the sides, leaving a space between the two; active evaporation begins from the tender roots, which instead of absorbing moisture as is their function, part with it, and the consequence is that they are either killed or injured, and the branches suffer in proportion. Where large collections of plants exist, or where those in charge have not time to attend to the wants of the plants, this is quite a common occurrence at this season, and many a plant is irretrievably ruined thereby. Regular attention to watering and shading can only prevent such things happening, and in the case of potbound plants a good deal of attention is required, because the soil in the pots soon dries up.—*The Field.*

THE FRUIT GARDEN.—Apple trees on hot, gravelly soil will require attention as to watering, otherwise they will suffer, and in many cases mildew will appear with the hot weather. This should by no means be allowed to become established. Sulphur dusted over the affected parts is a good remedy. Gooseberries, red currants, and black currants would be all the better for the young shoots being thinned out, leaving only sufficient to form good bushes, the best and largest fruit being always borne on the young shoots or spurs of the current year's growth: hence the importance of having these vigorous and well ripened, and this cannot be expected if all the young shoots are allowed to grow until winter pruning. All kinds of fruit trees are better for the summer shoots being well thinned out, as it not only allows the sun to ripen the wood for next year's crop, but allow the sun and air to colour and ripen the fruit. This is an important point where fruit has to be kept any length of time, more especially with apples and pears. It is well known that a thoroughly ripened apple or pear will keep much better than a green or half-ripened one. Fruit trees now require constant care and attention; the most important points are keeping the trees free from insects, the most effectual means which we know being careful syringing with clear rain water, and pinching in any misplaced shoots that may have been overlooked when disbudding the trees. Any weakly shoots that it is desirable to encourage are better left for a time—they will grow stronger if left at liberty. Cherries should be gone over again, and all wood not required should be pinched back or cut away. When the shoots are thin, a certain number of them might be pinched back to form fruit spurs for next year's fruiting. Pinch back to one eye above the fruit all vines, and stop the laterals; water with manure water when dry.—*Gardener's Chronicle.*

THE POULTRY YARD.

Milk as Food for Fowls.

EDS. COUNTRY GENTLEMAN.—Fowls may be kept with great profit in confinement if judiciously fed. Their diet must be varied, and changed often. When milk forms a portion of their daily rations, as well as vegetables, the fowls will always be found to be doing much better than when at large with scant food, or none at all. Skimmed milk in any form is relished, and the fowls prefer it for drink before anything else, but when it is coagulated it is food and drink at the same time, and is greatly relished. During the hot months the fowls will almost subsist and lay on it alone. Since some kind of animal food is absolutely necessary for the good of the fowls when in confinement, milk answers well, and also does well in place of green food when that cannot be given with regularity. For young growing fowls it is the very best of food, making bone and muscle.

It is not suitable for ducks to paddle in, nor should common fowls be allowed to get into it and soil it. In feeding milk to young fowls in hot weather some judgment is necessary in regard to its acidity. If too sour it causes indigestion, and does more damage than good. It does no harm to be acid, but there is a degree beyond which it is not safe to put into the stomach of fowl or human being. The milk should not be so much curdled that the whey has separated, but should come from the dairy room in that state which exactly corresponds to the consistency of a perfect custard. Then it is wholesome, and forms an excellent diet for fowls in confinement.

With milk diet the birds can dispense with their animal food, and indeed I think it is better for them than meat. It is not so forcing, but forms a steady, thriving diet for laying hens. Corn is the staple grain, and must be furnished in quantities necessary, and according to the amount of smaller grain fur-

nished. During the moulting season there is no food so good as whole wheat given once each day, in quantity that they will consume at once. Fowls should be fed regularly I give corn twice each day, morning and afternoon, and the other food between, as time and convenience permit. I do not neglect the fowls for any length of time. In that case I should surely miss the regular supply of fresh eggs, which is the main object in keeping fowls.

In no case permit the fowls to become poor, or even thin in flesh. A poor hen will not lay; neither will one that is overburdened with fat produce any eggs. With some breeds this difficulty is to be contended with, but seldom with the small ones. Only with the large, heavy Asiatics is caution necessary. They are in habit slow and indolent, prone to fatten when full grown. For egg-production, those breeds should have a cross of Leghorn blood, when they make good fowls for the use of the common poultry keeper. Where milk cannot be had, scrap-cake is found to answer a very good purpose, moistened and thickened with meal of some description. Wheat bran moistened with water, made thin but not thin enough for the milky substance to run, is also relished. Boiled potatoes, chopped and mingled with salt and grease, are good food for confined fowls. This diet may be given warm in cold weather. Chopped onions should be added twice in a week, and serve as a substitute for green food. O. B. *Duchess County, N. Y.*

How to Obtain Eggs in Winter.

EDS. COUNTRY GENTLEMAN.—In order to get a plentiful supply of eggs in winter, we must have young hens. Pullets hatched in April or May will prove the most satisfactory. The hens must be well cared for; have a comfortable warm house, kept clean and well arranged. Provide a plentiful supply of fresh water, accessible at all times. Variety and plenty of food is absolutely necessary. Feed regularly what the hens will eat without wasting. I find wheat or screenings the best for the principal feed, corn, oats and buckwheat come in as variety. Corn meal, middlings, or something of that sort, mixed stiff and warm, should be fed first in the morning, but give no soft food after mid-day. Whole grain should be the feed after the morning's mess. Dry grain is best to fill the hen's crop with at night. Fresh meat in some form should be fed daily, lard or tallow (chandler's) scraps are good. Scraps broken up, soaked over night and mixed with meal and bran, make a good occasional feed mornings. Vegetable food is also necessary. Carrots, turnips, boiled potatoes and cabbage are all good. Oyster and clam shells, broken fine, lime or lime mortar, fine gravel, coal and ashes should be supplied to hens when confined. They need a light sprinkling of red pepper in their soft food once a week or oftener in quite cold weather. Chopped hay should be supplied to them occasionally. Have a box of sand or ashes where they can use it at pleasure. Any bones, burned or broken fine, or other warm scraps from the table, are always acceptable to the hens.

Having adopted a system of feeding pursue it steadily, or, when changing do it gradually; never make sudden radical changes, as it always unfavorably affects the supply of eggs. Keep the hens from being worried or excited through fear of boisterous boys, dogs, &c. The more quiet the hens are kept the greater the number of eggs supplied. The hens should be bred from chicks with the view of egg-production, always keeping them growing by good care till they attain mature growth. Let no one who has neglected his hens, or feeds spasmodically, expect a full supply of eggs immediately after commencing a systematic course of feeding. It often takes weeks and months to put neglected hens into condition to be good layers. W. H. WHITE. *Worcester Co., Mass.*

NON-OFFICIAL PART.

A SINGULAR BOOK

Scintillating with Sarcasm and Brilliant with Truth.

New York Correspondence American Rural Home.

- Chap. I. "Has Malaria;" goes to Florida.
 Chap. II. "Overworked;" goes to Europe.
 Chap. III. "Has Rheumatism;" goes to Ems.
 Chap. IV. Has a row with his Doctor!

The above chapters, Mr. Editor, I find in a book recently published by an anonymous author. I have read a deal of sarcasm in my day but I never read anything equal to the sarcasm herein contained. I suspect the experience portrayed is a personal one; in short, the author intimates as much on page 31. Let me give you a synopsis:

"Malaria" as it states, is the cloak with which superficial physicians cover up a multitude of ill feelings which they do not understand, and do not much care to investigate. It is also a cover for such diseases as they cannot cure. When they advise their patient to travel or that he has overworked and needs rest and is probably suffering from malaria, it is a confession of ignorance or of inability. The patient goes abroad. The change is a tonic and for a time he feels better. Comes home. Fickle appetite, frequent headache, severe colds, cramps, sleeplessness, irritability, tired feelings, and general unfitness for business are succeeded in due time by alarming attacks of rheumatism which flits about his body regardless of all human feelings.

It is muscular,—in his back. Articular,—in joints. Inflammatory, my! how he fears it will fly to his heart! Now off he goes to the springs. The doctor sends him there, of course, to get well: at the same time he does not really want him to die on his hands!

That would hurt his business!

Better for a few days. Returns. After a while neuralgia transfizes him. He bloats; cannot breathe; has pneumonia; cannot walk, cannot sleep on his left side, is fretful; very nervous and irritable, is pale and flabby, has frequent chills and fevers; everything about him seems to go wrong; becomes suspicious; musters up strength and demands to know what is killing him!

"Great heaven!" he cries, "why have you kept me so long in ignorance?"

"Because," said the doctor, "I read your fate five years ago. I thought best to keep you comfortable and ignorant of the facts."

He dismisses his doctor, but too late! His fortune has all gone in fees.

But him? what becomes of him?

The other day a well known Wall Street banker said to me "it is really astonishing how general Bright's disease is becoming. Two of my personal friends are now dying of it. But it is not incurable I am certain, for my nephew was recently cured when his physicians said recovery was impossible. The case seems to me to be a wonderful one." This gentleman formerly represented his government in a foreign country. He knows, appreciates and declares the value of that preparation, because his nephew, who is a son of Danish Vice-Consul Schmidt, was pronounced incurable when the remedy, Warner's safe cure, was begun. "Yes" said his father, "I was very skeptical but since taking that remedy the boy is well."

I regret to note that ex President Arthur is said to be a victim to this terrible disease. He ought to live, but the pro-

babilities are that since authorized remedies can not cure him, his physicians will not advise him to save his life, as so many thousands have done, by the use of Warner's safe cure which Gen Christiansen, at Drexel, Morgan & Co.'s, told me he regarded "as a wonderful remedy."

Well, I suspect the hero of the book cured himself by the same means. The internal evidence points very strongly to this conclusion.

I cannot close my notice of this book better than by quoting his advice to his readers.

"If, my friend, you have such an experience as I have portrayed, do not put your trust in physicians to the exclusion of other remedial agencies. They have no monopoly over disease and I personally know that many of them are so very 'conscientious' that they would far prefer that their patients should go to Heaven direct from their powerless hands than that they should be saved to earth by the use of any 'unauthorized' means."

And that the author's condemnation is too true, how many thousands duped, and yet rescued, as he was, can personally testify?

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Sargent & Ruddell have combined their respective patents, which will defy competition for the practical use of this celebrated machine. Parties desiring the like would do well to send for circulars before purchasing any rival machines.

WM. SARGENT,
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