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# THE ILLUSTRATED JOURNAL OF AGRICULTURE

PUBLISHED BY THE DEPARTMENT OF AGRICULTURE FOR THE PROVINCE OF QUEBEC.

Vol. IV.

MONTREAL, SEPTEMBER 1882.

No. 3

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### Guernsey Cattle.

On Saturday, August 12th, I paid a visit to the farm of the Hon. J. J. C. Abbott, at St. Anne's, for the purpose of inspecting his herd of Guernseys.

I can hardly conceive anything more beautiful than the situation of Mr Abbott's house. Placed on a moderate elevation, it commands a view of the Ottawa river, its lakes, bays, and islands, with Como and Oka in the distance, and that very striking wall of white blowing sand forming a most prominent feature in the landscape. Unfortunately, a heavy *nimbus*, or storm-cloud, obscured the prospect when I arrived, and did not clear off all the afternoon; but in bright weather, the distance visible from the lawn must be very great, and, from the great variety of features, very charming. The pleasure grounds are laid out with a considerable amount of taste, and when the whole is completed with care and finish, as it doubtless will shortly be, the province will have few places for summer residence equal to it. As an old Tennis player, where Tennis courts existed, I was rejoiced to see that here, as elsewhere, this manly (and womanly) game had completely taken the place of that miserable *croquet*. The old enclosed court used to cost about £3,000 to build, and the annual expenditure was very large; consequently, there were not a dozen courts in England, and few people played, as the charge was of course high; but here, a well-mown and well-rolled lawn, a net, and a little white-wash, is all that is necessary; and I believe that the game will, eventually, become permanently established all over the country.

The buildings on the farm are very simple, principally loose boxes; the cows, however, are tied up in pairs. The

boxes for cattle would be better as manure-preservers if they were sunk two feet below the surface. Less straw is required, and the animals, thus housed, are invariably free from dirt; their own reason leading them to lie down on the cleanest part of the litter. The pressure of the cattle prevents all fermentation, and there is no smell, save that of the crushed straw, and the pleasant odour of meal, linseed, or whatever other food may be in use. The boxes will not require cleaning out more than once in four months, and any one can see that the manure is kept in an absolutely perfect condition—moist enough, but not too moist, and fire-fang, i. e. utter loss of ammonia, is impossible. The manure *never* heats.

Such a poultry yard here! I did not count the young chickens, but Mrs Nelson, the *henwife*, must have reared certainly 200 White Brahmas this spring. I confess I longed to turn a Dorking cock loose among them, to increase the muscle of the breast. After all, the eastern breeds are flabby, and it is useless denying it: but a Dorking, or Game and Dorking, capon is really worth eating.

Mr Abbott has a few brood-mares; notably, one Cleveland Bay, with quarters long enough and strong enough to shoot a rider over a church; which quarters she has also transmitted to her descendants. Covered by a thoroughbred stallion, this mare should breed weight-carrying hunters of good quality. If we ever mean to send horses to Europe, we must get rid of our goose-rumped weeds.

The Guernseys, a list of which I append, are worth seeing. Colour and trivialities have not been made the main points in these cattle; but the object of their breeders has always been to produce a *real farmers' cow*. They are large in frame, particularly wide across the hips, or "heuk-banes," as the Scotch call them. The difference between the old and the modern breed of Guernseys can be estimated by a comparison between No. 1, Rougette, and No. 5, Rosette de la Marcherie. The head of No. 1 is the most exquisitely formed, and the eye as lovely, as I ever saw. All have well-shaped bags and orange-coloured skins; as for the *escutcheons*, Mr Abbott believes in them no more than I do.

What a difference in price between now and 1851! In that year I paid an average of £12. 12. stg. for six Guernsey cows delivered into my yard in Kent! They were as good as the Island produced, and cost about one-tenth of what they would fetch now.

Mr Abbott has lost three calves, this spring, from, he thinks, giving them cotton-seed meal! This subject should be investigated, as I have heard of the same misery occurring in England, where, upon analysis of the meal, it was found to contain a large proportion of *wild mustard seed*. I do not think any unsifted meal, unless linseed may be excepted, should be given to young calves. Those in question had no diarrhoea or *green-skit*, and died rather suddenly. The real food for calves is linseed and pease-meal.

ARTHUR R. JENNER FUST.

Dear Mr Jenner Fust,—The cows you saw, arranged as you desire, are:

No. 1, Rougette 2nd, imported: (bought at Philadelphia in March last, \$560.) 4 years old.

2. La Grande, do imported: bought at Philadelphia in March last, solid color, (price \$520.) 3 years old.

4. Rosalba—2 years old—Dam, Rosey of Les Vauxbelets—2nd prize Bath & W. of Eng. Show, 1878.

4. St. Andrew's Lass—small but handsome—imported by me, April 1881.

5. Rosette of La Marcherie, imported by me, April 1881, large—old type of Guernsey, good cow.

6. Rosey of Les Vauxbelets—2nd prize Bath & W. of Eng. Show, 1878.

Rosebud of Les Vauxbelets, H. C.; Bath & W. of Eng. Show 1878. This one has not bred since I got her, but is, probably, now in calf.

These two last cows selected by me in preference to the first prize heifer; and my judgment was endorsed both by "The Times" and "The Field."

Bull Caesar, rising 3, imported by me, April 1881.

Yearlings: Rosanna, daughter of Rosey of Les Vauxbelets; Joan, daughter of No. 5.; Meadowsweet, daughter of No. 4. Calves; daughter of No. 3: daughter of No. 1.

Sincerely yours,

J. J. C. ABBOTT.

#### Window Gardens.

The season for out door flowers is rapidly passing away. In another month, the brilliancy of our gardens will have bowed to the rod of the chastening frost, and in lieu of order, brightness, and elegance, we shall see nothing but wildness, decay, and languor. All things demand rest: and the perennial plants in our parterres are, in spite of their existence, compelled to submit themselves to an annual term of repose; that they may, once more, at the return of spring, flourish with renewed vigour.



Tulips—various.

But, when we bid *au revoir* to our summer friends, we need not deprive ourselves of all companionship of their kindred. There are, as most of us know, many plants that thrive and blossom with luxuriance in our rooms: four conditions being necessary to their arriving at perfection, viz., light, air, water in moderation, and the absence of coal gas.

There is no great preparation necessary to secure a good result. The earth for potting, consisting of a mixture of rich mould, sand, and some finely rotted manure, is easily procured; and a dozen or so of cuttings, no one who possesses flowers, would grudge to his neighbours. Geraniums, pelargoniums, cyclamens (called, in Italian, *viola pазze*, or *mad violets*), Chinese primroses, all do well in this fashion. Lilies display their lofty grace to their humbler companions, and the odorous violet, the wallflower, and the heliotrope (called, in England, from its scent, *cherry pie*), add their enchantments to the scene.

As for the decoration of rooms with "everlastings," the ammobium, xeranthemum, &c., I cannot admire the practice;

they are, generally, undisturbed receptacles of dust, and present but a poor reminiscence of the natural flower.

Bulbous plants, tulips, hyacinths, and the like, are easy of culture. *Tulips*, such as the Van Thol, the common single, and the variegated, should be planted in four inch pots, filled with light, moderately rich, earth, of which at least a third should be leaf-mould, or earth from sandy black deposits, known as heath-mould. The plants should be kept modera-

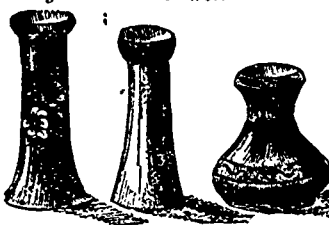


Crocus.

Hyacinths—various.

tely moist while growing, and when in flower they should be abundantly watered.

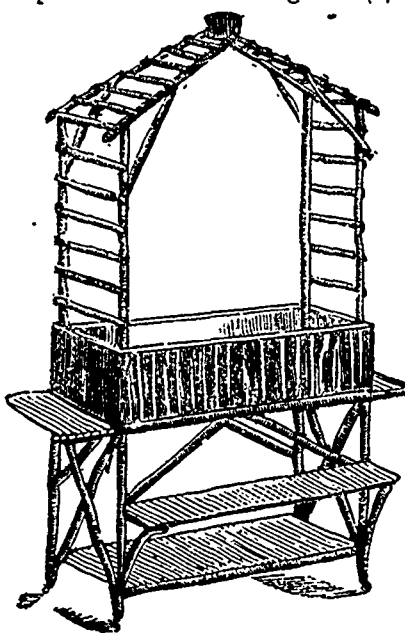
*Hyacinths* do well in water-glasses, which should be so



Hyacinth glasses.

filled, that the root of the bulb just touches the water. A sojourn in a cool, dark cellar, until the glass is well filled with roots, will be necessary, before the bulb is placed in its flowering station. *Hyacinths* and *crocuses* may be grown in pots, like tulips.

The *Cyclamen* (of which word the penult is long) should be planted almost out of the ground. (1) It can't have too much



Plant-stand.

light, and has the advantage of keeping in bloom for three months. After flowering, the bulbs must be kept in the shade until the season for re-potting arrives. The cyclamen increases largely in diameter, but, unlike the tulip, throws out no off-shoots. I don't care about the flower myself; but it is a useful thing to have, on account of its duration.

The *Calla Lily*, the most graceful of its tribe, flowers abundantly in winter, if properly rested. Can't be over-watered.

When spring comes, place the pot, plant and all, in the shade, on its side, and leave it till autumn without water.

(1) Curious, that every body will say cyclamen and clematis, instead of cyclamen and clematis!

Lilies of the Valley are most valuable for in-doors work.



Calla Lily.

The bulbs should be dug up in autumn, and stored in a cool cellar. Every fortnight, or so, throughout the winter, fresh pottings should be made, which will bloom in five or six weeks, and thus a constant succession of flowers may be kept up.

Boxes with five or six inches of light earth, sown with mignonette, and parsley for garnishing, should have a share of your attention. Remember that air is a vital necessity.

ARTHUR R. JENNER FUST.

**Cotton-Seed.**

The cotton crop of the Southern States is almost certain this year to be enormous. The best judges talk about seven million bales! Interesting enough to all sorts and conditions of men, but to us most interesting from the fact that each

bale, as a rule, is the parent of one thousand pounds of seed.

Now, these figures, supposing them to be verified hereafter, are worth attending to: they mean 3,500,000 tons of rich nitrogenous food; they mean, in other words, at a moderate computation, the daily ration of three pounds a day each for 100 days for 23,333,333 head of cattle; they mean nitrogen in a cheap form, whether as a manure or as food.

The price on the plantations is not likely to exceed \$2.50 a ton. In 1880, with not nearly so large a crop, it only brought \$3.00. Much of the seed will doubtless go to the mills, and the cake, equally good in its way, must be exported, as there is no demand, for it comparatively speaking, at home. At all events this cake ought to be laid down in Montreal for, at the highest, \$24 a ton, and it is nearly if not quite, equal to linseed-cake, some starchy matter,



Lily of the Valley.

such as barley or corn-meal, being added to it—it is not safe without.

I have a correspondent in Arkansas Co., Arkansas, who is, I believe, perfectly trustworthy, and if any of my readers

wish for further information on the subject, I shall be happy to forward their letters to him for reply. The price charged here for meal \$34 to \$36 a ton, is childishly ridiculous; the best linseed-cake, as I mentioned last month, is only worth in England with cost, freight, insurance, and all sorts of profits great and small on it, £7. 10 = \$36.45!

The American planter, *more suo*, is exaggerating vastly the benefit to be derived from his cotton-seed; but, with all allowances made for his *fanfaronnade*, it is a most valuable commodity. Only a few years ago it was left to rot in heaps near the gins, and in many a place, no doubt, it is still neglected. We really must have our share in this mine of wealth.

I have been living quite alone for the last two months, preparing my own meals, three times a day, by means of a coal-oil stove which I bought, four years ago, at Mr Cole's, Notre Dame St. I have kept a very accurate account of my consumption of oil, and I find that, lighting my lamp as I do every night at sunset (be it remembered that I often read and write till one or two in the morning), I burn, in lamp and stove, two gallons of oil in 25 days: cost of oil at 30 cts a gallon, less than 2½ cts a day! There is no smell, no heat, no smoke, if common care be taken, and its broiling and stewing are really wonderful. I am trying a new vessel for the preparation of farinaceous food, cooking potatoes &c., by steam, and I think it will answer. All puddings are better, far better, steamed than boiled, and, for those who like porridge (*pour moi, je l'abhorre*), it must be a great thing to be able to cook it thoroughly without any fear of its being burned. Again, some potatoes won't boil—notably the York Regent, the London winter potato—it steams admirably.

A cauliflower boiled is a cauliflower spoiled; but steamed, they are almost crisp, instead of being sodden, and if a small quantity of grated Parmesan cheese is sifted over them and subsequently browned, either in the oven, or preferably with a *salamander*, (a wide, thick, red-hot iron), no vegetable equals them for delicacy of flavour. French-beans and scarlet runners, too, are far better steamed, while rice cannot properly be cooked in any other way, except by a Carolina Negress, who burns out the bottom of a pot every three days: this comes expensive where curry is much used! We certainly eat very badly here.

I see the makers and retailers of the wonderful *condiments*, *spice-foods*, *feeding compounds*, &c., are still deluding the agricultural public with their nostrums at \$100 a ton: pretty dear work, buying corn-meal, rice-mill sweepings, common salt, flowers of sulphur, &c., at such a price! The other ingredients, which make up the flavouring matter, *viz.* gentian, aniseed, ginger, chillies, pimento, carraway seed, mustard, and the rest, will not cost, at most, more than \$12, for the quantity necessary to season a ton of the *condiment*. I see, as I write, that "Simpson's Spice for Hay" is advertised at the astounding price of \$235 a ton!!!

A. R. J. F.

**Dairying in Western New-York**

The high price of dairy products is directing increased attention to milch cows, which have of course advanced in price. Whether the increased cost of the cows will take all the profit expected from them during the summer, remains to be seen. It will not be strange or unusual if it takes a large part of it. If a new-milch cow in March or April is worth, or will sell for, sixty dollars, and the same cow in December is barely worth thirty-five or forty dollars, the balance must be deducted from the sales of milk, butter or cheese during the milking season. True, by keeping the cow another three months, if she is with calf, something near the first value

may be claimed for her, less deterioration by age and fluctuations in the market. While good cows are dear as they now are, the chances are that what changes in price occur will be against the buyer. It has always seemed to me that the profit in cows, especially where the milk is manufactured, must come mainly from the manure pile. Either butter or cheese, if made in the house, demands a great deal of labor, indoors and out—so much so, if made largely, as to interfere with other farm work. In localities well adapted to dairying, with good natural pasture and abundance of clear spring water, the business is undoubtedly profitable. But in such places, the land restricted to this use is held at a lower valuation than in this vicinity. It is the lower-priced land, too rough or otherwise unsuited to grain production, that makes a good part of the profit of dairying. On good grain land it has been tried over and over again, and always relinquished after one or two years' experience. On an average, our grain lands are seeded with clover once in three or, at most, four years, and clover has always been the main seeding. This land keeps in good heart for grain, but it does not make the best pasture for milk, butter, or cheese production. Possibly the grain takes so largely from the phosphates in the soil as to restrict the quantity of milk which the herbage it produces will yield. Besides, it is generally known that clover is not the best food for milk or butter, and perhaps it is in part because it is usually the alternating crop after the more exhaustive yield of grain.

#### CREAMERIES AND FACTORIES.

Wherever dairying is practicable, it should by all means be conducted by associated effort, in factories for cheese, or creameries for butter. The housewife should not be taxed to take care of the milk from several cows, working it up into what must almost necessarily be an inferior product to that of a well-conducted creamery. With every appliance, and the greater skill which ought to be commanded in creameries, the product is well worth the advance it commands over the best home-made butter. The great bulk of butter made in farmers' homes is much poorer than it should be. The milk is almost always exposed to unpleasant odors from the cellar, and too often is set in the cellar, surrounded by all kinds of fruits and vegetables in varying stages of decay. From these, the creamery house is or should be free. But the most common cause of poor butter is sheer neglect—allowing milk or cream to stand too long, not thoroughly cleaning pails or pans, and churning the resultant bitter or mouldy cream. From the abominable character of most of the butter sold at groceries in cities and villages, I am satisfied that a revolution in butter-making would be affected if farmers' wives would resolutely throw to the pigs such parts of the cream as had accidentally or otherwise become too old before churning. Better still would be more care to prevent such result. The poor quality of winter butter is not the result of the dry feed altogether, but mainly because the milk is kept in close rooms, exposed to bad odors, and in winter is almost always kept too long before it is churned. Many a housewife can make good butter from two or three cows, requiring churning to be done twice a week, who will fail if the cream is not churned oftener than once in eight or ten days. When cream is "bitter" to the taste, throw it away; for this bitterness is due to mould, which is poisonous, and will certainly affect the butter. I am safe in saying that more than half the butter sold in Rochester is unfit for use. Citizens there tell me that Monroe county butter has an especially bad reputation. They get the best product from counties somewhat farther from Rochester. I do not believe that Monroe county housewives are less proficient or careful butter-makers; but here, so near Rochester, comparatively few cows are kept, and the fewer cows in the dairy the worse the butter. *Country Gentleman.*

#### The Mushroom House.

Any spent beds which are still in this structure should be removed forthwith, the house be lime-washed, and woodlice, which are sure to be present in the old beds, destroyed by pouring boiling water over them, which is the most effectual remedial measure of dealing with these troublesome pests. Horse-droppings should now be got in readiness for the formation of fresh beds for the winter supply. In preparing the droppings care should be taken to see that the substance and ammonia of the same are not wasted in the process of drying. The droppings should be spread out thinly in a dry shed, but not exposed to the sun, and be turned over for a few days until sufficiently dry to prevent rapid fermentation ensuing; and when the droppings have become moderately dry, not parched up, they will be in a fit state for taking into the mushroom-house. There they should be allowed to remain, and be turned over for a few days, as the droppings will undergo another fermenting process in the house before being beaten down, which should be done as firmly as possible, and a test-stick or two put in the bed. One good-sized bed will be enough at a time; and when the heat, which should be ascertained by a ground thermometer, has declined to 70°, the spawn, which should be broken into pieces about the size of bantams' eggs, may be inserted under the surface of the bed 6 or 7 inches apart, and a little fresh droppings spread over it; and when it has been ascertained that the heat in the bed is not likely to rise above 70°, it can be covered over in the usual way with maiden soil, which should be beaten firmly together with the back of the spade; and in order to do this the soil should be sufficiently moist at the time of putting it on the bed to yield to the pressure of the spade.

*From the Gardeners' Chronicle.*

#### VETERINARY DEPARTMENT.

*Under the direction of D. McEachran, F. R. C. V. S., Principal of the Montreal Veterinary College, and inspector of Stock for the Canadian Government.*

#### HEAVY DRAUGHT HORSES—Continued.

##### THE SUFFOLK PUNCH.

The merits of this breed of draught horses are very little known in this province, simply for the reason that very few have been imported here, and yet we are safe in saying that a more useful agricultural horse does not exist anywhere.

Many of our readers have admired the specimens of this famous breed imported in 1868 by Senator Cochrane—two mares and a stallion, exhibited at the Provincial Exhibition held in Montreal that year. The latter being subsequently purchased by the Laprairie agricultural society, in which county he has left an impression on the stock which is very marked.

We take the following description of the Punch from "The Book of the Horse:"

"According to popular notions the Suffolk is always a chestnut of one of five different grades. Mr Longwood who read a paper on this breed of horses before the Stowmarket Club in 1872, mentions five different shades, viz: dark chestnut, dark red, bright chestnut, silver beamed, and light chestnut. But, according to the same authority, there are in the county a good many teams of bay Suffolks. Those who breed for sale are particular about purity of colour, and preserve it by the wellknown expedient of keeping nothing but chestnut horses on the breeding farm—and taking care that the mare, when she takes the stallion shall have a chestnut horse or pony before her eyes,—an expedient as old as the time when Jacob served Laban as shepherd on shares.

Suffolks are now bred large, and reach from 15-3 to 16

hands. (1) They were formerly a small, thick, stocky class of horse, hence called "Punches." The breed is of a remarkably docile and placid temperament, very true in the collar, and excellent for plough teams, but apt, according to agricultural authorities who do not live in Suffolk, to fall lame at road work or drawing timber."

The following is a description of the Suffolk Punch breed, as they were before the development of agricultural societies had established competition and comparison between cart-stallions, in every available county of the Kingdom:—"They are generally about 15 hands, of a remarkably short and compact make; thin legs, bony, and thin shoulders loaded with flesh. (2) Their colour is often of a light sorrel, which is as much remarked in some distant parts of the Kingdom as their form, they are not made to indulge the rapid impatience of this posting generation, but for draught they are perhaps as unrivalled as for their gentle and tractable temper; and to exhibit proofs of their great power, drawing matches are sometimes made, and the proprietors are as anxious for the success of their respective horses as those can be whose racers aspire to the plates at New market."

SIR JOHN CULHAM. (circa 1810.)

Suckling, in his work on the history and antiquities of the "county of Suffolk," alludes to the Punches as a docile race, unrivalled at what is provincially called "a dead-prill." In describing them, he says: They are middle sized, very short made, and though low in the forehead, are active in their paces; and on the lighter lands of the country will draw a plough at the rate of three miles an hour."

More attention has been paid to the Punch horse in Ontario, where years ago excellent specimens of the breed were imported. We remember such an importation into the county of Oxford, where the crosses, being again crossed with the thoroughbred, have produced many of the magnificent sorel carriage horses several teams of which adorn the streets of Montreal to-day.—The Suffolk, in many respects, would be very valuable on such of our farms as require deep ploughing, and they possess the advantage, which is a considerable one over, the Clyde of being more active and less weighty, but from our present knowledge of them their value in improving the stock by crossing native mares will never equal the Clyde, which occupies the same relation to cold-blooded mares as the shorthorn bull does to cows of inferior strains, the result in either case is improvement. Again, it is not found that their feet or legs stand roadwork; hence they are less valuable for purposes of draught in cities, but on the farms where active farming operations, such as ploughing and carting, are carried on, they are equal to any other breed in being true pullers and active on their legs.

#### THE SHIRE HORSE.

The English Shire horse is a large, heavy, draught horse, of no particular colour or breed, usually bred from superior cart mares, and sired by a good horse of a heavy draught breed; it may be a Clyde, a Punch, or a common English dray horse. Many of them are excellent individuals, measuring from 15.3 to 16.2 hands, powerful and symmetrical in form according to Sidney. "The Shire horse has huge limbs, his feet well covered with hair, which refined judges ask to be silky, but good midland farmers are not particular as to the quality so that the hair is there. A large plain head is not objected to so long as it is sensible and not sour. The well proportioned forehead must be heavy. There must

be weight in the collar, strength in the back and loins; well developed muscular thighs are required as a matter of course in an animal whose trade is heavy draught; but above all, he must be deep on the ribs: in fact, a cart colt that has not a good belly will never grow into anything worth having.

The other points of a Shire cart horse are those of every well shaped harness horse, considering always that his business is to be done at a walk. The Shire horse is in fact the final result of the improvements of agricultural horses effected in the latter half of this century."

During the present season a large number of Shire horses have been imported by Western breeders, chiefly to Illinois, and we have had excellent opportunities of judging of their points—there is at this very moment of writing a large consignment in the city of very fine Shire horses and mares of different ages, and some of both are as fine specimens of draught horses as could be desired, and a careful study of their points readily leads us to understand why certain breeders of Clydes, at a sacrifice of pedigree, use these mares to give improved form to that breed.

The large bone, short back, wide chest and quarters, less hair, and more plumpness and rotundity give a much more symmetrical outline and probably a milder disposition than the Clyde, which latter, however, is at the expense of the quick activity and determined character of the latter. Bearing no special characters, having no special pedigree, varying according to the draught family from which they are bred, we do not expect the Shire horse to breed true, or to stamp his own individual qualities on his crosses, hence, the Shire horse, out of the English counties where he is known and appreciated, seldom proves a success on cold blooded mares, and while we would strongly recommend Shire mares to be imported, we would hesitate to advise the stallions, so bred, to be introduced. We know, from experience, that the mares crossed with Clydes or Punches produce animals of a very useful and marketable stamp; rounding the quarters and producing a general plumpness of the body in the former, and imparting heavier bone, and increased size and weight, to the latter.

We have a few specimens of the English Shire horse in this province, all of them good ones, which have repeatedly carried off the premiums at the Provincial Exhibitions against Clydes and other breeds, and the number of good colts exhibited at the last Exhibition of a chestnut horse of this breed, proved conclusively, that the Shire horse on our heavier Canadian, or half bred Clyde mares, produced horses of great value and usefulness.

While a certain degree of success however may be obtained by such breeding—and this fact we are forced to acknowledge—it must not be supposed that we recommend any but true line breeding, and we are convinced that our readers will attain the maximum of success in the end by breeding, from pedigreed animals on both sides.

#### TO ARTHUR R. JENNER FUST.

Sir,—Knowing that you take a lively interest in any thing that pertains to agriculture, especially to the culture of tobacco, I have taken the liberty of addressing you these few remarks.

As is well known by some, there are few crops, if any, which yield such large returns per acre as tobacco. Of course, in making the statement I refer only to farmers located at a distance from a large market; to such it is of very great importance that they should be able to raise a crop of something which will give them a fair return, and command a ready market. Now tobacco yielding on an average, as I am informed, a crop of from twelve to thirteen hundred pounds per acre, will sell at present at from six to ten cents per lb.,

(1) I had, in 1852, a pure Suffolk that stood 16½ hands. I have seen many of that height. A. R. J. F.

(2) What does Sir John mean by "thin shoulders loaded with flesh?" A. R. J. F.



giving a return of about one hundred dollars per acre. At the present time, Canada imports somewhere about nine million pounds of leaf tobacco, say at an average of 10 cents, but the larger proportion costing from four to eight cents. If we could produce only the half of this quantity suitable for the market, it would aggregate nearly half a million of dollars, which would be left in the country instead of being sent across the lines. Now, there is no reason why we should not be able to produce at least that quantity, if not over the three-fourths of our total consumption, as, with a steady demand from the trade and a little more experience, better qualities of tobacco could and would be grown, now that there is a legitimate market for the goods; for I must say that, until the last session of Parliament, it was never a business in any sense, this raising of tobacco, more rather a smuggling, demoralizing temptation, without any business basis whatever. I may refer to this later, with your kind permission.

Regarding the variety to be grown, let me say, that although "Connecticut" grows fairly here, it appears to be a mistake to raise that and Havana only; as the quantity of tobacco used for cigars is very limited when compared with the quantity used for the manufacture of plug and cut tobacco. Should any large quantity be raised here of these two varieties, the market would be glutted, and prices would be correspondingly low, so that instead of being a profitable crop it would be next to impossible for the farmer to sell his goods at any price; but if dark Kentucky be grown where the soil is rich and heavy, then the demand from the plug manufacturers would keep the price at a paying figure. I would recommend that, until we have obtained more experience, a larger area be laid down in dark Kentucky tobacco and grown from imported seed. This leaf would be rather a rival to Kentucky grown tobacco than a substitute, but fresh seed would be required every year to keep the tobacco to type; seeing that nearly, if not all, the different tobaccos, which we know are only varieties of the same species, and these variations are the out-come of the influence of climate and soil, we can easily understand that the plant if continuously seeded and replanted in the same soil will approximate rapidly to the variety which has already adapted itself to our soil, yes, and one might be inclined to call it indigenous. If a number of different varieties were planted for a few years consecutively, these varieties would all assimilate to each other and to our own variety "Quebec Minorque." I mean that quality which gives off a disagreeable pungent odour so well known and so little appreciated. To illustrate what I mean, if wheat be grown in the southern states from seed obtained in the north, it will mature and ripen sooner than the ordinary wheat grown there; but if seeded down for a few consecutive years, it soon loses its earliness and ripens with the ordinary wheat, adapting itself to its changed environments; and in Missouri we find a distinct type of tobacco, although the seed was originally brought from Virginia by some Virginians who settled and commenced the culture of the weed there. At the present time, there is a type of tobacco much sought after by the manufacturers of the United States, namely, "White Burley," which originated in Mason County, Ky, but is now grown extensively in Ohio and Missouri and to a small extent in Virginia; but to keep the tobacco near the type, it is requisite to procure the seed from Mason County each year, to obviate its tendency to recur to the original type of the locality. In this connection, I would suggest that upon strong clay soils dark Kentucky be grown, as I said before, and upon lighter soils that White Burley be planted, if intended for manufacturing purposes; or if for cigars, then the Connecticut seed; all seeds obtained from the places where they originated.

Before closing this communication, I should very much wish to say a few words to tobacco planters about the curing

and handling of the leaf after it is brought from the field, do not go into the manufacturing business, but leave that to others. No farmer thinks because he raises wheat that it is at all incumbent upon him to start a bakery: better for him to give his attention to what he knows about, and when he has raised his leaf to let others do the sweating and manipulating of it. I take it, that the province of the farmer is to produce the raw material, and with tobacco, after he has grown it, his connection with it should cease. The usual mode of proceeding, after having hung the tobacco in the barn, is to take the leaves off the foot stalks and cord them, that is pile them up in winrows in the barn, either separately or butted, one row against the other; when one of the following things take place: if placed apart and the season is dry, then the tobacco becomes chip dry, and is very difficult to handle without breaking to pieces; if piled close together, then fermentation sets in. Now this is what is wanted in some kinds of tobacco, but it requires too much attention: for if the leaf is too soft, and fermentation is allowed to go too far the product is little better than manure; or if turned to prevent this, then the leaves get all tossed and broken, and consequently are of less value, or should it be in a place which is too cold to sweat, then a cold fermentation sets in, which in a short time destroys the fibre of the leaf, and makes it as tender as wet blotting paper and of little value; instead of which, if, when the tobacco is ready to strike or strip from the foot-stalks, and supposing that two grades were wanted, the best of the leaves were pulled off and tied in heads or hands of not more than three quarters of an inch in diameter at the tie, then do the same to the leaves remaining on the stalks, and either sell them at once, or re-hang them in the barn, there to await a purchaser, or a favourable opportunity for marketing. Should the farmer desire, either for want of a favorable market or to send to a distance, to pack his tobacco in boxes or hhd's, then attention should be paid to see that the midriff or stem is thoroughly dry;—if so it, will break when bent: if in that condition await the first moist day, and when the leaf becomes supple put it in a pile and pack at your leisure. This process gives the farmer very little trouble, and is well suited for tobacco for manufacturing purposes; but for cigar purposes, I must let the cigar makers speak for themselves. At some future period, should you desire it, I should take much pleasure in giving you a description of some of the various methods employed for giving tobacco its yellow color; meantime, I remain,

D. W. FERGUSON.

#### Mineral Manures for Tobacco.

The tobacco plant is a remarkable product, botanically and chemically. One hundred parts of dry tobacco contain about 88 per cent of pure water, while the remaining 12 per cent is composed of nicotine and other poisonous matter, together with nitrogen, phosphoric acid, potash, lime and soda. These constituents are necessary for the tobacco plant, and if they are wanting, we shall not secure a good burning leaf. The minerals are potash, lime, magnesia, oxide of iron, oxide of magnesia, and ammonia. No one of these alone can supply all the elements necessary for a good burning leaf, although lime supplies the deficiency largely, as repeated trials have thoroughly demonstrated. The flavor and aroma of tobacco are positively the resultants of 24 chemical ingredients, which naturally enter into its composition. All its qualities and enticements must depend upon the right distribution of particles, or, to borrow and adopt a phrase from Soyer, "the ingredients are so nicely blended, and such a delightful concord exists, that it equally delights the palate (of those who like it) as a masterpiece of a Mozart or a Rossini delights the ear."(1)

(1) Soyer was cook at the Reform Club, in London, and, though a coxcomb, a very clever-fellow.

The most important quality of seed-leaf or cigar leaf is its burning. Without free burning, flavour, texture, color and size of leaf are of no value. Indeed, the burning quality and flavor of the leaf are inseparable, and where the latter is found the other will not be found wanting. Two of the most celebrated sorts of tobacco grown—Manilla and Persian—are known to commerce as non-burning tobaccos. The Spaniards have cultivated the former sort in the Philippine islands, notably in Luzon and the Bissayas (the southern group), since the reign of Philip the Second, from whom they take their name; and notwithstanding the vast amount grown, they have thus far not been able to secure a perfect burning leaf. (2)

The questions may very properly be asked, how we shall secure a good burning leaf, and what constitutes a good ash. It is important to growers of the plant to give a little consideration to this subject. Tobacco is an exhausting crop, and Fairholt has well said that "the richest of virgin soil is soon impoverished without the necessary adjunct of good manure." In the ashes of plants we find what they took from the soil, and it is certain that no plant will thrive unless the soil contains the elements of its ashes. Every ton of perfectly dry leaves of tobacco carries off 400 to 500 pounds of mineral matter, and one pound of ash will supply four pounds of tobacco. Of this amount taken from the soil, a large proportion will be found to be lime; and the application of 200 pounds of stone lime to the acre will regulate the burning, and at least give a white ash, if it is not always firm and solid. Some authorities on the weed assert that whatever amount is used the plant will not appropriate more than a certain quantity; but may not too large an amount modify in some way the effect of the other constituents, so that the ash may be grey or soft, and not adhere long to the cigar?

Country Gentleman.

#### Agricultural Congress.

The American Association for the promotion of Agricultural Science held its third annual meeting at Montreal in the rooms of the Natural History Society. I cannot compliment the reporters for some of Montreal papers on having given a very accurate account of the various learned addresses of the different professors of agricultural chemistry &c. In more than one case, notably in that of professor Kedzie, on the "Sources of Nitrogen," the reporters utterly misunderstood the conclusions at which the lecturer tried to arrive. In the next number of the Journal I will try to remedy the error into which, for want of familiarity with the subjects discussed, those most painstaking gentlemen have fallen. Mr Kedzie, if I heard him right, completely agreed with the Lawes and Gilbert theory (as against Ville and the French school), that in no case do plants take up free nitrogen from the atmosphere.

A. R. J. F.

#### De omnibus rebus.

I have tried "Bliss' American Wonder" pea this season, and it is by no means improperly named. Sown May 4th, in a too shaded place, it beat "Beek's Gem" by ten days; the first dish I ate on July 8th; in size largish; quality not first-rate.

Very early pease may be got by any body who has a conservatory in the following manner: prepare, in autumn, strips of turf four inches wide and about three inches thick; these turves must not be allowed to freeze or to get too dry, or they will lose their toughness. Towards the end of March, place the turves on light boards, of a length easily portable—

(2) The "Government Manillas" — cheeroots — are uncommonly good for a change, after long smoking Havannas; but they are rarely seen here.

the staves of an old flour barrel, for instance—and setting them in full light near the windows of the conservatory, sow the pease in them as usual. When the snow has gone, and the ground is dry, make shallow trenches to receive the strips of turf, and cover them well up to the stems of the pease. I ate pease, grown in Montreal nearly in this fashion, on the 15th of June last!

Of all the nonsense I ever read, commend me to some pp. in the *Rural Record*, published in Tennessee! In the counties of Devon and Cornwall, Eng., they still, I believe, retain many of the antique superstitions of their Briton ancestors; but I do not think the following recipe, gravely given as a cure for *murrain* in cattle, could be surpassed, even there: "Hold open the jaws of the cow securely, take a live warty toad in your hand, place the toad down the throat so it will be swallowed alive, or it will do no good. C. B. R.

"Wimberly, Hays Co., Tex."

Again, "the bite of a rabbit is said to be very poisonous. A doctor having had a case in which a person bitten nearly lost his life, had several rabbits caught, and found that the upper jaw contained a hollow tooth, from which he extracted a very poisonous fluid. He ascertained that two drops of this fluid administered to a lamb would kill it in less than an hour." *Editorial, if you please!* This doctor must be almost as wise as one of my friends, who, in the absence of the veterinary surgeon in charge of the case, bored a hole in the patient's horn, and inserted a mixture of butter, pepper, and other things; declaring afterwards, that he had saved the cow's life in spite of the regular practitioner's ignorance! The poor man must have mistaken the *lepus Americanus* for the *l. marinus*, a fish, from which, according to Pliny, the ancients extracted a poison.

Technical language is always puzzling to a layman, but I had the vanity to imagine that I was equal to most demands of that sort: the following, from the *Dixie Planter*, I confess, floors me:

"Side cotton with a shovel, then sow oats, and break out middle with a broad sweep; two sweeps on a double foot-plough will cover the seed rapidly." And what on earth is a *scooter*?

Mr Mark Dawes' *silo* at St. Anne's was perfectly successful. The cattle ate the contents voraciously down to the very bottom, and howled for more when it was empty.

Curiously enough, the Colorado beetle prefers the *auberger's* (egg-plants) in my garden to the potatoes. Perhaps the latter growing in a more shaded part of the plot may have repelled the beasts. However, as both plants belong to the same order, I doubt not the beetle found his repasts agreeable to his palate.

I tried the Brazil tobacco the other day, and found its flavour very inferior. Ash burned black, and the smoke was acrid. A great deal of Canadian tobacco has been planted, but I fear there has been too much rain and too little sun to hope for a good crop.

Mr Crevier, of St. Anne's, harvested twenty tons of sugar beets from his 2½ acres sown last season. Hardly pay at \$4 a ton?

Those who intend to breed Jersey and Guernsey cattle will be glad to learn that colour and other fancy points are



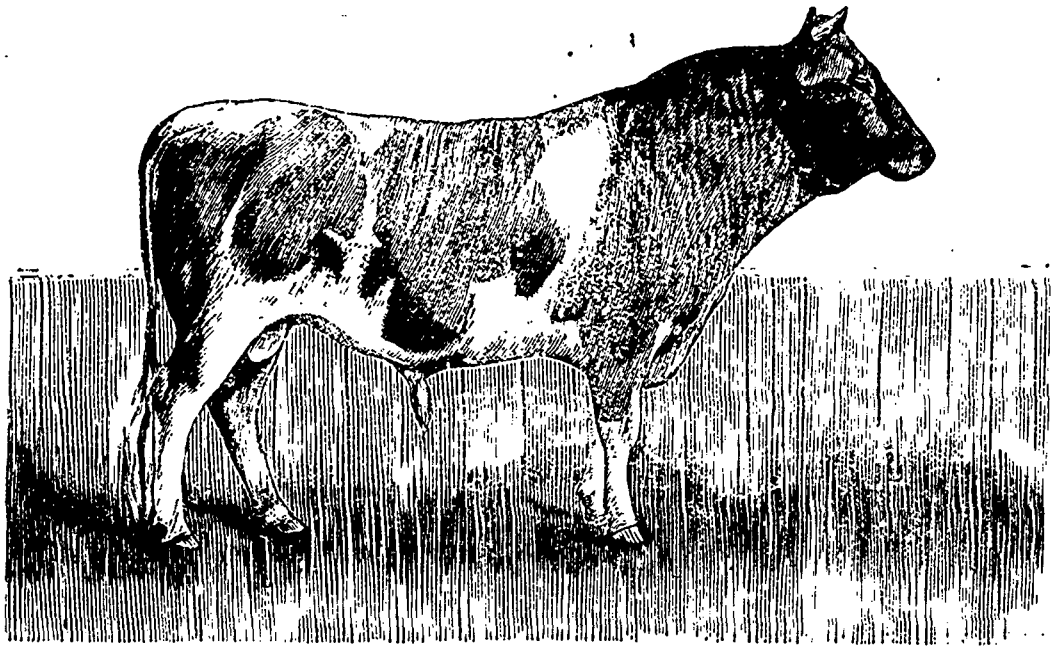
giving way to indications of milk-producing qualities at all the exhibitions of the season: Mr Richard, editor of the Guernsey "General Herd Book," says, in the preface: "As to the milk-test invented by Mr Guenon, a Frenchman, who conceived he had discovered an infallible criterion of the quantity of milk a cow could yield in the direction of certain lines of hair between the udder and the root of the tail; it is sufficient to say that, whether successful or not with French breeds, it is proved to be entirely fallacious when applied to Guernsey cows."

Prices of Hampshire Down ewes, at the July fairs, ran from 70 s. to 75 s. a head for full-mouthed sheep; lamb rams were worth from £4. 10 to £8 each. The first prize pen of 100 wether lambs, at Wilton fair, was the property of Mr Wrightson, Agricultural College, Downton, near Salisbury. He refused 65 s. a head for them, and Professor Sheldon writes to the *Agricultural Gazette*, that 200 more, as good in every respect, could have been selected from the flock. The butchers (who don't overlay weights generally) put them at 18 lbs the quarter.

The breeders of a certain description of hog with red hair and bristles are making a great fuss in the agricultural

shire, and hired Jonas Webb's best ram (90 guineas a year) for three seasons, was obliged to revert to his former muttons, the Leicesters. The Down wool, on the lush grass of Tortworth park, became open and coarse in texture, and the meat lost the rich flavour and colour which the close cropped herbage of their native hills had made so celebrated.

Shorthorns don't give any milk, eh? If so, why does every dairyman in English towns keep them? There are Shorthorns and Shorthorns. If you keep on drying cows off, generation after generation, as soon as possible after calving, in order to perfect the growth of the foetus, how can you expect cows to give large yields of milk? The real dairy-shorthorn, of which the cow whose likeness we gave last month is a fair specimen, is the universal favourite in all London dairies. They may be seen to perfection any market day at Darlington, Durham; and, in my time, the keeper of Hyde Park had liberty of pasture for twelve, which might be observed feeding round the lodge all day. Fine large cows, with immense udders, giving from 25 to 30 quarts a day, and weighing from 1000 lbs to 1200 lbs the carcass when done with. They were milked up the last day of their lives. A. R. J. F.



IMPORTED FERNWOOD GUERNSEY BULL.

journals in the States, claiming all sorts of unheard of qualities for their stock. There was one at the Provincial show last year, and a brute he was; as he should have been called a *Tamworth*, he was of course ticketed *Berkshire*. I saw a few belonging to the dairy-farmers of Shropshire, in 1853, but they were not in favour, and their owners were changing them into Berkshires as fast as crossing could do it. They are, probably, the aboriginal breed of England, and the stock whence, by selection, the Berkshires sprang.

There is not much land in this province too rich for Down sheep but it would be as well for breeders to remember that very strong grass land has a tendency to alter the wool of these breeds. I recollect that Lord Ducie, who had brought a flock of Sussex ewes, from Elman of Glynde, into Gloucester-

The test for finding out the feeding value of roots is weighing them in water. The weight in air is not satisfactory, as a root may contain a large percentage of water, which is very cheap, or a large quantity of woody fibre, which is valueless for feeding purposes, but the weight in water will give you the solid matter. This new method of judging at root shows was first inaugurated at the Red Hill and Reigate Show last December; and a prize was given by Mr. St. Barbe Sladen: in his capacity as judge for this prize he found some very singular results. The very large mangels invariably weighed nothing in water—they floated, while the smaller mangels showed much more feeding matter; the same applied to swedes.

It must stand to reason that the stock-keeper who has, say, 100 ton of roots with 10 per cent of solid matter, is better off than another who has 100 ton, say 7 per cent. solid

matter, 100 ton of the former being in reality worth nearly 150 ton of the latter. And as a matter of economy, when farmers buy feeding stuffs at various prices, according to the quality of their feeding power, why should they not grow roots of higher feeding value? There is no more cost in the rent and labour in the one case than the other, but the crop is of very different value. And all successful root growing must depend upon the successful carrying out and development of these principles.

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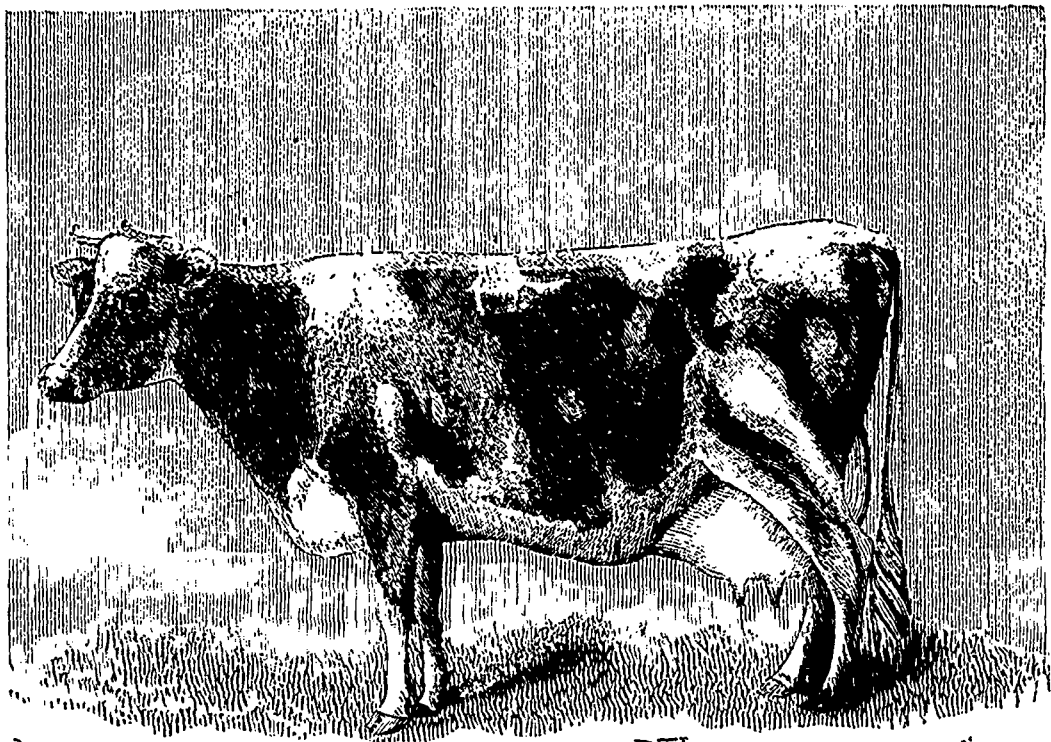
**The Culture of Hyacinths in Pots.**

The time for potting or planting these popular roots is approaching, and a few remarks on the best way to treat them will now be seasonable. Should the grower choose his own bulbs and be at the same time a tyro in the art of bulb culture, it will be beneficial to him to learn that extra size or largeness of the bulb is no safe criterion of the excellence of it. It may or it may not be better than a smaller bulb, but

tests be the heaviest and firmest, let there be no doubts about preferring them; they are certain to give the greatest amount of satisfaction.

The next most important consideration in the culture of hyacinths in pots is the soil or compost in which they should be grown. It ought above all things to be rich and light. It may be made up of the following:—One-third leaf mould, one third rotten cow manure, and one-third fibrous loam, mixed and laid up where it may be protected from rain a couple of months before being required, though it may be, and often is, used immediately after being mixed.

A good proportion of sharp river sand may be added to this compost when it is brought to the potting bench for use. The most useful size of pots for general purposes and for single bulbs is five-inch; yet if they may be wanted for room decoration in smaller pots, they can be grown very well in four-inch or even three-inch. In these small pots, however, they will want more careful attention than in larger ones after they have filled the soil with roots. It is important in potting to avoid burying the bulbs deeply. The top of each should be



ELEGANTE—592—OF FERNWOOD.—IMPORTED GUERNSEY, SWEEPSTAKES WINNER OVER ALL BREEDS.

the balance of the chances are against it being so. The great difficulty in getting large bulbs thoroughly matured will always operate against their turning out superior to small bulbs. The best test is not size, but solidity and weight. The former quality is easily ascertained by trying the firmness of the individual bulbs, small or large, by means of pressure with the fingers. Those which yield to pressure, especially at and around the crown or top of the bulb, should be rejected—they are not ripe; and those which weigh light—a point which can by practice be ascertained by balancing the respective roots in the hand, or better still by weighing them by means of scales—should be rejected. The heaviest roots, taking relative size into consideration, should be chosen; even if the smallest may by these

just level with the surface. Those that are to be forced early should be planted as soon as they can be obtained, while the principal batches should be potted in October. When potted, placed them on a bed of coal ashes and cover them with the same or with cocoa-nut fibre or sand to the depth of four or five inches. In four or five weeks from the time of potting, they may be taken out of the plunging material, and placed in a cold frame. A selection of as many as may be wanted for a first batch may be made from the best rooted, and placed in heat at once; and from time to time, as wanted, they may be so drawn upon to keep up a good supply for all purposes. In severe frost the stock in the cold frame should be protected sufficiently to prevent the balls from being frozen through;

but in all sunny, bright weather the frame should be freely ventilated in order to keep them slowly moving. When they are brought into the forcing house, place them as near the light as possible; give manure water liberally, and on all favourable occasions—that is, when the outer air is mild, let them have air freely.

To grow hyacinths in water, single varieties are preferable to double ones, because they are usually better in spike and are also, as a rule, more free to grow. The very best roots also ought to be selected for this manner of growing hyacinths. Those who have not attempted their culture in water will find it very interesting. Having procured the roots and the glasses, let the latter be filled with pure water to such a height that the base of the roots will just barely touch the water. Before placing the roots, put one or two small pieces of charcoal in each glass, to aid in keeping the water sweet and pure. The roots may then be put in, and the glasses removed to a cool dark cellar, or any other place in which they may be kept dark and cool in a dry atmosphere. Here let them remain for a month or five weeks, or till they have sent their roots down to the bottom of each glass, but examine them occasionally to see that all is doing well. Should the water evaporate quickly, so as to leave the roots bare, make it up at once. It may also become foul and injure the roots, in which case they should be taken out, the glasses be emptied and well cleansed, and refilled with pure water as before, and the roots replaced carefully. Fungus sometimes attacks the bulbs when grown in water, and will injure them if not brushed off in time. When this disorder is persistent and troublesome, dust the bulbs over with sulphur. When the roots have grown to the bottom of the glass, or nearly so, the glasses should be brought to the light gradually, and when they have become quite inured to the change, let them stand close to the glass, give plenty of air, but avoid cold draughts. As the flower stems expand they will need support, and the best way to secure this is to obtain the prepared hyacinth supports in brass or japanned iron, which are usually sold along with the glasses.

#### THE N. B. AGRICULTURIST.

#### Rose Culture.

The rose is the queen of flowers. It is the true representative of Flora in all her beauty and sweetness; and moreover, it is, like beauty itself, imperishable because ever renewed. For the rose is ever blooming, and with good management may be in bloom every day in the year. We have a rose of that delicate and delicious variety, Safrano, now in bloom, that has not been without a bud or an open flower since May, 1881, when it was first potted, as it came by the mail from the greenhouse. And just here it might be useful and interesting to know that the mail will bring a flower garden to every person's door every day in the year, if need be. For a dozen ever blooming roses grown in pots, and ready for immediate blooming, and often bearing buds may be procured through the mail from many rose growers for the small sum of a single dollar. And just now is the season for procuring these lovely roses and potting them for Fall and Winter blooming. Let us follow up a rose so procured. A small package wrapped in damp moss and oil paper arrives by the mail. We find it to contain small but perfectly well rooted rose plants that have been grown in two or three inch pots. Some of the old soil still adheres to the roots. We put the plants in water at once, and proceed to get the pots and soil ready for them. We take three inch pots, or old fruit or meat cans, which are excellent, but which must have a hole made in the bottom for drainage. If we have no soil ready prepared, we go to the woods or the garden, bring in a box of the best soil we can find, and sift it to get any worms out of it. A

piece of broken crockery or a flat stone is put over the hole, and a few pieces of broken brick or coal cinders, a little soil is then put on that. Then a plant is held in the pot with the left hand and the roots, first trimmed a little, if necessary, are nicely arranged; then the soil is sifted in among the roots and pressed down with a finger as it is put in, little by little so that the roots are evenly spread in the soil. In this way the pots are filled near to the brim. The plant is then cut back about one third, the pot is dipped wholly in a pail of water to settle the soil, and is put into a cool, dark cellar for ten days or so; when it is brought out gradually to the light of day, and by and by into the sunlight in a window or on a bench in the garden. Or the plants may be set out in a garden bed, and shaded for a few days until the roots start. In two or three weeks new shoots are formed and tiny flower buds will appear, and by and by as the plants grow rapidly they will burst into bloom, repeated week after week until Winter arrives, when they will need rest in a cellar until Spring arrives again. But if flowers are desired in the Fall and Winter the buds are nipped off in the Summer, and a vigorous growth of wood will be made, which about November will produce buds, and these will be appearing, and bloom all through the Winter.

#### Filbert Trees.

Filbert trees are set about 13 feet apart, giving 257 trees to the acre, and are propagated by suckers obtained from old trees, and put in nurseries until they are two or three years old, being carefully pruned and trained to the required form. The first operation in an established filbert "plot" is to open a small trench round each tree, to get the suckers or "spawns" from off the roots and lower part of the stems. The land is dug before Christmas if possible—before the trees are pruned—that the bloom, which appears very early, may not be rubbed off. Pruning or cutting filbert trees is a most elaborate process. Each branch is examined by the tree-cutter, who cuts away all wood of coarser, older growth, comparatively unfruitful. After the pruning the trees look mere skeletons, and a stranger who had seen filbert trees thus naked and forlorn in the winter, would be surprised to see them in September with a wonderful wreath of leaves, branches, and nuts upon them. A typical tree has a stem of about 1½ to 2 feet in height, from which the branches are trained to spread out laterally, and to form a centre of a saucer-like shape, with a diameter of 7 or 8 feet, and a height of about 6 feet. After pruning nothing is done until July, when most growers have the long suckers taken from the middle of the trees, and the leading shoots are broken off to relieve them from the burden of supporting unproductive wood. Mr. Webb states that he saw some filbert trees near Maidstone which had at least 40 lb. of nuts on each tree. A crop of 1 ton or even more is occasionally grown, but the average yield may be set at about 8 cwt. per acre.

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#### ENSILAGE.

Mr. C. W. Mills, of New Jersey, one of the champions of ensilage, journeyed East a while ago with a budget of statistics and calculations concerning this new system of cattle-feeding which the alert agriculturists of that locality were not slow to recognise as important if true; but being of the critical habit native to that latitude, they would take nothing short of the evidence of their own senses as to the inwardness of the silo as exemplified at Pompton, where Mr. Mills' experimental operations were carried on, and therefore a delegation of their number went and saw. They returned, in due course of time, loaded with the germs of doubt, which were disseminated in Westboro Town Hall, and thence given

to the night air through the medium of the U. S. A. *Worcester Evening Gazette*. From that journal's report we glean a few detached paragraphs of rather a striking character, and which carry their own comment:—"Mr. A. H. Thompson of Woodville, was called upon, and in reply to questions stated that Mr. Mills has two silos, each 40 feet long, built of masonry. The cattle were in such a condition that a Massachusetts farmer would be prosecuted for having such cattle in his barn. Some of them could hardly get upon their feet. He saw some heifers, 2 years old, which he should think would weigh about 250 lb. The stock evidently did not have more than half enough. Out back of the barn were a lot of apple trees with the bark all gone off them, from the ground up to the limbs. Mr. Mills said he guessed the men scraped them too closely. Mr. Sibley, of Grafton, said he wanted to know more about those trees. Mr. Thompson said he did not see any cows gnawing the bark off the trees, but he saw the marks of teeth upon them. The only thing he could learn about the milk product was that they filled forty 1-quart cans with milk each day. One man said they were milking forty-five and another fifty-five cows; they seemed not to know exactly how many cows they were milking. In regard to the statement about the corn being grown with forty stalks to the square foot, Mr. Thompson said he visited the field and counted; the thickest he found was twenty stalks to the foot, and it averaged about twelve. The above statements were brought out by a series of questions coming from farmers in all parts of the hall, Mr. Thompson declining to make any statement of what he found, except in reply to direct questions. The questions and answers were interspersed with comments and side remarks which the reporter's pencil was not nimble enough to take down verbatim.

#### AGRICULTURE.

PARIS, MAY.

The prosperity of a country, it has been remarked, can be measured by its consumption of sugar: the same observation can be applied to butter, and hence the anxiety devoted to all means not only for the production, but for the preservation of that product. The more Australia, South America, the Cape &c. aim at monopolizing the wool market, the greater the efforts made in Europe, to fall back on dairy farming, in the sense of making butter. The United States of America appear to prefer cheese to butter manufacturing of late: they, however, export vast quantities of margarine, to Holland especially. Be it said in passing, that artificial butter can only compete with butters of a low type, and the Dutch purchase it largely, as well as ground-nut oil, for home consumption, to enable them to export the natural dairy produce of their country. Mark how the value of butter has risen: in the five years ending 1844-45, the price was 77 fr. per cwt.: for the five years ending 1876-80, the price was 182 fr. The Danes are extremely sensitive to the reputation of their butter, and to secure not only quantity, as well as quality, lose no effort to adopt every improvement.

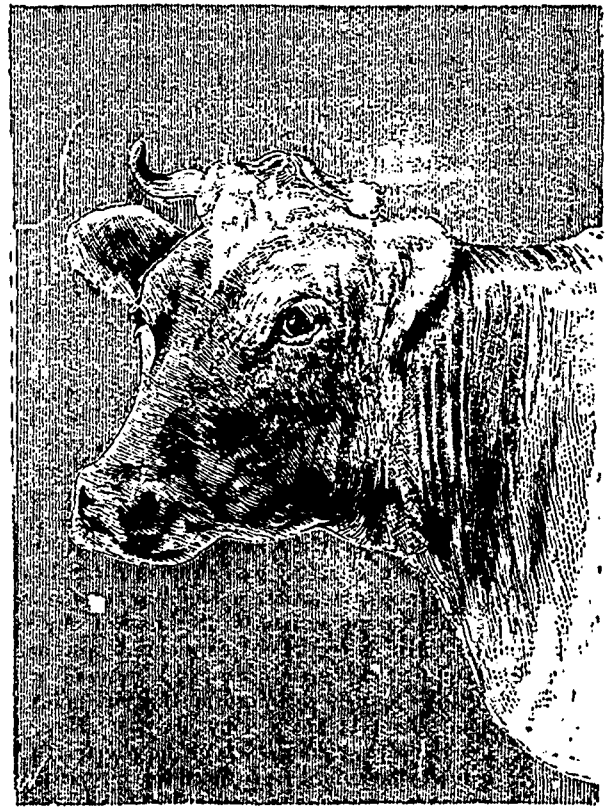
The French are very active in their efforts also. Special butter-shows are being organized throughout the dairy districts. At Chateau-Gontier the judges were mercilessly severe on all exhibits fantastically presented. Good butter should be worked as little as possible, for it is, like good wine, it needs no bush. The prizes were carried off by Prittany and Mayenne.

At this show a rather new churn was entered: its shape is triangular, with the angles slightly rounded; it is worked by a handle, which sets in motion three dashboards; 24 quarts of milk yielded their butter in seven minutes. A siphon was exhibited, and that "skimmed" the milk very

effectively, by drawing it off underneath; the cream subsiding to the bottom of the cooler.

Professor Crispo of Ghent, has analysed a liquid largely advertised as tending to preserve butter: he found that it consisted of phosphoric acid and ammonia. The incorporation of phosphoric acid in the butter has no injurious influence on health, because in one pound of butter, there is only the one-thirtieth part of an ounce of the acid; now in some fevers, doctors prescribe as much as a quarter of an ounce of free phosphoric acid daily, in drinks. The compound in question failed entirely after a few weeks as an antiseptic.

Mr Pasteur is closely occupied studying the nature of *rabies* or *hydrophobia*, while at the same time he does not neglect yellow fever and the plague. The efficacy of peripneumonia being treated by inoculation, has not yet been clearly established, but is in a fair way of being so. That system applied to the *charbon* disease, has proved very suc-



HEAD OF GUERNSEY COW.

cessful; the point to settle definitely is: does this malady spring from animalcules, generated by diseased carcasses buried in soils, and brought up to the surface, by worms? Certain meadows are "cursed": that is, considered as infected: sheep inoculated with the Pasteur prepared vaccine have grazed on such land with impunity; however, sheep not so treated, were not placed beside them. That test must take place.

Dr. Guyon draws attention to the reprehensible practice of rearing foals, or any live stock indeed, on the house-feeding principle: plenty of air, light, and exercise, are requisite for all young stock. He prefers, even, the bad plan of letting the foals run wild, even all the winter. The breeders of the famous Percheron horses chain the foals to a peg driven into the soil: the chain is 6 yards long, sufficient to allow the animal to exercise and graze, while securing that no harm shall arrive from any neighbor anchored close by. As the

ground is fed down, the peg is advanced. At night the foals are housed.

Veterinary-surgeon Eloire maintains, that horse tetanus is contagious, and that it is produced from an animalcule. However, it is the fashion of late to attribute the cause of all diseases of an unsettled origin, to infusoria. The gentleman in question may have guessed right, but he submits no experimental proof.

Some interesting observations have been exchanged at the national agricultural society, on the subject of manures and soils. It would seem, that even the best farm yard manure should only be ranked as a complementary fertilizer. It is not the quantity of manure that is to be considered, but the value of its nutritive elements: these, again, to be valued from their degree of solubility. Caution was recommended in reference to theories which regulate the dosing of soils with the mineral ingredients to replace the quantities removed by the crops. Such could not be regulated as if an interest table or a prescription. Besides, many of the useful principles contained in a soil are exhausted but very slowly. In the case of rotations, the destruction of animals injurious to plants ought not to be overlooked. The Nile, observed the eminent chemist Dumas, deposits in its annual overflow a layer of silt, only the one-twenty-fifth of an inch in thickness, yet that has sufficed to keep Egypt fertile for thousands of years. The permanent fertility of the Limagne, he continued, might be explained, by the constant deposit of a frequent dust, blown from the volcanic rocks of Auvergne, and known to be rich in phosphates and potash. Perhaps to the same cause may be attributed the vigorous vegetation of many orchidee. Mr Riser believes, that the poverty of his soils, at Calèves in Switzerland, is due to the stripping their surface undergoes by violent winds.

Professor Petermann, the distinguished Belgian chemist, is occupied with a series of experiments of the highest scientific import, and bearing on the fertility of soils and the nutrition of plants. Chemical analysis, he asserts, supplies but very imperfect information relative to the immediate cause of the fertility of soils. He adopts the "dialysis" process, to separate the immediate principles of nutrition, but which are guarded by a coating of earthy particles, the latter having acquired them from the solutions circulating in the soil. When the one-fifth part of an inch in thickness of any substance, such as earth, is spread on a membrane, parchment for example, and that membrane placed in a vessel of water to float, the soluble matters contained in that substance are sucked through. That is analysis by dialysis. Now, the membrane acts the part of the rootlets of the plant; the latter do not extract their food from the fluids circulating in the soil, but from the particles of earth, which have become coated, somewhat as a pill is gilt, by the nutritive elements absorbed from the fluids, and that thus enter the membrane root with rapidity, and in markedly large quantities.

Mr Fouquet dissipates a common error which presumes, that land rolled, or a surface battened, better prevents evaporation taking place, than where the surface is left friable—free, in a word. Thus, a stroke of the harrow, would secure greater freshness in the soil, or its humidity for a greater period, than an application of the roller. Place in two vases—Nessler & Wagner have demonstrated the fact—equal quantities of earth; leave the contents in one case very friable, in the other, compress firmly. For a time, the evaporation will be sensibly uniform, but later, the freer soil will be found to be four times less dry than its rival.

Mr Desprez is an eminent beet-grower, near Lille. The value of the root he maintains, in point of production of sugar, depends on the seed, and the latter can only be determined by analyses of the mother-root. The roots selected

to bear seed, are stored during the winter in cellars, and such as fail to yield 12 per cent of sugar are cast aside. He has a laboratory capable of making 320 analyses per hour, that means, the examination of 2700 roots per day—operations, that can only be made by sunlight. The best root is that which is hard and possessing a red skin: it ought to contain 16 per cent of sugar, which means, the yield of a seed which will produce roots giving 14½ per cent. The form of the root, whether large or medium, is not of importance. Mr Desprez finds, that rich soils, also, are suited for beet culture, and that early sowings are the best. In the South of France, Mr Prichard, by means of irrigation, has profitably cultivated sugar beet. Thus a warm climate need, henceforth, be no impediment. Roumania has entered the lists as a beet growing country: a bounty of 20 centimes the kilo, being granted on all sugar exported. The prospects of the beet crop are excellent this season. There are 49½ beet sugar factories in France.

## Poultry Department.

### Best breeds for the farmer.

There is no more perplexing question the novice has to confront in poultry raising than this: "What breeds shall I keep?" It is all the more annoying when experienced poultry men, in whom one has the greatest confidence, fail to agree in the matter, some recommending one breed, some another, each one naturally claiming his favorites superior to all others. Probably everyone who contemplates keeping poultry for profit has a fancy for some particular breed or breeds, and, as a rule, he will succeed best with those breeds, since he will take a greater interest in caring for them than for those he does not fancy and buys simply because some one else has had success with them. Success in poultry keeping depends quite as much on good care as on breeds. Of course, a person must consider the object for which he keeps fowls, whether for flesh, eggs, or both, and not be so prejudiced in his views as to work against his own interests. However, he may safely start on the basis that no one breed is perfect; no one breed can fulfil the highest requirements both for egg and meat production.

There is among some farmers a seeming prejudice against pure-bred stock of any kind, but if cattle as a class are any better than they were a half century ago (and they are), the improvement is due to the patience, care and outlay of those who have made the breeding of thoroughbred stock a study and a practice, and they have brought this stock up to a very high degree of perfection. If a herd of "scrub" cattle are not as profitable as a herd of Jerseys or Short-horns, why should men cling to the old notion that a lot of common dunghill, mongrel fowls are just as good as pure bred Brahmas, Leghorns or Plymouth Rocks? Will not the same mode of reasoning apply to both cases?

However, I would not press the matter of "pure breeds" for the farmer's use too far, yet he is, or should be, equally interested with the fancier in having pure blood to cross with. If a cross between pure-breeds will come to maturity sooner than either of the parents, the cross may be best for his purpose, or if it will produce fowls that will make broilers sooner than either pure-bred parent, the same may be true. At any rate, a man labors under a wrong impression if he thinks that a flock of hungry-looking, serawny, half feathered mongrels will bring him as good returns in eggs and meat as pure-bred or crossed fowls, and it will cost quite as much to keep them.

As to what may be styled "the best breed for the farmer's use," it depends altogether on what object he wishes to attain with his fowls. If his aim is to get eggs for market, he wants



the hen that lays the most eggs in the year; that does not care to sit nine months out of twelve, and does not eat more than she is worth. To answer this purpose there are probably none better than the Houdans and Leghorns. In order to show the comparative qualities of different breeds for egg production the following table, which is probably as accurate as any on this point, is submitted.

Breed.	Number eggs to the pound	Number eggs per annum.
Leghorns.....	9	160
Houdans.....	8	150
Plymouth Rocks.....	8	150
Hamburgs.....	9	150
Black Spanish.....	7	140
Light Brahmas.....	7	130
La Flèche.....	7	130
Partridge Cochins.....	7	130
Black and White Cochins.....	8	125
Polish.....	9	125
Dark Brahmas.....	8	120
Bantams.....	16	90

For flesh and chickens the Light Brahma may safely be put down as best. It has a stately carriage, pure white and black plumage; is of large size, and altogether it is an attractive bird. It is a good layer in winter, and pullets hatched in March will begin to lay in November. It is also a very popular fowl in the market, the color of the legs and flesh being pleasing to the eye, while as broilers the young fowls are not surpassed in juiciness and flavor. The hens are good mothers, being docile and easily handled, and the chicks will withstand cold, wet weather extremely well.

But for the general purpose fowls for eggs, flesh, chicks, for market and for home use, there are no better fowls than the Dominiques and the Plymouth Rocks. They are both handsome fowls and ornaments to any poultry-yard. By the table above given it will be seen that the Plymouth Rocks rank with the Houdans and Leghorns as layers, hence might be classified in the front rank for eggs alone, but when prolificness is combined with numerous other good characteristics, it makes the Plymouth Rocks exceptionally good fowls for the farmer. They are as little affected by change as any other breed and produce as much flesh with the same amount of food; they mature fast; are thrifty and vigorous; bear confinement well; are quiet in disposition; have beautiful plumage of bluish gray, penciled with darker blue, and are in every respect worthy to be styled the farmer's fowl. With them and the Dominiques no farmer need ever make a failure of poultry keeping, if he give the proper care and attention to his fowls, both in Summer and Winter.

To sum up, then, if eggs alone are wanted choose the white Leghorns, if white fowls are desired, or the black Spanish, if black ones are preferred. For eggs and flesh the Light Brahmas are first, then come the Plymouth Rocks. If the young folks want a few pets in the poultry-yard, the White Crested Sultan or one of the varieties of Bantams may be procured.—*Rural New-Yorker*.

**TURKEY-REARING.**

BY J. CHESNEY.

LOUIS XII. has the credit of having introduced the first turkeys into France, and for some time they were only bred in that country in the neighbourhood of Bourges. At the present day you find them almost everywhere—in the south as in the north, in Lorraine, in Burgundy, throughout Normandy and

Picardy, in the basin of the Garonne, in fact, wherever there are markets to be supplied or broods of chickens to be hatched and tended. Still, it is undoubtedly certain that damp is an enemy to the turkey, which thrives much better on a gravelly sandy soil than elsewhere. At the same time, as large numbers of turkeys come to us from Ireland, it is quite plain that it is possible to a great extent to overcome difficulties of climate, and by taking sufficient precaution with the young birds to bring them to maturity even under unfavourable conditions.

No doubt the choice of the breed may have something to do with success in turkey-rearing, and one kind may thrive better than another in some localities. There are those who greatly prefer the bronzed or mottled turkey to the black, while some have a strong leaning towards white birds, the feathers of which are much prized; yet upon the whole the black turkey seems to be the most universally useful, and it is always chosen by the breeders of Toulouse, who, being men of great experience, and eminently successful in their line of business, must probably have good reasons for their predilection.

**FATTENING TURKEYS.**

Turkeys while fattening should always be left at liberty; it does not answer to shut them up. The hens put on flesh more rapidly and are more delicate eating than the cocks, but naturally they do not attain the same size or weight. It takes about six weeks to produce a really fine specimen.

The better plan is, when intending to fatten, to make for the first fortnight no change in the ordinary food beyond giving a supplementary repast at nightfall. This meal may consist of potatoes, beet root, grain of any kind, acorns, chestnuts, or anything which may be abundant in the locality. Where walnuts abound, French breeders are fond of administering them whole, bolus-fashion, and will give as many as forty to a turkey in the last stage of the fattening process, but these nuts are said to communicate a disagreeable flavour of oil to the flesh. During the second fortnight, the turkeys should be fed on mashed potatoes and barley, maize, or buckwheat meal, mixed into a paste with either water or curdled or sweet milk. This paste is made into little rolls, as thick as the finger and about three inches long, which, are dipped in milk and gently pressed down the throat of the bird, an additional one being given at each meal—that is to say morning and evening. During the daytime they wander about the fields, or, still better, in the woods, in large numbers, under the care of some child, who has to see that they do not get at any noxious plants, such as hemlock, digitalis, certain kinds of ranunculus, and others. In this way they provide, at small expense, a good part of their substance, and, indeed, we may as well state that where there is not a pretty extensive range for them it is not possible to rear turkeys with economy, for it is a great point to have a large number together. (1)

**COST OF REARING TURKEYS.**

The cost of rearing turkeys differs greatly, not merely in good and bad years but in different localities, depending so much on the relative cost of food. Where beech or oak woods prevail, or where root and grain crops are plentiful, the expense for a great portion of the year is comparatively light, and the profit, if in the neighbourhood of a good market, very considerable. The great thing to be done is to study the resources and requirements of the neighbourhood, and to act accordingly. No doubt turkey chicks are somewhat difficult to rear, and require more care than other young fowls, but it is well worth while to bestow time and attention upon them in the earlier stages; but if trouble is objected to, it is generally possible to buy at reasonable rates flocks of turkeys ready grown and ready for the fattening process.

(1) W. Vernon's flock, at Duxford, Cambridgeshire, numbered 850.



This is the plan adopted by the farmers in many parts of Normandy. As soon as the grain is cut they buy young birds from the peasants, and put them into their fields in droves of from one to three hundred. Being capital gleaners they soon get into a good condition, and bring in a handsome sum. At the prices which are now obtainable it ought to be possible in good years to make a handsome profit upon each bird, provided always that the business is managed with a due regard to economy, and carried on by persons who have all the food on their own premises and can also, at the same time, provide the labour. With those who have wages to pay, and everything to buy, the question of poultry-rearing in a large way must wear an entirely different aspect, and, in our opinion, had better not be attempted, at any rate with a view to profit.

#### Cotton-seed.

Some statistics given at the recent meeting of cottonseed oil-makers show the value to the country of thus utilizing the seed. The cotton boll as brought in from the field is one third lint and two-thirds seed. For every bale of cotton weighing 500 pounds sent to market, 1,000 pounds of seed were formerly left about the gin-house to rot, or to be hauled out over the plantation as a fertilizer. The price of the seed then was \$6 per ton. Now it sells for \$12. This means, of course, for each bale of cotton an additional profit to the planter of six dollars. From the 1,000 pounds of seed, costing six dollars, the manufacturer gets about 17½ gallons of oil, worth 45 cents per gallon, while the residuum cake is considered more valuable as a fertilizer than the seed from which it was made, and sells for as much as the seed costs. *Ec.*

#### Liquid Manure Tanks.

"Mr. A. R. Jenner Fust, a leading and very intelligent contributor to the *Journal of Agriculture* of the Province of Quebec, has the following in answer to a correspondent upon this subject :

"An enquirer wishes to know my opinion about the management of the liquid manure on farms where little straw is grown. He is not singular in his idea that the question is a puzzling one. He is tired of carting black earth to the stable and back again to the fields, to say nothing, of the digging it and setting it up to dry, and I do not wonder at it. On a small farm, where a punchcon would hold a week's supply of urine, it might be mixed with its bulk of water and carted out at once to the grass land ; this, however, could not be done in the winter, and it is in that season that the principal amount of urine is available. I suppose a tank must be built, and the bulk kept for distribution in the spring, but the whole subject is full of difficulties. This I must say, that I have known many tanks built for the purpose, but after a year's trial they have been disused. The favor of correspondence on the subject is solicited."

This correspondent, who grows few straw crops, has, it appears, been bedding with dry muck as an absorbent, but has become tired of the labor it entails. He wants to know more about the management of the stable liquids, but Mr. Fust gives him rather poor encouragement, evidently from lack of personal experience in the matter. To help him and others who are interested, we have requested Mr. Z. E. Jameson of Irasburgh, Vermont, to give us a report of progress in the use of liquid manure tanks in his neighborhood, where they were quite generally adopted several years ago. We may preface his observations by saying that the use of tanks at Irasburgh grew out of the discovery of the manurial value of the earth beneath old cow stables. It was found that the soil beneath these old stables, in use for twenty years and upwards, was strongly impregnated with manurial subs-

tances, —so much so, indeed, as to be nearly or quite as valuable a fertilizer as the commercial manures offered for sale. When this earth had been excavated and applied to crops (especially grass, where it gave an enormous growth), the idea arose that the fresh urine would be equally useful ; and the cavity made in removing the manurial earth was accordingly cemented, and became a tank. A great many evils were anticipated from this, but none seem to have been realized ; while the most encouraging point about the matter is that those who began have continued to make use of this method, while others have imitated them and the practice is spreading from the more to the less enterprising, as is so often the case. The Irasburgh farmers all apply the urine to grass without any dilution with water, and with no ill results. A home-made apparatus for its distribution, something after the style of a street watering cart, is used, the liquid being either dipped or pumped from the tank. Mr. Jameson says :

"I will first report in regard to Mr. Story's results. (Mr. Story was one of the first experimenters.) This spring, with a new hired man, the ease and dispatch in applying remains as favorable, although his former man could fill the drawing tub of one hundred gallons and distribute it in the field and return in ten minutes, while this man found he could not get out a load in less than eleven and a half minutes. He had seventy or eighty loads. The application is to grass in the field. A visitor estimates his hay crop will be eight tons heavier because of the application of the urine ! The liquid was applied to a few acres, and apparently these acres can be kept up to a large yield. The track of the distribution is plainly shown in the crop. In referring to the arguments against the manure tank, Mr. Story says the disagreeable odors of the stable are not increased by a tank of urine below the floor, and when part of the floor is taken up there is no rapid escape of odors perceptible. But when it is agitated, or distributed, it has a rank odor, in which ammonia is prominent. Another says it must make the stable cold to have a cistern under it. In response, Mr. Story calls attention to the general fact that cellars under houses do not make them colder, and also states as a fact that his stable is warmer in winter than ever before. The cistern I put under my stable was flooded by surface water during a thaw in the winter, and so was not of full strength. There were eleven loads. I dipped it out with pails, and my son poured it into the hogshead, or tub. It took only a little while one forenoon to get it out. Some writers who are sensible on what they know, make very foolish statements in regard to what they don't know. They speak of costly apparatus. Aside from our work, two days, my drawing and distributing apparatus did not cost over a dollar. From a pile of logs being sawed up for firewood I selected a sound birch about twenty inches in diameter and had four six-inch blocks sawn off for wheels. I made axles and reaches from maple timber. The cask was thrown by by the merchant, who gave it away. I put on sled thills to attach the horse. I mention my method without either pride or shame, to show that this valuable manure may be saved and applied by farmers with very little expense, and thus overthrow another argument of those eminent writers who oppose the system. I have kept three cows at the barn this summer, and have been using various sorts of bedding ; yet my ever-ready tank has caught the unabsorbed urine in quite a quantity, and as my land is well adapted for manure, my son has been wanting to water various garden vegetables with this liquid. I favored the idea and wished a note of the experiments. In a few days a couple of rows of Multiplier onions ripened off, some cucumbers withered up, a tomato plant hung limp as a wet rag, several hills of watermelons were conspicuous by their absence. As I suspected, it was the effect of the application of undiluted urine from the cow stable. Grass will

bear the application, and I think grain and vegetables will if the liquid manure is applied to the soil before the last harrowing. When such men as Hon. George Geddes of New-York, and Henry Stewart of New Jersey, write against saving and applying this powerful fertilizer in this direct way, it shows the subject is not generally understood. When a fertilizer manufacturer thinks his trade in Vermont may be injured thousands of dollars by a few words from the Board of Agriculture, it shows that Vermonters are buying fertilizers, and the board would do a good work, to continue the investigation begun by Colonel Mead. Let a committee be appointed to examine and report. I believe that if the liquid manure is properly saved, the fertilizers of the farm will be doubled, and there will be little need of commercial fertilizers." *Vermont-Watchman*.

Dear Sir.—In the Journal for July, page 35, you say of *Nitrate of Soda*, "it is not in our market yet," etc, etc.

Although we are not merchants, this Company imports large quantities of Nitrate of Soda for the manufacture of Saltpetre, and I thought you might be interested in knowing that we have had several applications for the article, from both Ontario and Quebec, to be used as a fertilizer, and that we are glad to supply any one wishing intelligently to experiment with it.

Yours truly,

H. C. BRAINARD, President. *Hamilton Powder Co.*

I have much pleasure in printing Mr. Brainard's letter. Upon inquiry, I find that the price of the *nitrate of soda*, is low enough to bring it within reach of any farmer: an acre of wheat should receive from 100 lbs to 200 lbs, according to the condition of the land, and the cost would be from \$2.75 to \$5.50, which, with the addition of the proper quantity of phosphoric acid would only amount to from \$6 to \$8. The nitrate, at this rate, is even a cheaper source of nitrogen than the sulphate of ammonia, and in certain cases, it is more useful. I learn, too, from the manager of the Hamilton Powder company, that there is every prospect of *sulphuric acid* being obtainable next season for one cent a pound, which would make superphosphate, or rather, *dissolved bones* cost only \$24 a ton; a most desirable consumption. A. R. J. F.

#### Valuation of Manures.

An interesting paper on this subject was read by Mr H. Scott, of Alwrick, before the Coquetdale and Vale of An Agricultural Association, a few days ago. The writer pointed out that nitrogen is generally given in the form of ammonia, and estimated as worth £80 a ton, or 16s. per unit. This referred to ammonia alone, and not to sulphate of ammonia, which was worth one fourth of this, or 4s. per unit. Soluble phosphates are worth 3s. per unit, from whatever source obtained. Insoluble phosphates, when procured from bones or first-rate guano, are worth £10 a ton, while from mineral sources they are of but little value. Muriate of potash is sold at £7, or nearly 1s. 6d. per unit. It contains nearly 50 per cent., therefore pure potash is worth about 3s. per unit. Sulphate of potash can be bought at £2 5s. per ton (containing 15 per cent. of potash), and sulphate of magnesia at £3 15s. per ton. The latter would be 9d. per unit, and as it contains 15 per cent of magnesia, it would be, therefore, worth 5s. a unit. Alkaline salts are valued at £1 a ton, which is 3d. a unit. Guano, in 1868, contained ingredients theoretically worth £16 a ton, whereas an average sample now is not worth more than £12 10s. to £13, and much is sold of very inferior value. Bones should contain about 50 per cent. of phosphates and 4 per cent. of ammonia. In case of bonemeal yielding 54.10 per cent. of phosphates and 4.30 per cent. of ammonia, the valuation, deducting 10 per cent. for slow action, would be £7 19s. 3.; while  $\frac{1}{2}$ -inch and  $\frac{1}{4}$ -inch bones,

with the same analysis, would be worth respectively 4s. 5d. and 8s. 10d. less per ton. Dissolved bones should vary in price according to the percentage of soluble phosphates, the insoluble phosphate, and ammonia. They are the dearest form of phosphatic manure. Dissolved boneash is a highly valuable manure, very rich in soluble phosphate, often up to 36 per cent., with 4 or 5 per cent. of insoluble, which is considered as valuable as the same material in bones. Ordinary superphosphate from mineral sources is sold in two forms, ranging from 25 to 36 per cent. soluble. Such manures are worth from £3 15s. to £5 8s. per ton, and can often be bought in quantities at something less. A most interesting portion of Mr Scott's paper was that in which he gave an account of his own farm, which he entered in 1865 on a twenty-one years' lease, and which has since been extended to the end of the present century. Some of the worst fields were considered by the outgoing tenant as quite unworthy of cultivation, and so had been left for fourteen years in bare stubble furrow. The land was at once drained and limed, and now yields, with artificial manure, heavy crops. When the farm was entered in 1865, £180 was offered for 103 acres of outgoing crops. In 1874, when our series of good harvests came to an end, 15 acres of barley, without straw, yielded £181 2s. 6d. This improved state of things was entirely attributed by Mr Scott to the judicious use of artificial manures. *Eng. Ag. Gazette*.

#### Sheldon on Milk.

The modern development of the milk trade is a thing that would have astonished our forefathers, if it had been told to them. What the farmers would have done during the recent years of depression, if they had all been compelled to make their milk into cheese and butter, if, that is, there had been no milk trade as we see it to-day, it is difficult to imagine. Even as things were, with a large and an increasing proportion of the milk produced in Britain consumed as milk, the price to which cheese sank two years ago was lower than had probably been seen during the present century. Things are now better, and a healthier tone prevails among dairy farmers. Cows are milking much better this year, and the price of cheese, if only a fair quantity of it is made, will enable farmers to pay their way. Milk sold at 6 cts a quart is more profitable to the farmer who can realise that price than any possible cheese-making or butter-making can be. Milk at 4 cts a quart, in fact, is equal to \$21 or \$22 a cwt. for cheese, and to 30 cts or 36 cts a lb. for butter, so that 8 cts a quart, the price milk is generally retailed at, would enable farmers to save plenty of money. It may be said, indeed, that farmers, as a rule, can pay their way if they receive 4 cts a quart for their milk, without the cost of retailing it, and this for both summer's and winter's milk. For the summer's milk only, which is so much less costly to produce, farmers in many cases could carry along at 13 cts to 14 cts a gal. for the milk, providing the rents they have to pay are moderate, and their land is well adapted to milk producing. *Ag. Gazette*.

#### Cotton-seed meal.

In reply to T. A. H., page 630, Dr Moore says this is a "dangerous food." Why is it, unless adulterated with some poisonous or indigestible substance? I have caused it to be fed to all kinds of stock for years, and always to their benefit, and so have many of my friends. If this killed the shoats of T. A. H., he may depend it was badly adulterated, as oil meal often is by dealers putting plaster of Paris or other deleterious substances in it. The scoundrels who do this deserve a long term in the State Prison, and it is a great pity they cannot be found out and sent there.

A. B. ALLEN, in *Country Gentleman*.

**PESTS OF THE POULTRY YARD.**—Your contributor "W. J. P." gives an account of the damage done by crows to broods of young chicks (p. 7). At the present time I am having both chickens and ducklings taken by rats. If the little ones are with the hen in the daytime, the rats will pounce upon them from under a log of wood, or anything that affords a hiding place. At night they burrow under the coops, and take them from under the hen. Last night a chicken was heard in great distress, and on going to see what was the matter with it, a great rat was just coming from under

the coop, and escaped. It had bitten the chicken through the leg, and skinned its neck and breast, but the chicken was alive; it was a month old. This morning another fine pullet, 12 weeks old, and a duckling are missing. Can you or some of your correspondents inform me as to the means of exterminating the rats? I have shot many; traps they will not go into, and I have tried poison; but the seem to increase rather than diminish. Information will oblige your perplexed correspondent.—*C. H. T. Ag. Gazette.*

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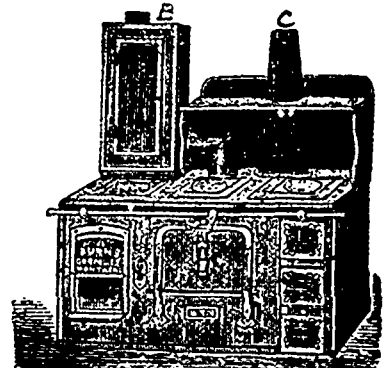
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