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THE

Canadian Agriculturist,

OR

NAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

XIV. TORONTO, JULY 16, 1862. No. 14.

The New Wheat Insect.

find the subjoined letter in a late number *London Free Press*, under date of July We have received several communica- on the same subject, accompanied with ns of the insect, from various parts of country where it has been seen. In some s where the wheat *midge* has not yet its appearance, the farmers have sup that the new insect is that dreaded t. Thus however, it is almost unneces- to say, is not the case. The new insect is s, nearly resembling in apearance those found upon garden or green house trees plants. We are inclined to think from us sent us, that there may be more one variety or specie of them, as they considerably in size and colour. They however very nearly allied, if not of the species. Some of the specimens on open- letter in which they were received have of a bright scarlet or orange color; very minute in size, a few of them with the majority apparently without, and of them alive. On opening the same let- following day, all the insects are found anged to a brown or green colour, many dead, a few still living. Other speci- ved have been considerably larger in ing from brown to a light green in and apparently of a different form to the kind. Some of the orange-coloured with wings certainly resemble the per- fect fly of the wheat midge a little in appearance at first sight, and this may have given rise to the impression that they were the same. The in- sects are, however, quite distinct. The aphis has appeared this year over very extended areas of the country. From what accounts have yet been given of it, it does not seem to cause any very great amount of injury to the wheat, al- though it must undoubtedly affect it to some ex- tent:—

(*To the Editor of the Free Press.*)

DEAR SIR,—I had placed in my hands, by a gentleman in the market, an ear of wheat cov- ered with insects very much resembling, at the first glance, the common "Aphis," found on the soft stems of roses and other garden flowers. My friend told me that the ear of wheat given to me was one out of a field taken without any special selection, every ear appearing to contain a great abundance of similar insects; the one I had contained about 100 insects, and many must have been shaken off in previous handling of the ear. Some of the insects possessed wings rather imperfectly developed, others had no wings, probably the not fully developed animal. On placing the insects under the microscope, they appeared to me to belong to the order "Hem- iptera," or half-winged insects. The common tree bug is a fair example of the order. The insects had a largely developed "rostrum," which is the underlip of the insect, jointed, hol- low, prolonged, and tapering to a point—in short, like the upper lip of the elephant called its trunk, but more horny and piercing at its point. Those insects which had not been dis- turbed were situated at the junction of the grain, with the ear stalk, and had their rostrums se- curely entered into the grain, which, in the spe- cimen I had, was just formed, that is, the grain

was in its early membranous state with its white centre discernable. The result of the operation of such innumerable enemies as these insects must be the utter exhaustion of the grain. As the white kernel of the grain is secreted, it must be sucked into the hungry stomachs of these destructive animals; and the whole crop, supposing them to be as numerous throughout as on this specimen, must be shrivelled, half-grown, with very little flower in the grain, even if it ever reaches maturity. A more perfect boring apparatus, at the same time hollow, with great powers of suction, capable of drawing into the stomach of the animal every fluid particle in the grain, could not be devised or imagined. So soon as the grain hardens, the crop must be safe from this insect, unless future observation shows that it can derive subsistence from the fluids of the stalks as well as from the grain itself. Not one of the insects I have seen on this ear had attempted to penetrate the stalk, but that may be because being, as the saying is, "sworn at Highgate," it likes the juicy grain better, and when the grain becomes hard, they may turn their attention to the stalk. I do not think this very probable. But if I were a farmer and found my field covered with them I should be very much inclined to cut it down for hay, and wheat makes good hay when cut green, (I have cut many acres of it for hay when in Australia,) and sow the field for another crop of hay with any grain, such as rye or millet, or anything likely to yield a crop of this season. It would be found almost impossible to shake the insect off the ear. I doubt if a storm of wind and rain would do much to wash or shake them off, for they are possessed of good holding legs and feet and grasp the plant very tenaciously, and in addition to their legs, they have their "rostrum" to hold on with. Rain would only wash off the unattached; whether it would kill them I do not know, I should think not, unless the temperature fell very considerably. What other means the farmers possess for destroying the insects must be left to their own judgment. I doubt whether a grain of wheat once penetrated by the "rostrum" of these creatures can ever develop into good wheat, and whether grain so damaged as the ear shown to me would ever be worth so much as an average hay crop. But this is a matter for the judgment of each farmer. I shall be happy to show any farmer the insect and the penetrated grain, if he will bring specimens with him, for when once killed, the insect will not long exhibit its peculiarities. It soon loses its plumpness, and the shape of the rostrum is lost. Those I now possess will not be worth looking at on Monday, when your impression appears.

I think the prevalence of this insect is due to the continuance of dry weather, and may not be expected in ordinary seasons. If this country possessed the small birds of Europe, they would flutter about the ears of a wheat field, and pick all these insects off before they would become destructive. It is much to be regretted the small birds are so scarce. Every insect-eating bird should be amply protected by every farmer.

I remain, &c., HENRY LANDOR.

[The following is one of several letters addressed to the Editors of this Journal on the same subject.]

To the Editor of the Canadian Agriculturist.

DEAR SIR:—Enclosed you will find three specimens of wheat of the same variety infected with a kind of insect previously unknown in this section of the country.

As the wheat midge has of late years been committing serious havoc, in various parts of the Province, some farmers are of opinion that the insect above mentioned is the wheat-midge; but after a careful examination of this insect, and comparing it with Professor Hind's description of the midge, I am satisfied it is not the same. When first seen upon the wheat the insect was of a red fleshy colour; after-while it changed to a light green colour, probably caused by the animal's praying upon the ascending sap. The insect is very common throughout the County of Waterloo. If you could afford me any information in regard to the nature and habits of the insect,—if injurious to the wheat crop,—or if previously known in other parts of the country,—you would much oblige me as well as a large number of inquiring farmers. Yours truly,

A. BARRIE.

Galt, July 14, 1862.

The International Exhibition.

LONDON, ENGLAND, June 11, 1862.

Editors of the Canadian Agriculturist.

Since my last there has been rain almost every day. There is a great deal of hay cut, and, although the weather is so precarious, the people manage to get it cured by close attention. I speak of course of the small fields in the immediate vicinity of the city, which I have had the opportunity of occasionally seeing. The races of last week seemed to be very much enjoyed by the population of the city of London. Situated as we are on the Clapham Road, we had a full view of the crowd, in astonishing numbers and in all sorts of vehicles, going and returning.

On Monday last, being Whit-Monday and a general holiday, the number at the Exhibition increased up to 60,000, or thereabouts. Yesterday the crowd was very great, and to-day they fill every vacant space. Looking down from the galleries, the movements of

e crowds of people give them a curious ap-arance, which suggests to one's mind the mparison to hardly anything so much as that of a busy swarm of bees.

We (the jurors) have, we hope, got nearly o the end of our labours. For six weeks we ave been nearly the whole time engaged in he examination of the products of the various ountries of the earth from which articles of uman food come; and there are few in which he Almighty has not made ample provision or his creatures. We find that the advantages f any one country over another are not so eat as people are apt to imagine.

But of all the countries that have made an xhibition of their products none equal the olony of Victoria. Her wheat, her wool, nd her gold proclaim her to be the richest ountry in the world, and the people have en active in their exertions to make a good ppearance at the great exhibition. They ave been late in getting all their things in heir places, but they have eventually suc-eded in making a very creditable display, oth of the useful and ornamental. The sam-les of wheat, barley, and oats prove that the ountry is foremost of all in the growth of he cereals, while their paintings and photo-aphs show that the fine arts are not ne-lected.

Samples of wheat weighing 66, 67, and one of 8 lbs. per bushel are shown, and these of the ost beautful white varieties I have ever seen. ur grains are much admired, but I am com-lled to admit that we are beaten by Vic-oria in the exhibition. We shall get a fair hare of medals. There is no competitive ex-mination, but the products of each separate ountry are compared with one another by hemselves, and circumstances of climate and il taken into consideration.

June 19th.

I had hoped by this time to have been able o give you some detailed account of the many nteresting articles in the Exhibition; but e business of the jury has kept me so nstantly engaged that I have been only able o take an occasional stroll from one court to nother. We are now, however, almost at e close of our labours, and hope to finish day. It has been a much more tedious usiness than I at first expected, but I find at here as well as elsewhere the few that ill work must expect to have the most to do. he numerous articles to be examined weary examiner, and often exhaust his patience. he importance of our class makes it neces-y to be particular. I think I have stated there is but one class of medals. Our wards, therefore, expressive of the different grees of merit, are either "Medal," "Highly ommended," or simply "Commended."

I shall not now have much time to devote to a critical examination of the other depart-ments of the Exhibition, as to-morrow I hope to do what I have been for some time desir-ous of doing, viz., go with my friend Mr. Prout to his farm, about thirty miles distant, to see his steam plough at work. He has an engine that works his ploughs and scarifiers, and he seems to be well satisfied with the results. This is his first year of putting the steam machinery into operation. He is carry-ing on farming on a large scale, at least we in Canada would think it so. He has forty acres in Swede turnips and mangel wurzel.

The month of June has so far been exceed-ingly wet. It has rained less or more every day, several days all day, and frequently heavily. We Canadians find it cold and un-comfortable, still the fruits of the earth are coming to maturity; strawberries are abun-dant; peas and young potatos also are in the market in plenty. It is amusing to see the immense loads of rhubarb, asparagus, early cabbage, lettuce, and spinach, piled on the great heavy wagons, like loads of hay, and drawn by generally three and sometimes four heavy horses. I see them in the even-ings, or early in the mornings, wending their way to the principal markets, where they are soon disposed of to the crowds of customers who have to be supplied.

Next week the meeting of the Royal Agri-cultural Society takes place. One of our jurors, Lord Portman, is the President, and has succeeded in having all the Jurors made honorary members of the society, so we shall have all the advantages of that position. The meeting is looked forward to with a great deal of interest. It takes place in Battersea Park, between where I am living and the Ex-hibition. I shall give it all the attention I can. The trial of implements, which will be very numerous, takes place some twenty miles off, and will be a very interesting part of the exhibition. I will endeavour to give the whole affair as much attention as I can, and communicate what I think will interest my Canadian friends. It is to be hoped the wea-ther will be fine, but this morning is still low-ering and threatening rain, but it will surely be fair soon. This continued rain surprises me the more because when I was here in 1851 the weather during the month of June was very fine indeed, very like Canadian weather.

I learn that much of the grass that has been cut is seriously injured, and will only be fit for litter.

June, 26th.

Since my last date I have been down in Hereford at Mr. Prout's farm, and seen his plough at work. His farm, of upwards of 400 acres, is admirably adapted for its opera-tion, and it was doing the work in the most effective manner. The farm is a stiff clay,

and the steam machine worked it up to a depth of seven inches, and moved at the rate of about four miles per hour, or twice as fast as an ordinary horse team. The whole is so admirably arranged and all the parts so complete, that the time required to start from each end of the field is not longer than is required to turn a team of horses, and it takes four furrows at once. The estimate is, that it does the work in the stiff clay that would require thirty-two horses. The only drawback to its complete success is the occasional going wrong of some part of the apparatus, and the consequent stoppage of the work. This is the case sometimes, but not often. Upon the whole I am of the opinion that upon a farm of four hundred acres, which lies favourably, steam cultivation can be employed with advantage.

The Show of the Royal Agricultural Society, is now going on here. I was in the stock yard yesterday and was much pleased with the arrangements. There is a splendid show of animals. The Short Horns are of excellent quality. The Devons, Herefords, and another very long-horned breed from some of the counties, are all very fine. The Galloways, and red Suffolk polled cattle are also very good. The latter breed are much like the Devons, only without the horns. I admire them much; they are noted for their milking qualities.

All the different breeds of sheep are here represented by specimens of the most approved form, and of the finest quality obtained by the art of breeding. There are some majestic-looking rams from the Highlands, of the blackfaced breed, with horns of imposing proportions, and with carcases of dimensions far beyond anything I ever supposed they attained to. The Oxford, the Shropshire, and several other varieties of Downs are all excellent of their kinds, but for beauty and symmetry of form none beat the Leicesters and the old South-Downs. Swine are well represented by the Berkshires, large and small, the Sussex, Yorkshire, Suffolk and Dorsetshire breeds.

I have not mentioned the Welsh, Irish, and Jersey cattle. Numbers of all these are on exhibition, and also foreign cattle from France. There are Ayrshires that compare favorably with any from Scotland, and there are some good ones from there. Some of the Dutch cattle are excellent animals, and from Switzerland there are many of the native cattle that are by no means bad. But the Short-Horns still maintain their superiority, and are on this occasion well represented. There are animals amongst them that would repay one for going a long distance to see them.

Horses are exhibited of all classes, from the Shetland half starved poney, to the monstrous Clydesdale, the Suffolk and dray horse. There are some of the most noted thorough-breds, hunters, roadsters, carriage horses, and useful ponies of fine shape and substance. The Suffolks are the most popular of the large breeds, and are really good animals. Some of the Clydesdale breed are very much superior to any I had ever previously seen. One mare of that breed and which took the first prize is a remarkably fine animal and is held at 600 guineas.

I have not yet been in the Implement Yard where the Implements are in motion, but I have been in that where they are on view not in motion, and will reserve the description until I have seen all in both yards.

We have now concluded our duties as jurors of the International Exhibition. Canada will receive a goodly share of medals and commendations. I perceive that the season has been very dry in Canada. It has been quite the reverse here, as I have already stated. There have been two or three fine days this week, and a good quantity of hay will no doubt be secured.

It seems to stand the rain better here than with us, I suppose because the sun is so constantly obscured.

Your's, &c.,

E. W. Thomson.

The Season in Huron.

Editor of the Canadian Agriculturist.

Sir,—I see by the Newspapers that other parts of the province are blessed with fruitful showers which we very much need here. Since the latter part of April we have had but two or three light showers, which dampened the ground to the depth of an inch or two, when it would be dry again in a day or two. No one here ever remembers to have seen such a dry time.

The Spring wheat, sown early, is about shooting out, and is hardly a foot high. There are no meadows fit to mow, many have turned their cattle into them; late oats is just peeping up among the clods. Not only has the weather been dryer than usual, but the Spring frosts have been more severe also. The Fall and Spring wheat sown on new land were never injured so badly by Spring frosts as they were this Spring. Other Springs we generally had a light frost after rain, but this Spring we had the frost without the rain. Nearly all the currants, cherrries and plums were killed by the frosts.

A dry time injures comparatively new settlements like this, where the land cannot be or is not cultivated deep among the stumps more than older parts of the country, where better system of cultivation can be followed.

Yours respectfully,

A Wawanosh Subscriber.

Wawanosh, July 4, 1862.

ritten for the *Canadian Agriculturist*,

ints for an Agricultural Report of the Township of Hamilton.

Continued from page 395.

Passing from stock to crops, in which a large oportion of our farmers are more directly in-ested, we would notice first, Fall Wheat. e method pursued with this crop when *it was* ltivated extensively, was either to summer-low the land, giving it generally three plough-; or else to sow it after a pea crop, giving ne or two ploughings, as was found con-ient, or the state of the ground required. In early settlements of the township, fall wheat the only kind grown, and when so much of country was covered with wood there was le danger of winter-killing—the *fly* had not been heard of; the *rust* was the enemy most aded by the farmer. We have frequently d old settlers remarking how much easier could get a good crop of wheat *then* than could *now*—"every thing they put in the nd seemed to grow well; if they could only the seed sown they were sure of a good &c., &c. With the clearing away of our ts, the ground became more exposed, so the snow, (the great natural protector of wheat and of our fields in winter), dis-red more rapidly under the influence the wind and the sun, and the wheat ts were weakened or destroyed by the g frosts. Then the plants that were left ed too much—became too rank in their th, and the rust and mildew finished the Notwithstanding all the increased skill care of our farmers so much did this become e that the cultivation of fall wheat has given up in the front part of the township, now grown in the middle and rear parts arly decreasing quantities; the land in parts being higher and dryer, and the ghter than the front.

varieties grown here have been various. we first came to the township the White was a favourite kind; then the bald red white wheat was common; then the on white became the favourite for some but we think the Soule's white wheat has the most valuable variety, and, its introduction, has almost driven all out of cultivation. The blue stem has grown to some extent, and has done well. The Mediterranean and the Ken-May wheat have been tried, but with no ked success. The second prize for the els, and the first prize for the *two* have been taken in the township at the cial Exhibition.

repeated failures of fall wheat no doubt induced our farmers to try spring wheat; new things it was tried but sparingly but as its cultivation became better understood and better varieties were introduced, it became more popular. By the last census it appears that four acres of spring are now grown for one of fall wheat in this township.

Spring wheat is sown after all kinds of root crops and Indian corn—it is sown after peas. The land is generally ploughed twice in the fall, when the manure, if any is used, is put on, and then cultivated in the spring, or else simply harrowed in. In this way good crops of wheat are often obtained, and this method is extensively practised. Sometimes land is *rag* or *bastard* fallowed—that is, the land is ploughed and harrowed immediately after the hay crop is taken off, and then allowed to lie till after harvest, when it is cross-ploughed and harrowed; it is then ridged up before the frost sets in, and sown in the spring, without any further preparation, or else cultivated and sown—manure may be applied at any of the ploughings, as is convenient; when applied before the first or second ploughing it becomes well mixed with the soil. Sometimes a field that has been mown for one or two years is ploughed up with a Michigan Sod-and-Subsoil plough, and sown with wheat; but this method seldom produces such good crops as the other, but there is less labour by this way. Spring wheat is often sown after fall wheat; on land that had been summer-fallowed for the fall wheat the crop is often very fair; it is sometimes sown on the same ground two or three years in succession, but this is not often profitable, as it seldom yields well to sow wheat after wheat; sometimes land, when very dirty, is summer-fallowed for spring wheat; the crop in this case is apt to be too strong. The great breadth of land under root crops in late years, and the increased quantity of peas grown, render the use of other preparations for spring wheat almost unnecessary.

Varieties—The kind first grown here, as far as we know, was the Italian Spring Wheat—a heavily bearded variety, which though it hardly yielded so well to the acre as some varieties that came after, was, on the whole, a good hardy wheat, and made good flour. The variety next introduced was the Siberian—a fine bald or very slightly bearded variety, with a bold plump berry, so much so that it was sometimes mistaken for fall wheat. This kind gave a great impetus to the growth of spring wheat, for the first few years after it was introduced it yielded extremely well, and its fine sample made it much sought after,—but, after a few years, it became very subject to rust, which, in the season of 1848, caused a great failure of this kind, and led to the abandonment of this variety.

About the time the Siberian spring wheat was failing, two other kinds were introduced—one called the Bald and the other the Bearded Club. The Bald Club is an excellent variety, still much grown on our light soils, where it can be sown early, so as to escape rust and fly. It

always commanded the highest price of any of our spring wheats; it is, as named, a bald variety; and in favourable seasons, a very fine sample with large bright berries. The bearded variety grew a very short ear, resembling a *club* with six or eight rows in the ear; it was best adapted for low, strong land, as it was not subject to rust, it yielded middling well, but was very hard to thrash—no fear of its shaking—it was rather fine and weak in the stem, very apt to lodge, which made it troublesome to harvert—there has been none of it grown here for many years. The Black Sea wheat, and the Tea wheat, were tried to some extent, but with no marked success. These two varieties were very similar, if not identical; rather soft in the straw, very apt to lodge and crinkle down; there has been none of them grown lately. But by far the most valuable variety that has ever been tried here is the "Fife Wheat;" it began to be introduced into this township in 1849, having been grown in the neighbouring township of Otonabee for six years previously, and on all low wet strong land has entirely superseded all other kinds. Its most marked quality is its being always free from *rust*, and its bearing to be sown so late in the season as to escape the *fly* in a great measure; it is a bald variety, moderately productive, is reckoned rather hard to grind, but makes good flour. Its introduction was providential, as without a variety with its properties it is hard to say what the farmers on the low wet lands in the township would have done.

It does not reflect much credit on our farmers that they have not ere this bestowed some public testimonial on the gentleman who was the means of introducing it into the Province—he certainly has been a public benefactor, and we hope he will not be allowed to pass away without some mark of esteem for his public spirit; would all our farmers who have directly benefited by it (not to speak of other classes who have been indirectly benefited) contribute only one dollar each, we feel assured it would make a handsomer testimonial than was ever presented to any man in Canada.

There is a variety called the China wheat that has been tried of late; it is a heavily bearded kind, said to be best on light land; it has not been sufficiently tried to see whether it will prove valuable or not. The first prize for spring wheat has been twice awarded to this township at our Provincial Shows.

Before passing from the cultivation of wheat we would notice briefly the insect enemies by which it has been attacked in this township; in doing so we will confine ourselves chiefly to our own observation and experience. During the years 1840 to 1844 a fly that somewhat resembles the Hessian fly in the manner it damaged the wheat crop; it did considerable damage, but it soon passed away, and we have not observed it in any considerable numbers until the past two seasons, when it has again made its appearance. We are inclined to think it is not the Hessian fly, but some one or other of the species of Joint flies. The larva of this fly we have found in the first or second (very rarely in the third) joint from the ground; when the larva makes its escape it eats through one side of the stem of the wheat, thus causing it to crinkle and fall down. The larva is of a dark brown colour, tapers to both ends, and is rather more than the eighth of an inch long; its ravages have never been very extensive, therefore the fly has been little noticed.

The next insect enemy to the wheat that made its appearance was a catterpillar, which we first observed in 1843, and in that and the two following years it was rather prevalent, and caused considerable alarm among farmers at the time; after 1845 it passed away, and was not observed till 1853, when it again made its appearance, and was to be found in most of our wheat fields till 1856; since then we have not seen a single specimen, nor heard anything of its ravages. This catterpillar is called, in the New York reports, "Gaylord's Wheat Caterpillar," and we believe the fly that deposits it has never been ascertained. Asa Fitch, the New York State Entomologist, to whom we sent specimens in 1856, states so, and was very anxious to have the parent fly ascertained. We have, on one or two occasions, attempted to preserve them through winter, but have always failed. There was mostly only one or two caterpillars in a head of wheat, (occasionally we have seen three,) they completely destroyed the grain of wheat they were bred in; and, when numerous, might be found crawling about the barn in great numbers, after the wheat had been taken in. When cleaning up the wheat after thrashing, the screenings would appear alive with them; and, when disturbed, would roll themselves coil up. When the catterpillar was first seen, they were not more than one-tenth of an inch long, those we kept grew till they reached ¾ of an inch in length. On their first appearance they had a soft cylindrical body of a pale colour; the head much darker than the body, with the appearance of five dull stripes along the body and at least six pairs of legs; they devoured the wheat soon after it was put in the box; those we kept knawed hard grains of wheat, beginning at the seed end; they seemed to prefer alike in early or late wheat, as we have found them in the fall wheat harvested in July, and in spring that was not sown till after the middle of May.

The damage done by this enemy of the wheat was trifling, compared to what was done by the wheat fly or Midge, (the *cecidomyia tritici*) which first made its appearance here in 1847, and has ever since injured our wheat crop one or more. This insect is too well known to our farmers to need any description. It is well known the fly comes first out from

e middle of June to the 1st of July, according the season, as it is late or early, and remains me weeks; it deposits its eggs in the ears of eat as they emerge from the sheath—that is, ss it is shooting out—calm moist weather ing favourable to them; they mostly deposit e eggs in the evening and during the night; windy weather in a great measure prevents ir ravages. From a knowledge of their bits and the time of their appearance, we e been led to sow spring wheat late, so that flies may have passed away before it heads ; for this purpose the Fife wheat answers irably, as it is not subject to rust even when n very late. The last season our wheat has n attacked by two other enemies—the Army rm, and what may be called, an *army of ides*. The army worm made its appearance about the first of August, and remained a fortnight, destroying the wheat and r crops; it was worse in spots of lodged and n wheat, and very partial, in some fields serious damage, and in others but a short ce off, doing little or no damage at all—in not one to be seen. They caused great at the time, but did not do near the damage was anticipated. The worm was from an to an inch and a half long, striped with t yellow stripes along the body, with eight of legs, and had altogether a formidable rance; it could travel easily from one to another, taking the grass clean off on its . We secured some specimens in a glass, they soon passed into the *pupae*; in this they remained fifteen days, when they ged into an ordinary looking moth of a tar- yellow or drab colour, inclined to russet, a small white dot near the centre of its wings, and a dusky oblique stripe at their a full scientific description of it may be in most of the agricultural journals of t year from the pen of Asa Fitch, New

other destroyer of our wheat alluded to nite a different look; it appeared about e time as the army worm, at least we t observe it until examining our wheat for orm; it was an aphis, or plant louse, and e cases filled the ears of wheat and oats; small, of a dull red colour, with two long lored attenæ, which it had the power of along its back, giving it the appearance k line along each side, with these it kept feeling forward; close behind the were two dark spots or eyes; it had irs of legs, the hind pair much longer others; it had dark protruberances on parts, and a short tail-like appearance the body was smallest before, and y became larger till past the last pair of hen it tapered off rapidly; they were tive, and could run from one part of of grain to another. Our magnifier was to enable us to say what its mouth was, but we judged it was adapted for sucking, and not for cutting or tearing; they were always in clusters, and appeer to multiply rapidly. On putting some in a glass they became, in a few days, a small clear-winged fly. We are inclined to think they did considerable damage to spring wheat.

The grasshopper has occasionally attacked our crops; the greatest damage done by them was in 1858, when they seriously injured late spring wheat, oats, root crops, clover seed, and pastures. In 1859 they were numerous, but the damage done was not so extensive, as they were that year destroyed in great numbers by a parasite. From their great importance we have dwelt thus particularly on the wheat crop and their enemies; we will now pass over our other crops more rapidly.

Barley.—This crop is not grown extensively in the township. It appears from the last census that only 300 acres were in this crop; its cultivation has fallen off, and spring wheat taken its place; on the heavy clay land the two-rowed variety is mostly sown, and the six-rowed on the lighter soils; it is mostly sown on wheat stubble; often one or two ploughings. The best crops are raised when sown after a root crop. It is a favourable crop to seed down with. It is sometimes attacked by the wheat-fly or one very similar. The first prize for Barley has come twice, and the second twice to this township, at the Provincial Show.

Oats.—This crop is only grown in sufficient quantities for home use, little or none for export. They are mostly sown on wheat or barley stubble, but sometimes on green-sod and clover lea; they are, on the whole, a pretty certain crop, not much subject to blight or the ravages of insects, though they were attacked by the grasshopper, (as stated above) some years ago, and to some extent by the Army Worm and aphis last year. The white varieties are mostly grown, though the black ones are to some extent; the Potato, Hopetown, Berlin, and other heavy kinds have been tried, and though they yield very superior samples, yet we believe they are found not more profitable than the common kinds. At the Provincial Shows, the first prize twice, and the second prize three times, have been awarded to this township.

Peas.—This is an important crop, not only for feeding purposes, and for export, but also as a preparatory crop for wheat. They are sown after all kinds of crops, but mostly on land that has been in hay or pasture the previous year. Generally the land for peas is ploughed in the spring; they are often the first crop sown. They are sometimes damaged by mildew, never much by insects, though some years they are a little *buggy*. Of this crop there are many varieties, the Whit's Creeper being most common. Some of the early varieties are sown by some farmers for the United States market. The large Marrowfat peas were grown largely at

one time, but they have not been so much sown lately. The Black-eyed Marrowfat is at present a favourite and productive variety. The first prize for Marrowfat Peas was taken once in the township at the Provincial Show.

Rye.—Of this crop very little is grown; what is is generally sown on some of our light soils. Its cultivation is rather fallen off in late years. We believe it is not subject to the attacks of insects.

Of *Buckwheat* still less is grown, and that generally in small patches for family use.

Indian Corn has not been much grown, as it is not a crop on which our farmers place much dependence; what is grown is mostly for family use, and for feeding purposes, for which it is very useful and convenient. We think it deserves more attention at the hands of our farmers than it receives, as it is a good preparatory crop for wheat or barley, and can be used as a fallow crop for cleaning the land with.

Canadian Timber at the International Exhibition.

The following description of the woods of Canada in the International Exhibition, is from the *Gardener's Chronicle* of June 14th, and probably from the pen of its accomplished conductor, Professor Lindley. Our readers will perceive that a permanent mine of wealth is to be found in our forests, if properly managed, and that our commissioners to the great Exhibition have executed their duty in an efficient and praise-worthy manner. That with our cereals and other productions, natural and artificial, notwithstanding the very small and inadequate sum of money given to the enterprise by our colonial government, enough has been accomplished by economy and good management, to show the world that Canada is not that country of ice and snow, with which it has too long been associated in the popular mind:—

"The visitor to the International Exhibition who shall seek for timber will see on his right in the distance, as soon as he enters the Eastern Dome, a noble pile reaching nearly to the roof of the transept. When he approaches the pile, he will find that its base is surrounded by most admirable examples of what Canada can produce; for he is within our great North-East envy American Colony, the pride of England, the of the United States. There is not such another display from the New World; and when we consider how near is Canada to our own shores, the rapidity of intercommunication between us, and the enormous wealth which this "trophy" represents, it is difficult to avoid feelings of something like triumph at such a demonstration of British power. And yet there those who would pull the trophy down, becau forsooth, it is thought to stand in the way of painted window. We have not, however, s to such effeminacy as to prefer *tinsel to iron*, to sacrifice the interests of millions to degra rate taste. For ourselves, we own that admire the work of the Almighty, even in rude form of timber, very much more than combination of blue, red, and yellow glas the cathedral window. And so does the in ligent part of the public.

To planters in this country the exhibition timber in Canada, is particularly interesti because not a tree is represented in it which we are unfamiliar. We can grow it all on our own estates if we think it w while; and, given time enough, we can p them as well. More especially does it con those who already possess old specimens Canadian trees to study here the evidence what they may come to. Take, for exa Black Walnut, which grows magnificently near London. There is one specimen (No which is four feet seven inches in diameter, clusive of its bark. Such timber can be b Quebec for £71 per 1,000 feet cube. Th cimen to which we now refer must be 400 years old.

North American Elms thrive perfectly us. They are, however, we believe, exclu *Ulmus Americana and fulva* that have introduced. We now see that another called the Rock Elm, or *Ulmus racem* superior to them and to our own; the being finer in the grain and less brittle. there is a specimen, about 2 feet 8 inc diameter.

Weymouth Pines are among the co of our hardy conifers. They yield the "wood" of carpenters. Little, however, foresters know of the huge specimens swarm in Canada. "Average height 1 160 feet; average diameter, 3 to 4 feet common near Lake Erie 5 to 6 feet in di and 200 feet high; or even in some c feet in circumference, 220 feet high, branches for 120 feet to the first limb." monsters are, however, too big to exhi Canada modestly limits herself to about 10 in. or three feet in dameter.

Then there is *Pinus resinosa*, or t Pine, which dislikes our eastern climate, 6 in. in diameter, which is about twice i size. But there is no encouragement it here.

The Ash of Canada (*Fraxinus Am* famous for its toughness and strength ble for the handles of axes and other ments, is displayed in its small forms as in the giant proportions that it assu full grown. One round, with 305 circl nual growth, is 2 feet 10 in. in dia admirable example of timber.

There is Oak, too, (*Quercus tinctoria*), red (*Q. rubra*), and white (*Q. alba*), the latter little inferior to British heart of Oak, and not far off 4 feet in diameter. This tree, as much at home with us as with Canadians, is said to be sometimes 21 feet round! in Western Canada.

Then we have Occidental Plane, or Button Wood, 4 feet through; Tulip tree or White Wood, 3½ feet, ahd Bass wood or American Lime, more than 2 feet, all excellent for cabinet and joiners' work, though unfit to bear exposure to weather.

Add to these numerous specimens of the fair growth of American Chestnut, Hickories, Maples, Beech, Birch, Hornbeam, Hemlock, Spruce, Tamarac, or American Larch, and he who would thoroughly understand the nature of Canadian timber has a field for serious study hitherto unexampled: how serious in a mercantile point of view, may be gathered from the fact, that Canada exports annually about 30,000,000 cubic feet of timber in the rough state, and about 400,000,000 feet, board measure, of sawn timber. The revenue derived by the Province, during 1860, for timber cut in the forests, amounted to about $500,000." It appears that of the 60 or 70 varieties of woods in its forests, there are usually only five or six kinds which go to make up these exports so vast in quantity; the remaining fifty or sixty timber trees are left to perish or are burned as a nuisance, to get them out of the way. The Commissioners truly observe that by showing in the markets of the world, that it has these valuable woods, and can furnish them at unprecedently low prices, will secure additional purchasers, a result that the capital display in the Exhibition building is admirably adapted to secure. The Commissioners from the Colony state that in extent, and in the value and variety of its woods, the great forests of deciduous trees of North America surpass all others; the most remarkable of this great mixed forest being that grown in the valley of the St. Lawrence. The western coasts, in high latitudes, furnish only or chiefly the Coniferæ. High summer temperature and abundant summer rains, are, unquestionably, the conditions necessary to produce the deciduous forest trees. Western coasts, in high latitudes, have the necessary moisture, but not the high summer temperature; Western prairies, east of the Mississippi, and the vast deserts west of it, have summer heat but not moisture; hence the absence of all trees in one region, and of the deciduous trees in the other. In this country we have probably all the conditions, except time, under which the Canadian timber has been produced.

All the hardy trees belonging to the Canadian Exhibition are capitally shown, by the production of both "rounds" or transverse sections, and planks, so that the grain may be examined in each direction; and we only do justice to the Canadian Commissioners when we point out the skill of their arrangements; not forgetting their excellent Catalogue, which has afforded us some part of the information now laid before our readers.

In the other North American colonies the timber exhibited is merely in the form of hand specimes if produced at all. That of Vancouver and British Columbia is still at sea, with the exception of a few examples from the former, among which will be found the unsurpassable Douglass Fir, to which we have lately drawn attention on several occasions, and the Cypress of the settlers, a beautiful white wood would be produced, we believe, by *Thuja gigantea* (*Libocedras decurruns.*)

OPINION OF THE DUKE OF NEWCASTLE.

Subjoined is a circular letter addressed through Dr. Lindley, Colonial Superintendent, to the several Colonial Commissioners, by His Grace the Colonial Secretary, which will be read with interest.

"DOWNING STREET, 4th June, 1862.

"My dear Dr. Lindley, Now that the Colonial Department of the International Exhibition is very nearly completed, I must express to you, first, my thanks for the trouble you took in showing me the various productions, and, next, my extreme admiration of the spirited and successful manner in which the colonies, with scarcely an exception, have responded to the invitation of the Commissioners to send specimens of their natural produce and industry for the information, and, I may well add, the instruction of the nations of Europe.

"It is impossible that such a display of what the Colonial portions of the British empire can produce should be without a very material influence upon the future prospects and prosperity of each of them. In gold and other metals, in cereal produce, in timber, in wool, above all in cotton, the visitors of the International Exhibition will find the English colonies eclipsing all competitors; and I am much mistaken if foreigners will not find in the department allotted to them more to excite their admiration and wonder than in the more showy and artistic displays, which do so much credit to the taste, energy and manufacturing power of the mother country.

"I assure you that not only officially but individually I am delighted at the position before the world which the Colonies have assumed at the Exhibition.

"I am, my dear Dr. Lindley,
"Your's very sincerely,
"NEWCASTLE."

The seed of winter wheat retains its germinating powers from three to four years, of spring wheat two to three years, oats two years, beet-root six to seven, swedes five to six.

Irrigation for Grass Lands.

We are again amid the fervid heats of July, the hottest and oftentimes the dryest month of the year. One now only needs to look over the parched fields, especially in a dry season, to understand the need of irrigation. Even in seasons of average moisture we could use to advantage many times the quantity of water that falls from the clouds. It would always make the hay crop a certainty, and often quadruple the yield of grass in the irrigated fields. It was not strange that the Romans living under the bright skies of Italy, early found the advantage of damming their mountain streams, and turning them at pleasure upon the meadows below. It would seem from the account of Virgil, that whole districts were famous for the crops procured mainly by this method. Irrigation must have been an art well understood long before the Christian era. Is it not strange that in a climate quite as much subject to drouth as that of Italy, irrigation should be almost unknown among us? With a climate that demands it, and with unrivalled facilities for its practice, in most of the northern States, not one farmer in a thousand has availed himself of the treasures of water within his reach. Nothing could better show the neglect of agriculture among us as an art than this fact. Few people are more ingenious than ours, or more quick to take advantage of the facilities which Nature offers to save labour and to create wealth. We abound in all useful inventions and labour-saving machines.—We dam the streams to turn innumerable wheels for manufacturing purposes; to make fish-ponds and adorn our ornamental grounds; to make model lakes and raise our annual crop of ice, for the delight of Europe and the Indies. But how rarely is a stream turned from its course to fertilize the land and increase our harvests.

Few have any conception of the value of water as a fertilizer. Many turn the streams made by rains in the highways into the adjacent fields, but they attribute all the increased luxuriance of the grass to the matter deposited. No doubt street refuse, such as the rain washes into the meadow, is an excellent fertilizer, but the rain itself contributes to the result. Far beyond the line of deposit, you see the effects of the water.

Just how the water operates to fertilize the soil we may not be able to state. Of the fact there can be no doubt. We see the power of water to make crops in every drouth that comes. There are fields of light gravelly soil, whose crops of grass are nearly doubled in wet seasons. It is pretty safe to infer that water made the difference. Water is a powerful solvent, and helps the decomposition, not only of vegetable fibre in the soil, but of its mineral constituents. You can not wash a stone so clean that water will not act upon its surface, and after a few hours wash away something more from it. It is probable that the water is all the while preparing plant food from the soil where it is present, and of course the more of it we pass through the soil, the more nourishment the roots of plants are enabled to take it up.

We have recently examined two small valleys, flowed for skating during the winter, and drawn off in early spring. In both you can detect the water line in winter by the greater luxuriance of the grass Both streams that fed these ponds are dry, or nearly so, in summer, and never carry any very large volume of water. The basins that contain the water are small, and mostly covered with grass, so that they are turbid even in rains. There is little appearance of sediment when the water is drawn off in the spring, and it is nearly certain that the beneficial effect is mainly owing to the presence of water in the winter season. If the water helps the grass crop under these unfavourable circumstances, it must help it much more when it bears a rich deposit, and is applied at the growing season.

We have in this State two examples at least, of the successful application of irrigation to farms—that of A. B. Dickinson, of Steuben Co., and L. D. Clift, of Putnam Co.; accounts of which were published in the Agricultural Transactions for 1855. In both these cases, the method is simple and the expense not beyond the means of the most thriving farmers who have streams convenient for this purpose. In both, the results are all that could have been anticipated. The method is to dam the stream at a point above the lands to be watered, and to turn it on at pleasure, by means of a gate and channels of distribution. These main channels are furnished with side conduits which are merely furrows made with the plow, and having just descent enough to carry the water. When the water is turned on, these channels overflow, and the water is distributed over many acres.

Mr. Clift pursues his irrigation even in winter, and it is this feature probably that will be looked upon with more hesitation than any others. The water freezes sometimes as it flows, making a broad field of ice a foot or more in thickness, where it remains until dissolved by the suns of spring. It is probable that the ice affects the soil thus protected just as the ice-covered pond does. It is completely shielded from the alternate thawing and freezing; the frost does not strike in deeply, and comes out very early in the spring. It is his testimony that "the grass in all such places is first in spring, and grows with great rapidity." He also improves other seasons when the stream is charged with sediment, and spreads it over the land as a top dressing. Besides the sediment which is carried in the water, a good deal collects in the bottom of the pond, which is carted out when the water is drawn off, and makes excellent manure. This is spread upon portions of the field that receive the smallest supply of water, He cuts above a hundred tons of hay on forty acres of land,

which is certainly double the average for the mowing land of the state, and uses no other manure.

Mr. Dickinson makes great account of increasing the natural deposit of sediment by artificial means. He plows and harrows land that is to be overflowed, and stirs up the soil after it is under water to make it very muddy. Even the subsoil that is thus spread over grass land is found to be an excellent fertilizer. His grass crops are enormous, and the best possible commentary upon his method of irrigation.

Now we have thousands of farms all over the country quite as well, or even better situated for artificial watering than these. In many cases a few days' labour by the ordinary working force of the farm would make a pond and the necessary channels for watering a few acres. The work once begun would demonstrate its economy and lead to the watering of all the available portions of the farm. Lands that are now an incumbrance, hardly paying taxes, might be brought into a high state of productiveness. We call the attention of our readers to this very important topic at this season, when the scythe sweeps so many acree prolific in five-finger and briars, but poor in grass. Cheap and careless irrigation pays, and the more systematic and perfect it is, the better it pays, as a general rule. Use our streams rightly, and we shall find them richer than Pactolus, plowing over golden sands. —*Agriculturist.*

Economy in the Preservation and Storing of Manure upon a Farm or Garden.

The following statement will, it is hoped, be found interesting to your readers. It is based entirely upon experience gained during the last 16 years, in which the following practice has been observed, viz. :—

In the autumn in each year, immediately after harvest, all the hedges and ditches upon a farm of about 500 acres of mixed gravel and clay land are trimmed and cleaned, and the whole consumed in one or more large heaps by charring or smother burning, great care being taken that the wood, rough grass, and weeds, of which the heap is composed, is sufficiently covered from time to time with earth to prevent the escape of any flame; and as the heaps are consumed, daily additions of a further quantity are made, as much earth being charred as possible. The whole having been thus converted into a well-burnt mass, by which means the weeds and waste are cleared up and the farm made neat, a most valuable heap of material for the preservation and economical storing of manure applicable to root and other crops is obtained at a very trifling cost.

When the heap is cold it is carted and placed under an inexpensive shed made of very rough materials, viz., oak posts fixed into the ground, with rough larch poles for the plating and rafters. The covering is composed of the chips obtained from the hoop-maker, but the roof may be covered with any material most easily and cheaply obtained. The advantage of chips or straw is, that the covering is warm for the fowls, which are made to roost in the roof, so that the powerful manure from them may be economised and preserved for use.

It is probably well known to all your readers that charred or burnt earth, cinders, ashes, &c., are complete deodorisers, and all offensive substances thrown into the heap become, in the course of a few hours, entirely free from smell. The first shed erected for the purpose above described did not cost more than £5. It was constructed of a few poles with a roof of thatched hurdles put up by a hedge carpenter. This fact is mentioned to show that no one need be deterred from adopting the system by reason of expense. When the ashes have been placed under the shed, all the refuse of the house and premises, which in most cases is entirely wasted, is thrown upon or amongst them. The urine from the house is removed in a vessel kept for the purpose. All the blood and animal refuse, &c., are thrown into the heap, as also the soil from privies, and in the course of a few hours any offensive smell is entirely destroyed. The manure thus made during 12 months has been found sufficient to provide a good and cheap dressing to be drilled in with the root crops, and excellent results have been obtained—as many as 40 acres in one year have been thus manured.

Having by experience ascertained the complete deodorisation of all offensive substances by being mixed with burnt earth, the material has since been used for destroying all unpleasant smells in stables, cow houses, and pig styes, with entire success. Buildings which would otherwise smell very strongly are rendered as free from offensive savour as any dwelling-room. The burnt earth is placed all over the floors to the depth of about 1½ to 2 inches, and is occasionally moved up with a pointed tool. All liquids are absorbed and deodorised, the solid portions of the excrements are daily thrown into the adjoining yard. When the burnt earth is fully saturated it is removed to the shed, and another covering is substituted. Not only is all the liquid manure thus secure and economised, but the health of the cattle is better provided for. Although scarcely necessary to refer to the expense of the above operations, it being exceedingly small, yet it may be satisfactory to some to have data from which the cost may be calculated:—

1. The clearing of the hedges and ditches is a necessary work upon all well managed farms, whether the rubbish is burnt or not.

2. The carting into heaps for burning, and the subsequent removal to the shed, is done with the odd horse or pony and an old man.

3. The collection of the refuse and waste of the house, &c, is easily done. The household servants place their portion of the refuse in a vessel provided for the purpose, and the cow-man or odd man removes it to the heap once or twice daily.

4. The distribution over the land is done by means of the drill, as any other manure of a like kind is spread.—*Gardener's Chronicle.*

Hydropathy in the Garden.

We gave our readers some suggestions in a late number, on the importance of Irrigation in the growth of farm crops, and inviting further inquiry and experiment. We now wish to direct the same kind of inquiry to the management of the fruit and vegetable garden.

The application of water artificially appears to have a useful effect on all crops that grow better in moist than in dry seasons. Meadows, for instance, as every one is aware, produce the largest growth of grass when we have plenty of rains, and are light when the early part of the season—the period of most rapid growth,—is dry. Farmers are familiar with the fact that wet swales give a heavier crop of grass, than dry knolls. And some have witnessed examples where the streams from clear springs, flowing in a slow current downward over meadow land, have marked a heavy growth on this watered streak. Rain or spring water, clear or turbid water, will always increase the growth of grass, if not in excess. (Wet, cold, water-soaked places, are often observed to give little else than coarse or sedge grasses—and they furnish examples of the evils of excess). An example is familiar on our own grounds, where a meadow lay between the fork of two large creeks—partly flats and partly upland. One stream was always very turbid at the time of high water, the other clear. That portion of the meadow washed by the former was uniformly the heaviest, yielding usually three tons of hay per acre, and often more; the other about two and a half. The higher land, similar in quality, but not overflowed, yielded rarely over half a ton, and the line of demarcation between them (the line between the flowed and unflowed,) was as distinct as possible. The whole proved conclusively the benefit of water alone, and the superior benefit of a thin deposit annually of simple mud, which had no fertility in itself greater than other soil.*

These remarks do not however apply to the subject in hand, further than to illustrate general principles. We may add, that discrimination is essential in watering different crops. The wet swale, for example, which will afford the heaviest grass, may produce the poorest corn; yet there is still a certain amount, but much less quantity of moisture essential to corn, for it may be parched and dried by extreme drought.

All vegetables which will receive high manuring, are improved by irrigation—such for instance, as celery, asparagus, rhubarb and cabbages. But the amount must be determined by judgment or some experience, and vary with the nature of the season. All who are familiar with the culture of the strawberry and raspberry, will remember the reduced size and inferior quality of both these fruits when a severe drought has occurred during the time of their ripening. We have known a heavy rain at such time, to double the size of the ripening Franconia raspberries, in two or three days. We have also seen ripening strawberries, placed accidentally under the slow drip of a water cart, doubled in size in twenty-four hours. The artificial watering has this advantage over the irrigation of rains—in being accompanied with no exclusion of warmth and sunlight—an exclusion usually attendant on natural watering, and rendering some of these fruits sourer and less palatable in wet seasons. As a general rule, fruits of a high and concentrated flavor are rendered more pleasant by the diluting which they receive by irrigation; and seedy fruits, as some kinds of raspberries, are rendered more pulpy in the same way.

A late number of the Boston Cultivator contains an account of some experiments reported by Artemus Newell, of Needham, Mass, to the Norfolk Agricultural Society, on irrigating strawberries growing in a pear garden. A few acres of dry gravelly ridge were planted with dwarf pears, nine feet apart. Between each row, a bed for strawberries was formed, by back-furrowing very deep to the centre, thus making the bed three feet wide, with a furrow between each bed and row of trees, for the water to run in when needed. The water was let into a main channel which passed on the higher side and nearly at right angles to these rows. Between this channel and the rows a plank was placed, set on edge, with a hole bored for each furrow between the pear rows and strawberry beds. A cork placed in each hole regulated or excluded the water at pleasure. The water passed off at the lower side, and irrigated a meadow.

The results were, the pear trees made twice the growth of wood when well irrigated. The difference in the luxuriance of the trees could be seen at a long distance. "The best trees are where there is irrigation on the surface, and drain pipes laid directly under them, four feet below." We copy the statement of the mode of planting the strawberries, and the effects of the water upon them:—

"Strawberries I plant between the rows of pear trees, in deep, light beds three feet wide only. By this arrangement the soil is never

* The same principle,—the benefit from a thin surface coating of soil on grass, has been proved by scattering fine soil over the surface artificially. Farmers are familiar with the strong and early growth of grass along the borders of corn and other cultivated fields, where earth has been scattered accidentaly in turning the harrow or cultivator at the ends of rows.

-dden down either in planting, weeding, trim-ing, or picking the fruit, and they are much ore easily kept from weeds. The beds are berally supplied with strong manure, placed in e deep furrow in the bed, at least one foot ·low the surface. One row of plants is set rectly over the manure, the plants fifteen to ·hteen inches apart. They are set in the ·nth of May. The hole for the plant is made ·h a tool like a marlin-spike, reaching down ·ll into the manure. The roots are let down d the hole is carefully filled with fine earth thout pressing, then soaked with water, and earth placed over the top to prevent baking. e effect of placing the manure so deep, is to ·y the roots of the plant through the manure the soil in a dry time, to entirely cover the ·s by autumn with the most vigorous plants, d to keep the seeds of weeds and grass so low ·t they will do no harm. The fruit is mostly ·wn on the new plants, which have derived ir vigor from the manure chiefly through the ·ts of the original plant, the runners of which ·cut off in the spring for the purpose of weed-&c.

·st of my strawberry beds are watered ·rally by a constant flow of water along the ·nels, which have been described. The re-·ts are, that the berries are large and fair; ·y do not ripen quite as early, but continue in ·ing much longer; the crop is certain, even ·he dryest seasons, when those on dry land are ·ff—sometimes before half the crop is ma-·d. In fact, I deem irrigation almost indis-·ible for the successful cultivation of straw-·ies in dry seasons."

·he irrigation of the meadow doubled the ·unt of hay.

·e may remark in conclusion, that while gation cannot supply the place of manure good cultivation, it will doubtless prove an ·llent auxiliary, where it is practicable to ·duce it; and so far as gardening is concern-deep and enriched soil, and thorough and ·w culture, will go far towards preventing effects of drought, where irrigation cannot ·troduced. A combination of both would, ·naged with judgment, produce excellent re-·—*Country Gentleman.*

Short-horns in France.

·he short-horn breeders in England have ·y reason to be satisfied with the Poissy ·—not that their herds were by any means represented, but that no show in France ·ver so thoroughly established the utility of Durham breed as the last. Not only was ·y intelligent spectator convinced of the val-·results which had followed the introduc-·of foreign blood, but it was plain to them ·ntinued importation is as essential to the maintenance of the results as the original importation was to their inauguration.

The trade has now risen to considerable dimensions. The managers of the Government Dairy Establishments of Pin (Orne) and du Champ (Mayenne) were amongst the first to try the milking qualities of the breed. After this private enterprise commenced a spirited competition for pedigree short-horn cattle, the honour of the initiative belonging to M. le Marquis de Torcy (Orne) and M. de Behague (Loiret). These gentlemen, however, were neither of them well placed to give much of a lead to public opinion: for one resided in a very backward neighbourhood, where the farmers had neither spirit nor money to follow a good example, and the other was placed in the vicinity of an indigenous breed, whose esteemed character rendered any effort to displace it most unpopular. In the departments Mayenne and Maine-et-Loire lying west of the great Oolitic basin of Paris, and composed generally of old red sand-stone and granite rocks, this breed has made more way. Whether it has done so because the farming is better and the root crop is more attended to, or whether the improvement in culture has been the consequence of its introduction, it is difficult to say; it is sufficient to remark that these departments have lately made great progress, and that the Durham cattle have well nigh driven out the Mancelle, a local breed, or absorbed it, and are now to be found as much at home in the homesteads of the mere farmers as they are in some of the most thrifty parts of England.

It must not be forgotten that the result is much owing to the enterprise of Mr. Jamet, who, aided by the manager of La Vacherie du Champ, and M. de Falloux, a landed proprietor of considerable repute, and a successful exhibitor at Poissy, has maintained quite a crusade in favour of the Durham. Following this example, the proprietors of Anjou emulated each other, attended our sales, and carried back some of our finest types with which to found the true stock so well represented at Poissy. Attention has been already called in our report of Poissy to the Herd Book of France, with its 1,500 entries, and of the 143 established breeders; but we have yet to speak of the care exercised by these gentlemen in maintaining the purity of their standard. No animal is admitted to a place amongst the upper ten thousand save such as can show a descent on both sides from pure bred stock; both parents must be unexceptionable in their descent, or there is no admission amongst the privileged order for their progeny. This rule was strictly enforced at Poissy; for the jury displaced several aspirants to the peerage because they lacked, on they dam's side, a proof of nobility, and gave them rank amongst a lower, but very large class designated *Croisements divers.* This care is even carried further by the Emperor, who has directed that in future no

short-horn shall be purchased for the Imperial farms whose pedigree cannot be traced on both sides to the second volume of the English Herd Book.

All this precision proving the intense interest which is taken by our neighbours in the race, must, if correctly interpreted, be to the English breeder the source of the greatest satisfaction. Those who have returned from Poissy to tell their neighbours that the French are now so much masters of their business as to need no further tuition from us may be correct; but those who add to this assertion that the perfection of the pure breed of short-horns established across the Channel renders unnecessary any further importation of foreign blood, and henceforth closes our trade in that quarter, must have used their eyes to little purpose, or reasoned negligently upon the facts placed before them.

We know very well in England that no breed of sheep or cattle reaches the same development in the situations to which it is foreign as it does in those natural to it. We know that great mistakes are made in removing stock from one county to another where the circumstances of life differ, or from one side of the island to the other, where the conditions of climate are various. No short-horn breeder is unacquainted with the fact that certain parts of Yorkshire are better adapted to the short horn than others, and that he is seen in richer bloom in his home pasture than he is anywhere else. It is for this reason that most prudent men when they want new blood like to go north for it. Now, theoretically, if these observations have any force as regards England, they must have much more when applied to France; and, in fact, we find they have. The English exhibited nothing very wonderful at Poissy, but yet the contrast was unfavourable to the French pure Durham. The latter wanted that developement which characterised our own. There was nothing, for instance, at three years of age which could compare with Mr. Crisp's ox, or, unsatisfactory as he might be as the only representative in the steer class, with Mr. Holland's steer. We entertain the belief that many years must pass before the short-horn becomes so naturalised in France, should this ever occur, as to render the breeders there independent of a recourse to our herds. Were these gentlemen less particular than they are, ordinary developement might suit them; but being so particular, nothing short of absolute perfection will please them, and to obtain this point they must continually return to us for new blood to counteract some certain effects of climate and soil disadvantageous to the growth of the imported breed.

Although the French were unmistakably proud of having accomplished so vast a stride in so short a time, and having arrived at such proficiency in the use of the weapons we placed in their hands, we met no breeder skilful in his art who was not ready to acknowledge, if judiciously questioned, that a pretty frequent accession of English blood was requisite to preserve the French Durham from degenerating.

While, however, this enthusiastic attention to his art tends to make the French breeder a constant and large purchaser at our pedigree sales, it must be remembered that he comes as a discerning purchaser, and that if his custom is to be retained special attention must be here given to preserve the high character of the attractions which draws him.—*Agricultural Gazette.*

Surface Manuring.

The practice of top dressing, or of surface-manuring, has long been the favorite method employed by all intelligent gardeners within the circle of my acquaintance. We have long ago learned that masses of rich, nitrogenous manures are not what plants require about their roots, but that manures are applied much more successfully (and less injuriously) by top dressing either in solid or liquid form. Nature never manures her plants with crude masses of concentrated fertilizing substances, but imparts her stimulating and mineral food in a state of the most minute division—almost infinitesimal—chiefly from the surface of the earth. No wonder so many fruit trees have been killed, so many grape vines destroyed or rendered barren by excess of wood, in consequence of the heavy manuring at the roots so universally recommended by writers on gardening and horticulture.

The great objection to surface-manuring is founded upon the probable loss of ammonia caused by the exposure of decaying manures upon the surface of the earth. But this loss has been shown, by sound reasoning and facts deduced from pratical experience, to be much less than is commonly apprehended, while the benefits arising from surface-manuring in other respects, more than counterbalance any possible loss of ammonia from this practice.

In the first place, when manures are exposed upon the surface of the earth, even in wet weather, decomposition no longer goes on as rapidly as when the same manures are kept in a heap, and the ammonia that is produced is gradually carried into the soil by rains. The other soluble substances, as potash, lime, phosphates, &c., are of course not lost, because they are not volatile.

Nor are these soluble and valuable substances lost to plants by being carried into the soil before they are needed by growing plants. It has been conclusively shown by eminent scientific authorities that any good soil, containing a proportion of clay and carbon, is capable of taking up and retaining effectually ammonia, lime, potash, soda, &c., in a soluble form, so that little, if any, passes off in the underdrainage water of such soils. These substances, it is true, may wash from the surface, but they

ot pass through a good soil and go off in the rainage water.

By surface-manuring we mulch the ground, nd render it cooler in summer and warmer in inter. More shade is an important element in ulture—so important that some writers have ought shade alone to be equivalent to manure. piece of soil heavily shaded by surface-manring actually decomposes like a manure heap that is, it undergoes a sort of putrefaction or emical change, which sets free its chemical onstituents, unlocks as it were, its locked up anurial treasures, and fits its natural elements become the food of plants. Darkness, moisre and air are the conditions required for vegeble and mineral decomposition. These conions are produced in the soil by surface-manng.

Then, again, when the surface-manure decomses, its elements are washed into the soil in a ate of solution precisely-fitted to meet the ents of plants, and they become themselves tive agents in promoting further decompositn and chemical changes in the entire body of e soil.

Manure, then, I say, chiefly upon the surface. o not waste your manures by mixing them ply with the soil. Plant shallow. Keep ots of all trees, plants, and vines as near the face as possible. There are weighty reasons the position assumed in the last sentence, ich I have not space now to enumerate. ay again plant shallow. Let your soil be p and dry, but plant near the surface as ch as possible. Top-dress your grass, after ing in July and August, under a burning mer sun; top-dress in the fall, before and ring the autumn rains: manure the surface ile snow is on the ground, while the March d blows, and while the April rains fall. nure your grass, instead of your corn and eat, broadcast, at any time when you have ure and leisure, and I will guarantee that will be abundantly satisfied with the result. To fruit-growers I would say: Do not fill r soil with manure before you plant trees, pe vines, &c. Plant in good natural soil, manure from the surface, spring and fall, rally and properly, and I will guarantee success far greater than if you plant in holes trenches filled with manures, as the custom Surface-manuring and mulching are the e doctrines. I am sure of it.—*Gardeners' nthly.*

Natural Food v. Medicine.

What, then, are the medical plants comprised the natural food of our cattle? What are medicinal or active principles of such plants? d what are the functions such principles perm in the animal economy?

owing to the very limited progress which oric chemistry has made in the analysis of the plants consumed by cattle as natural food, on the one hand, and in the analysis of the beef, mutton, and pork into which such natural food is converted on the other hand, only a very general answer can be given to these three questions, especially the latter two. As to the first the conclusion, in a general sense, is manifest; for as all plants contain medicinal principles, it consequently follows that all the plants eaten by cattle are medical plants. It is only, however, when plants possess active medicinal principles in sufficient quantity to produce certain observable effects upon individual organs—as the kidney, the liver, or any other specific function—that they are acknowledged as medicinal, and are adopted into the *Materia Medica* of the medical profession. Thus, oak-bark contains a large per-centage of the astringent principle, and is consequently adopted into the *Materia Medica*; whereas many grasses contain the same astringent principle, but in so small a percentage as to be unsuited for medical use, and are therefore not adopted. Along with astringent principle, other barks possess aperient and diuretic properties, as the bark of the ash and elm, and are adopted; but the grasses that contain similar properties, but in small quantity, are not adopted. Again, many of the condimental plants of our natural pastures that are eaten in small quantity by cattle, and relished by them as condiment, are adopted into the *Materia Medica*, because the per-centage of active principles is sufficient to produce specific action. Thus, tansy is a bitter tonic diuretic, and is eaten by sheep, but shunned by the horse and ox. Tormentil possesses even more astringent principle than oak bark, and is eaten by sheep and pigs. There is, in short, a long list of medical plants possessing astringent bitter, tonic, aperient, diuretic, and diaphoretic properties, that are eaten, but only in small quantity at a time, the purposes they serve in the dietary of cattle being evidently condimental; indeed, there are very few medical plants that are not comprised in the natural food of our domesticated animals.

With regard to the peculiar functions which the different medicinal principles perform in the animal economy, such as tannic and gallic acid, bitter extractive matter, &c., little is yet known, chemically speaking; but that the all-wise Creator has given them a chemical purpose to serve is manifest from the fact that when the food of cattle is deficient of those principles they lose health, the different organs which are affected by such principles, when present in the food, ceasing to perform their functions normally when such principles are wanting, or are deficient in the food. Until chemistry makes the necessary discovery in the laboratory, so as to be able to solve satisfactorily the chemical question, we must rest contented with the medical solution of the olden time, as acquired by ex-

perience, viz, that those principles that produce cathartic action are cathartic, and are required for some wise purpose in the process of digestion, assimilation, preservation, and defecation in small quantity in the daily food of every animal—that tonic principles are required to keep up the tissues in a normal state of tonicity, so as to enable them to perform their functions. Thus the muscles of the stomach and intestinal canal and the muscles of the heart require tonic principle to counteract the relaxing principles of the respiratory elements of food, so as to preserve their contractile powers at the normal standard; that the kidneys require diuretic properties, the skin diaphoretic, the fluids antiseptic and refrigerant, to prevent abnormal change; and so on throughout the whole list of medicinal properties and their innumerable combinations. Because man is not so well informed in organic chemistry as his Maker is no valid reason for him becoming a sceptic to the chemical solution of what we see daily solved at the bar of experience, in the natural providence of things, and which can be thus solved at the bar of experience as often as we please, in accordance with the established deductions of medical science, especially ince the progress now being made in chemical analysis is annually approaching nearer and nearer to a satisfactory solution of the chemical question itself at issue.

In the common language of practical farmers, the medicinal principles of the grasses and other plants eaten by cattle are their odorous and sapid properties. All attempts hitherto made to classify them under such heads as bitter, saccharine, saline, astringent, acid, aromatic, fœtid, acrid, alliacious, musky, &c., &c., have failed. When several of them are combined or present together in one plant, as they generally are, such as saccharine, saline, bitter-acid, and aromatic, it is not very easy distinguishing the one from the other, or saying which may predominate, or how many may be present in one plant. But, with the peculiar smell and taste of such plant farmers are familiar; and also with the fact that the quality of these odorous and sapid properties are very different under different seasons, and under different modes of management and circumstances connected with the harvesting and using of them. They are also familiar with the fact that the value of these plants as feeding materials, is dependant upon the fineness of the quality and the largeness of the quantity of the odorous and sapid properties, or natural condiment which such feeding materials contain when given to cattle. There are, in short, no facts in connection with farming that are based upon a more solid foundation than the medicinal properties of the food of cattle, and their dietic value.—*Mark-lane Express.*

Fully one-half of the money value of rape and the best cotton-seed cakes is obtained back again in the manure.

Agricultural Intelligence.

Agricultural Exhibitions this Autumn.

PROVINCIAL AND STATE.

Upper Canada, at Toronto, September 22r —26th.

Lower Canada, at Sherbrooke, 17th, 18t 19th September.

New York State, at Rochester, September? to October 3rd.

Illinois State, at Peoria, September 29 t October 4.

Ohio, at Cleveland, September 16 to 19.

COUNTIES.

Stormont, at Cornwall, Oct. 8th and 9th.
North Simcoe, at Barrie, Oct. 1st.
Brockville, at Brockville, Sept. 18th and 19th.
South Simcoe, at Bradford, Oct. 2nd.
Durham West, at Newcastle, Oct. 9 and 10.
North Lanark, at Almonte, Sept. 16th.
Russell, at Osborne, Sept. 30th.

Importation of Cattle.

We learn with pleasure that Mr. Simon Beattie, of Markham, who left here for Scotland the beginning of last winter, has returned with a good lot of picked cattle, and other kinds stock, for the improvement of the breeds in this country. Mr. Beattie had a very rough and tedious passage out. The weather was very severe and squally, with head winds and a good deal of rain. He left Annan, Scotland, on 14th April and was nine weeks and two days from that port to Quebec, reaching home from thence on the 21st ultimo. The cattle, however, we understand, fortunately escaped any serious damage. The stock brought over by Mr. Beattie is as follows:

A thorough bred stallion, 5 years old, sire Grey Plover, gr. sire Irish Bird-Catcher, g. sire Sir Hercules: dam by Corona, gr. dam Beauty by Pantaloon, g.gr. dam by Touchstone,

Two Durham 2 years old heifers, bred by Mr. Robert Syme, Red Kirk, Dumfriesshire, and sired by General Havelock, (16130), and out of pure short-horn dams of Mr. Syme's breeding.

Six head of Ayrshire Cattle, viz: 1 cow, two years old heifers, and two bull calves. The cow and one of the bull calves from the herds of Mr. Anderson, near Ayr; the heifers and the other bull calf from the herds of Mr. McK. and Mr. Hamilton, Lanark.

Thirty-four head of sheep, consisting of 22 Leicester rams, and 10 ewes of the same breed, all from some of the principal breeders in Yorkshire; and two Southdown ewes from Mr. McConnell, Dumfrieshire, bred from the Duke of Richmond's stock.

Of pigs, two sows and one boar of the Yorkshire breed, about six months old.

Poultry, about a dozen of the best Dorking and Black Spanish fowls.

Adulteration of Manures in France.

The adulteration of artifical manures and guano has attracted the attention of the French government through the efforts of M. Adolphe Bobierre, who has been appointed chemical analyzer of manures for the department of the Loire Inferieure, an institution established by the government. The gentleman has addressed a detailed report, in the highest degree interesting, to agricultural science and to the body of cultivators. He was the first to call the attention of the authorities to the flagrant frauds perpetrated in the manufacture of manures, and to the numberless deceptions to which the trade gave rise. In consequence of his representations, the administration, in order to protect the ignorant and credulous husbandman, founded the institution alluded to, and justly appointed M. Bobierre the first analytical chemist; and the report that distinguished savan has drawn up fully justifies the selection. In it he has laid bare the fraudulent tricks of the manufacturers to deceive both the analytical chemists and the agriculturists. For instance, in the article of animal charcoal, they profess to sell it as containing 40 per cent. of phosphate of lime. They send the article *weighed*, in a dry state, to the chemist, who accordingly finds it contains the alleged proportion. But with the dry material the merchant mixes water, according to the tenderness of his conscience, and then *sells it by the hectolitre (or measure,) instead of the kilogram (or weight);* and thus the buyer and the chemist are both mystified beyond any redemption. But, in order more effectually to conceal the fraud, light, spongy substances, such as carbonized peat and other similar substances, are mixed with the animal black, and absorb the water, making it impossible, without another analysis, to detect the fraud, which, as shown by M. Bobierre, reduces the proportion of phosphate of lime to 19 per cent., instead of 40. We trust this report will be translated into English, and circulated through the agricultural journals, amongst the farmers, who cannot be too much instructed as to the set of harpies by whom they are assailed, in the shape of artificial manure manufacturers. *Mark Lane Express.*

To Improve Sandy Soils.

The defect in such soils is chiefly of this sort: They are mechanically defective, being so light and porous that they cannot retain moisture, or manure, if applied. Besides, they are generally wanting in various important elements of plant growth. Therefore, to improve them, we must endeavour to supply these radical defects. The first point can be gained by spreading a coat of clay over the surface and dragging it in. This will improve its texture, and will also impart fertility. Adhesiveness and strength having been gained, manure from the barn yard may be applied as fast as it can be procured. Another method is to dress such lands with rough composts. Prepare the heaps at leisure, in the barn-yard. The ingredients may be such as these; ten loads of stable dung mixed with five loads of clayed soil, twenty bushels of ashes, and the same amount of lime. After these articles have been well incorporated, let the mass lie for a month or two; then it will be ready for use. Such a compost, it is easy to see, will be more enduring, and better in all respects, than the same bulk of barn-yard manure. It will improve the quality of the land permanently, and will enrich it with a fertility which will be very lasting. On every farm of the kind here supposed, there should be one or more compost heaps of some sort *constantly* building—*Agriculturist.*

An Agricultural College Bill in the United States.

The recent U. S. Congress has passed three important acts for the encouragement of agriculture. These are the Homestead bill, the Bill creating a "Department of Agriculture" and the recently passed Bill providing for the establishment of Agricultural Colleges.

The latter bill in brief is as follows. It provides a grant of public land to be proportioned to each State, in quantity equal to 30,000 acres for each Senator and Representative in Congress, provided that no mineral lands are selected or purchased under the provisions of the act. The proceeds of these lands go to the "endowment, support, and maintenance of at least one college in each State, where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to Agriculture and the Mechanic Arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life." The further provisions of the act are, that the capital of the fund shall remain forever undiminished, and the annual interest be regularly applied to the purpose above

specified; that no portion of said fund, nor the interest thereon, shall be applied, directly or indirectly, under any pretence whatever, to the purchase, erection, preservation, or repair of any building or buildings: that any state claiming the benefit of the provisions of the act, shall provide, within five years, at least not less than one college, as above stated, or the grant to such State shall cease, and said State shall be bound to pay the United States the amount received of any lands previously sold, and that the title to purchasers under the State shall be valid; that an annual report of the doings of each college shall be published, such report recording the improvements and experiments made, with their costs and results, and such other matters, including state industrial and economical statistics, as may be supposed useful, that no State while in a condition of rebellion or insurrection against the Government of the United States, shall be entitled to the benefits of the act; and that no state shall be entitled to the benefits of the act, unless it shall express its acceptance thereof by its legislature within two years from the date of its approval by the President.—*Maine Farmer.*

Wool Exhibition.—The Ohio State Agricultural Society has made arrangements to have a great exhibition of wool at its Fair, which is to be held at Cleveland, September 16th to the 19th. —The Ohio Farmer says, "Four classes have been arranged, comprising Felting Wools, Delaine Wools, Cassimere Wools and Combing Wools. In each class there are to be three premiums, of $20, $10 and $5, respectively. None but actual growers are allowed to exhibit, and competition is open to all parts of the United States and Canadas. Samples must not contain less than twenty fleeces. The awarding Committees are partly composed of experienced Eastern manufacturers and practical Western wool men. A capacious building will be erected for the convenience of exhibition, and a wool sale at auction will close the Fair on the Friday afternoon."

Horticultural.

Black Wart in Cherry Trees

To the Editor of the Agriculturist.—I have this day cut down about the last of my common tame cherry trees, on account of the fungus or black knot, similar to that which grows on the plum trees. It has killed nearly all the cheery trees in these parts. I would like to know what the cause of it is. Some persons thinks it is an insect, but on examination I find the suspected insect to be the grub of the curculio, which works into the wart, in the same way as into the plum. But this is not the real cause of the diseased growth. From whatever cause it arises, I believe it is contagious, for if let alone it spreads very rapidly. I have kept it back for several years, by cutting off the diseased parts. But this spring it burst out on every limb and twig, and there was no other alternative but to cut the tree down. Any information respecting it or how to prevent it would be thankfully received.

R. B. Werden.

Picton, C. W., June 1862.

Florists' Flowers.

The following is a recent report of the Floral Committee of the Hamilton Horticultural Society, which has been handed to us for publication:—

Hamilton, April 15th, 1862.

Mr. President and Gentlemen—Your Floral Committee, in presenting this their first Report for the season, have much pleasure in remarking that they are hopeful, from the favourable winter that has passed, and the preparations that are now being made, that Flora will this year come forth shining in all her beauty and splendour. Your Committee cannot but express the gratification they have in perceiving a greater taste for the finer beauties of nature growing up amongst the people. Although now, as it were, but emerging from the embryo, it will spring up and grow until it embraces the whole land, refining and delighting all minds, beautifying and adorning our country and our homes.

The only flowers your Committee have been called upon to examine are a collection of seedling Cinerarias, raised by Mr. T. Buchanan, gardener to W. P. McLaren, Esq., Oak Bank, in this City. During the past month, and up to the 10th day of the present month, your Committee, at different times, visited Mr. McLaren's green houses, and carefully examined the plants when in flower, blooms of which have been laid before this Club at its meetings during the period alluded to. Those which your Committee have considered worthy have been named by Mr. Buchanan, and described by them as follows:—

Mrs. MacLaren, No. 13.—Light crimson with white ring and purple disc, flower 1½ inch diameter, good habits.

Distinction, No. 14.—Purple self, flowers 1 inch diameter.

Marginata, No. 18.—White, with dark magenta belt, purple disc, habit good, a beautiful flower.

Helen, No. 21.—White, with shaded crimson edging, and purple disc; a fine flower.

Exquisite, No. 24.—White, with narrow light crimson edging, purple disc; habits good.

Standard Bearer.—White, with marroon edging and plum disc.

Neatness, No. 31.—White, with narrow cri-

on edging, and lavender disc; size of flower' one inch.

Perfecta, No. 32.—White, with crimson edg ng, lavender disc; habits good.

W. P. MacLaren, No. 33.—White centre, road crimson belt, lilac disc; size of flower, ½ inch.

The preceding nine named Cinerarias, are, in he opinion of your Committee, First-Class lowers, and entitled to a First-Class Certificate, nd we recommend the same to be awarded.

Your Committee heartily congratulate Mr. achanan in his good luck, and their desire is, hat he and all others engaged in the same kind f work may go on and prosper.

GEO. LAING.

The Pansey.

Read before the Hamilton Horticultural Club y Mr. J. W. Sinclair, Gardener, of that City:

Mr. President and Gentlemen.—In attempt g to write an article upon the Pansey, I do so ith the greatest diffidence, aware of my ina- ility to do the subject justice it requires, nd which it would have received at the hands f one more conversant with its nature, and conse- uently more competent to give the information uch a paper is expected to convey, for the guid- nce of the amateur and others in the proper nd successful cultivation of this flower.

Among the long and still increasing list of orist's flowers, I know of no one more entitled to prominent position in the flower garden than e Pansey. If we look at its colour, is it not ly excellent? Its form, is it not surpassing ir? While the imagination of the poet is alone apable of picturing its sweet unassuming delesty. It would be a useless waste of our time for me to attempt to trace the his- y of the Pansey from its obscurity to the ominent position it now enjoys in the favour f all who are interested in the truly ennobling ursuit of Floriculture. Suffice it to say that em having no pretensions to any of those ualities required in florist flowers, viz., size, rm, and colour, it has assumed, and in a very arked degree claimed all those properties as own.

It would be a very easy matter for me to give on the opinion of eminent growers on the best med sorts for competition, or to state their pinion and experience as to the proper mode f cultivation; but as any gentleman present n ascertain all this information for himself I ill now give you my own opinion as to how I nk the Pansey may be grown to advantage, if t to perfection in this country.

First, select a spot having either a north or astern exposure, north is best, mark off your ed any size to suit fancy or convenience; I efer three feet six inches wide by eight feet ng: this done, remove the top soil to the depth of one spade, and keep it close by for future use. Having removed all the loose soil from the bottom you will now proceed to the formation of a new bed; in the bottom place two inches broken stone, upon the top of that throw five inches of old cow manure, adding a portion of the soil already taken from the bed, and thor, oughly incorporating the one with the other, (a three flat-toed fork is the best for this purpose.) Now apply a top-dressing of the following proportions, four-fifths leaf mould and one of sand- this done, and your bed neatly dressed, you may begin to plant; this I would do by placing the plants in three rows, at equal distances, slanting the Pansey on the outer rows, and, as far as practicable, a row of selfs in the centre. The plants must now receive a good watering round the roots, and be kept closely shaded for two or three days, when they may be exposed to the morning and evening sun, but not to that of mid day, more especially when the plants are flowering, else it will either partially extract the colours or cause them to run, a consumation diligently to be avoided. If intended for competition care should be taken to have all suckers removed from the roots, and all flower buds nipt off with the exception of four or five; by so doing, the strength of the plants is not so heavily drawn upon, and much better flowers are obtained. For shading, I would recommend that four stakes be put down at the ends of the bed and a shade of factory cotton attached to a roller suspended between the top ones, with loops so attached that they could be hooked on to the other two. For the protection of the Pansey during our severe winter months, I would recommend a covering of brush or light litter.

To give a list of the best named varieties I think would be useless, as that can be best obtained from the nurserymen known as the most extensive and successful growers. I will merely name one which I think should be in every collection: *Eclipse*—a dark maroon, self-measuring three and one half inches through. A stand containing twenty-four such Pansies could not fail to be a centre of attraction in any exhibition —yet I have no doubt that by following the plan laid down in this paper we may ultimately attain to the same standard of perfection.

June-Berry as a Pear Stock.

We have heretofore recommended, upon the practice of several eminent pomologists, the use of the June-berry or shad-bush, (*Amelachier Canadensis,*) as a pear stock, and from farther evidence we are inclined to believe that it has been too much overlooked, both for this purpose and as an ornamental shrub of itself. It usually attains a height of from fifteen to twenty-feet, and is of graceful form. In the spring it is covered with snow-white flowers, and in autumn

the round purple berries, nearly as large as a mazzard cherry, giving it a beautiful appearance. The berry is sweet, not at all disagreeable to the taste, and we should judge could be easily improved so as to form a most useful fruit for many domestic uses. The berries, as indicated by the common name, are ripe in June, and much before other fruit is in a condition to be eaten.

Our attention has been called anew to this subject by the remarks of Charles B. Ott, a well known nurseryman of Pennsylvania, in the *Agriculturist*, who says he has used this shrub as a stock on which to graft the pear for eighteen years, and after this length of experience is well satisfied with it for most varieties of pears, while other sorts fail after ten or twelve years. The Seckel does very well on a stock of the June-berry, bearing fine fruit. Mr. Ott worked his trees four feet from the ground, but later experiments prove to him that it is best to work them close down, as low as on the quince stock. —*Maine Farmer.*

[We recollect seeing very fine pears growing on the June-berry stock, at a nursery, in the Township of Etobicoke, some thirty years ago. —Ed. Agriculturist.]

The Profits of Fruit Growing.

In a report made to the Agricultural Society of Kentucky, we find some statements worthy of consideration.

Four or five years ago, a peach orchardist in Ohio was offered $18,000 for the fruit on twenty acres of peach trees, while it was yet growing, and more than a month before the period at which the earliest part of it would ripen. He declined the proposition, and realized about $20,000 from the same fruit by gathering and selling it to customers himself. This, however, was a most extraordinary instance of a good combination of circumstances, viz: fine fruit, a ready market, and high prices. It is one of those happy accidents which occur only once in a very long while. And, besides, four or five years of labor and care had preceded this crop, which was the first borne upon the trees.

Some vineyards near Cincinnati have in favorable seasons, produced nearly $1,000 per acre; but a much more common yield, one year with another, is about $250; a sum for about which good land in the Ohio Valley, easily accessible to the best markets, may be bought, trenched planted, (the price of slips included,) staked (with oak) and cultivated to its fourth year. The fourth year brings a crop—though not a full one. Let the avails of this go for interest and contingencies, and the account will then stand thus: Cost of a bearing vineyard per acre, $250; value of crop, fifth year, $250. Account balanced, (capital, interest and expenditures for labor being repaid,) and closed. Within the succeeding five years, the equivalent of four crops may be counted upon. This is equal to $1,000, which, divided by five, gives $200 per year as the product per acre. This looks a great deal better than growing twenty bushels of wheat to the acre, or ten barrels of corn. In Washington Co, Ohio, some little fortunes have been made in raising one kind of apple (the small Romanite, and shipping it southwest for the supply of New Orleans. Strawberry growers near Philadelphia have often pocketed $500 to $800 per acre for that delicious fruit. And a plantation of three acres of raspberries on the Hudson river, is stated to have yielded as high as $1,500 in a single year.

Domestic

On making Soap.

To the Editor of the Agriculturist.

Sir,—I observe in your July 1st number a receipt for making hard soap which I consider of very doubtful utility, for I see no reason why the rosin should be put into the kettle until after the lye is formed, nor is the quantity of salt given, which is important, as too much salt defeats the object. From the following receipt as much or more soap can be made, than from the one you published, and with less material.

Take 6lb. of sal soda, 3lb. of good unslaked lime, put into a kettle, add 15 gallons of rain water, simmer over a slow fire two hours, let it settle, dip off the liquid, clean the sediment out of the kettle and put back the liquid; add 6lbs. of clean grease and boil slowly two hours; after it has boiled one hour add 2lbs of melted resin and one coffee-cup full of salt, and you will have 30 to 40lbs. of soap. I have tried it, and if properly managed, soap can be made very cheap. If the liquid is simmered in the evening it can settle over night.

I have given the above receipt to at least half a dozen persons, and, with one exception, all have succeeded in making beautiful soap. Cost of material,—Sal Soda, 30 cents; lime almost nothing; grease, the same; resin, 13 cents.

Yours, &c.,
A Subscriber.

Brampton, July 11, 1862.

Coffee Substitutes.

The love of coffee is an acquired taste. Perhaps nine-tenths of the people using it "burn" it almost to a coal, so that, in reality, any other burnt bitter would answer quite as well. In fact, multitudes in the far West, removed from markets, have become accustomed to use burnt bread-crust as a substitute, which

ainly is not injurious, but it is a known t that a cup of some mild, hot drink at ls is a positive benefit, while a glass of purest cold water is as certainly an injury, cially to invalids and to all who do not re robust health.

The following substitutes for coffee have n collected, in all of which it is suggested, t that the substitute be mixed with the ine articles, half-and-half; second, that order to know what you are drinking, t and grind your own coffee. In this way ly can you know that you are not imposed n, or may not be drinking some cheap terial, either filthy or poisonous.

. It is said that three parts of Rio, with parts of old Government Java, well pre- ed, is quite as good, if not superior, to t made of the latter alone.

. WHEAT COFFEE.—Wheat coffee, made of ixture of eight quarts of wheat to one nd of real coffee, is said to afford a bever- quite as agreeable as the unadulterated , besides being much more wholesome.

RYE COFFEE.—Take a peck of rye and r it with water, let it steep or boil until rain swells or commences to burst, then n or dry it. Roast to a deep brown color prepare as other coffee, allowing twice time for boiling. Served with boiled Wheat coffee probably could be made me way.

ANOTHER.—Take some rye; first scald it; d, dry it; third, brown it, and then mix th one-third coffee and two-thirds rye, hen you will have as good a cup of cof- you ever drank.

SWEET POTATO COFFEE.—Take sweet es, cut them fine enough to dry con- tly, and when dried, grind in a coffee dry them by the fire or stove, at this of the year, or by the sun when that o it; grind and use one and a half tea- for six persons, or mixed with coffee h proportions as you like. Some omit the coffee, some more.

ARLEY COFFEE.—Take common barley, skinless, if it can be obtained, roast as old coffee, and mix in such proportion s your taste. It is very good.

EA COFFEE.—It is probably known to hat a very large per cent. of the ground old at the stores is common field peas, and ground with the coffee. There dreds of thousands of bushels of peas ly used for that purpose. Those that he habit of purchasing ground coffee better to buy their own peas, burn and em, and mix to suit themselves.

RROT COFFEE.—It is recommended by ange. Cut up, dry and grind, and coffee in quantities to suit the taste.

SNUT COFFEE.—Chesnuts, also, are make excellent coffee.

10. Dandelion root, dried and slightly scorched, never burned.

11. CHICORY COFFEE.—Equal weights of chicory and coffee, dried and roasted in the usual manner. The chicory is raised as easily as carrots, and in exactly the same manner. To prepare the root, wash it clean, slice it lengthwise in four to six pieces, according to size, cut in two-inch lengths, dry and keep in a dry place until wanted. Chicory is largely used to adulterate coffee in this country, and especially in Europe, twenty five millions of pounds being used in England and France alone.

12. EXCELSIOR COFFEE.—(our own.)—Half a cup of pure, new, farm house milk, and while boiling hot, add to it as much boiling water, and sweetened to suit, call it "coffee," and drink it down.—*Hall's Journal.*

The Dairy.

Milk and Butter from Ayrshire Cows.

H. H. Peters of Southborough, who has twenty-seven Ayrshire cows, weighed the milk yielded daily by several of them from the 15th to the 25th of June—ten days The produce of six was as follows: Jean Armour, six years old, calved May 20th, an average weight of 54 lbs. per day; greatest quantity in one day, 58 lbs. Her milk was set separately for three days, and the cream from it produced upwards of six lbs. of butter of the finest quality. Corslet, five years old, calved June 3rd, an average of 38 lbs. per day. Duchess, five years old, 35 lbs. per day. Miss Miller, six years old, calved April 7th, 36 lbs. per day. Jane, six years old, calved May 27th, 36 lbs. per day, Queen, eight years old, calved February 1st, 34 lbs per day. Nineteen cows, whose ages ranged from two to eight years, and whose period of calving extended from December to June, averaged 32 lbs. each. The milk from eighteen being set for one day, gave 20 lbs. of butter. Most of the milk is usually sold at the farm. None of the cows were milked more than twice a day, and all, with the exception of three, travelled a mile and a half to pasture and back again every day. Excepting the first-named, which had two quarts of corn and cob meal per day, none of them had anything in addition to pasture feed. Mr. Peters has lately sold two two-year old heifers and a cow, at $150 to 200, each. They are the first females which he has allowed to leave the herd. —*Boston Cultivator.*

Butter.

BY CUTHBERT W. JOHNSON, ESQ., F. R. S.

The examination of the milk of animals exhibits to us many marvels. We find here the benevolent arrangements of our Divine Author

on every side. It is true that to most of us these are unknown phenomena. Milk is merely regarded by many persons as a useful article in domestic economy: it improves our tea and coffee, it yields us butter and cheese; and that is the ordinary extent of our knowledge. Very few of us have leisure to reflect upon its uses to the young of animals. We often do not consider how that milk supplies the entire wants of the young— he growing calf; how the flesh and bones of the young bovine are all built up as it were by the materials found in its mother's milk, the carbon of the air it respires being also supplied from the same source.

Then again, the *composition* of that milk varies in a marvellous way with the wants of the calf It is needful, for instance, that the dark-looking matters found in the intestines of the newly-born animal should be removed: to this end, *the first milk* of the cow is found to possess aperient properties. The young calf needs at its birth milk of a better quality than when it has acquired a certain degree of strength. Now let the reader compare in the following table the different degrees of richness of (I.) 100 parts of the milk of a cow in a pasture, examined by Dr. Playfair, with (II.) that of a cow, analyzed by Boussingault, before the calf had been allowed to suck, and mark the far greater richness of the *first* milk of the cow.

	I. Ordinary milk.	II. First milk.
Casein or cheese	4·0	15 0
Butter	4·6	2·6
Sugar of milk	3 8	3·6
Ashes	0·6	0 3
Water	87 0	78·3
	100	100

It was Mr. Lyon Playfair, who some time since drew our attention to the composition of milk, its adaptation to the wants of the young animal, and the materials which it contains to supply every demand of the calf. As he told his hearers, in one of his eloquent lectures on the rearing and feeding of cattle, the casein of milk is precisely the same in composition as animal flesh, and hence supplies the matter adapted for the growth of the body. Its butter and sugar are destined for the support of respiration and the consequent maintenance of animal heat. Butter is indeed a substance admirably suited for the purpose, for it yields much heat by its union with oxygen. Sugar, also, is well adapted for the support of respiration. The ashes or mineral portion of milk consists chiefly of common salt, and the phosphate of lime, or earth of bones. In milk therefore, added Playfair, we find united all the conditions for the life of a young animal. Its rapid respiration, and the high temperature of its body, are supported by the butter and sugar of the milk. The casein furnishes matter for its growth, and the salts the materials for the formation of the bones, and the necessary constituents of the blood.

All such facts—and there are many other marvels to be met with, in our researches in the vegetable and animal worlds—cannot fail to stimulate our thirst for knowledge, and excite our gratitude to, and our reverence for the Divine Architect.

It is to only one of the chief constituents of milk—butter—that I propose to direct the reader's attention on this occasion. It is a branch of the economy of the farm, to which more and more attention is now paid. This is a natural result of the increasing demand for dairy produce. After a considerable interval the attention of the chemist has been again directed to this important subject. Two short lectures upon milk, and on the production of butter, have been delivered within a very recent period—the first, by Professor Voelcker, before the members of the Royal Agricultural Society; the second by Mr. James Dumbrell, of Ditchling in Sussex, at the April meeting of the Central Farmers' Club. It is some time since any practical discussion of importance has occurred on dairy management; and it is a little curious that two lectures should at last have been delivered within a few days, on so increasingly important theme. The operations of the dairy have hitherto had the same justice done to them as other branches of Agriculture. The incessant attention necessary in feeding the cows, in milking them, in the management of that milk and cream when it reaches the dairy, the ill effects upon the butter of only occasional neglect, all sources of loss, that too often discourage the farmer from keeping a dairy. In fact, like other pursuits, with care and persevering attention, dairying is a very profitable branch of Agriculture; but, it must be made a part and a never-neglected business of the farm, to ensure success. It was formerly essential that the location of an extensive butter dairy should be near to populous places; now, however, the increased rapidity and cheapness of railway transit has brought almost all places into sufficiently ready communication.

One of the chief points in dairy management advocated by Mr. Dumbrell, is the tethering of the cows, and the frequent movement of the tethering stake, so as to allow the cow to consume the fresh grass without even trampling on her food; for this purpose the stake is moved in his pastures only a few inches at a time, and thus the cow always feeds upon turf from which she has already eaten the herbage.

It must be remembered that the Jersey cattle, of which Mr. Dumbrell's fine herd is composed, are a singularly docile race, and when better breeds, in their case the tethering system, may be followed a custom universally practised in the Channel Islands.

The management of these excellent litt'e cows Jersey, was some time since described by olonel Le Couteur of Belle Vue, in that island. re is no doubt that the soft air and sea es of Jersey add to the health of these cows, to that opinion the Colonel inclines ; for observes, that it is a general opinion that the are generally more healthy and more free epidemics there than in most countries. may be attributable in some measure to the e particles which, being so frequently in son over the island, are afterwards de- ed on the herbage, and tend to its salubrity. er heavy gales, it is frequently found that grass all across the island has a strong sa- flavour. So partial are cattle to this fla- , that they will eagerly devour grass which been watered with sea-water which they had lously rejected. Two pipes per acre, spread an ordinary watering-cart, or from a pipe h may be made to pour into a long deal box ated with holes, will be found of great y where sea-water or salt can be obtained small cost.

The Jersey farmer treats his cow with gen- and care ; it might be more correct to that his wife does so. On good farms she ally housed at night after the end of Oc- to the end of February, if heavy rain, hail, ow prevail. It is deemed to be healthful e a cow a short run daily through the , excepting in stormy weather. At this n, which is usually several degrees warmer in the mildest part of Devonshire, she is fed with a certain portion of straw, from to 20lbs. of hay, with about 10lbs. to of parsnips, white carrots, turnips, or man- zel. The grass which she may pick up in inter, with the above quantity of food, en- ber to produce a rich and well coloured of butter till within six weeks of partu-

At this period, which is usually regu- to take place about the month of March l, just when the cow, being in full milk, n be placed on the fresh spring pasture l or May, she is an object of extreme On calving she is given a warm potation with a little powdered ginger. Quayle at pet cows are further indulged with a their caudle. The calf is taken from at once and fed by hand. It may be advise that on the first occasion of calv- calf should be allowed to draw the cow for no milking by hand will so completely the udder, nor cause the milk-veins to their full development, as will the suc- the calf.

of the early meadows produce rich grass ; but the general flush of grass, which on generally late in April, is the period e Jersey farmer looks forwards with The cow is then tethered to the ground of a halter five or six feet long : this is appended by a ring and swivel to a chain, which encircles her horns, closed by a ring and bar ; the other end of the halter is fastened to a chain 6 or 8 feet long, which is connected by a swivel and ring to a stout iron stake a foot long ; this is driven into the ground by a wooden mallet. The cow having this circular range of 12 feet or more, is compelled to eat it clean. She is usually moved thrice a day, and milked morning and evening ; on many farms at mid day also.

Under this system, the Colonel owned four cows that produced eight-and-forty pounds Jersey, or above 51lbs. imperial weight, of rich yellow butter per week to the month of May and part of June.

In hot weather, in July or August, it is deemed advisable to shelter cows from the heat and flies ; otherwise these tease the cows to such a degree, by forcing them to run about incessantly, that they have no time for repose or for chewing their cud ; they, in consequence, afford much less milk or cream.

It was anciently thought that cream from the Jersey cow was too rich for making cheese. M. Le Feuvre of La Hague, who has a fine breed of cows, tried the experiment some years since, and succeeded to admiration. It was made from the pure milk, cream and all, as it comes from the cow. It was found that the quantity of milk that would have produced a pound of butter afforded 1½lbs. of cheese.

From the quantity of milk which produced a cheese of 20 lb. weight, the *drainings* of the curds and whey, on being churned, yielded 4lbs. of butter. This butter was of an inferior quality when eaten with bread, but was superior to any other for the making of pastry ; it was peculiarly hard, and of excellent texture for such use in hot weather (*Jour. Roy. Ag. Soc.*, vol. v. p. 43)

In winter we have seen the Jersey farmers commonly feed their cows with a portion of parsnips, which is a favorite root in that island. In September or October, when the fine aftermath of their pastures begins to appear, from twelve to twenty pounds of these roots given to the cow at milking time produces a fine effect on the cream and fine yellow butter (*ibid.* vol. i. p. 421). In Jersey the parsnip is successfully cultivated on any deep land, whether stiff or light. It is a crop which from its easy cultivation, its freedom from disease and the attacks of insects, might be more extensively cultivated than at present, in many districts of our islands. Parsnips do not appear to be used by Mr. Dumbrell. His system of feeding has been given at length, in a previous page of this volume (see *ante* p.) ; and in that series of valuable observations he remarks, when describing his mode of tethering :—" The grass should be eaten so close as to have the appearance of being mown. The cows must be led or have water

brought to them twice a day. The Jersey breed are so docile that a man can lead five or six at one time. By the time a dairy of say twenty or twenty-five cows have been staked over eight acres of meadow land, it will usually be found that the grass upon that part of the field where the first began will be sufficiently grown to be gone over again; indeed, the same ground may be pastured three times in one season, particularly on a farm where the liquid manure is utilized, and which can be used nowhere with so much advantage as following the cows when tethered. Eight or ten acres of fair meadow land will be found sufficient, in an average of years, for twenty-five cows, from the time they leave the stall until after haymaking. A great assistance to this system is the addition of some artificial green crops, as rye, trifolium, tares, &c.; for, during very hot weather, and when fly is troublesome, milch cows are much better under cover in their stalls than out of doors; they should then be tethered during the night and be cooler parts of the day. We suppose that our tethering carries us to quite the end of June or middle of July, and now is the time, just before the growth of the after-grass, when some care is required, and from which time some artificial provision is needed. Buckwheat-sown tares is the best food to meet the difficulty; with this assistance the after-grass may be allowed to get a good head before it is begun. This brings us to the end of July, and the after grass will carry us well through August, and this is the best month of the whole year for butter-making. Through the month of September mangold leaves will be found serviceable. For the end of September or beginning of October a little hay morning and night is indispensable; and as the weather becomes cold and wet, cows must be taken into stalls at night: lying out in wet weather is detrimental in every way to dairy stock; but no weather is so injurious to the produce of milk, besides being likely to cause abortion or shaking, as white frosts, and the greatest care should be taken that cows in calf should not feed out at that time. White turnips, with the remainder of the autumn grass, will carry us on to the end of November, after which time drum-head cabbage must be provided for at least two months. Cabbage is a very valuable winter feed, as it assists the colour of the butter, and is highly nutritious. Through February and March swedes may be used, and will be found to produce more butter than any other root. During all this winter season a liberal supply of good hay, not heated, is requisite. At the beginning of April mangold comes in, and if the weather is fine, some old grass reserved from the autumn, is very useful, with the addition of spring rape or late-sown white turnips; this, with rye, which must be used sparingly, brings us to our starting point."

To the food of the cow Professor Voelcker also devoted a considerable portion of his excellent address. There is one error, with regard to cow's diet, which is too common not to render me desirous of briefly repeating, *in his own* words the result of the Professor's research. It was when speaking of the effects of oil-cake that he observed (*see ante*, p. 362), that according to theory it would appear that food rich in oily or fatty matter would be extremely useful for producing rich milk, but in practice we find not always find it so. *Very rich food* has often a contrary effect: it produces by no means, in any ways, a better milk nor a larger quantity; in short it produces fat and flesh instead of milk. Besides the tendency which cows that are good fatteners have to convert rich food into fat, there are some purely practical considerations to be taken into account before we consider the best quality of food which ought to be given to milking cows. It is well known that oily matters pass rapidly into milk. Cows supplied abundantly with linseed cake produce milk which does not make good butter. A very curious case of this kind was brought under my notice some time ago by Mr. Barthropp. He had a dairy which furnished cream that could not be churned into buter. When put into the churn it would not rise up into froth; the casein would not separate from the butter. I was informed by Mr. Barthropp that he had given his cows linseed cake in considerable quantities; and this cake, perhaps for want of being mixed with a sufficient quantity of good dry hay, had evidently had the effect of producing too much liquid fat. In trying to separate as much as possible this liquid fat, or crystallized fat from the liquid fat, I obtained one third of solid fat to twenty-three parts liquid fat. In the churn the whole of it made up into a sort of froth. In fact, it could not be churned, the butter remained a liquid even at the period of the year at which the cream was analysed, namely, last January. I never have met with another equally striking case, assigning the influence of a great excess of oily matter on the quality of cream, and consequently the butter. In speaking of the quality of milk, and more especially the fatty portion of it, I would take this opportunity of remarking that bad oilcake, and particularly bad linseed cake, does a great deal more harm than is generally supposed by dairymen. The inferior taste of the milk of stall-fed cows is well known; but I believe it is not so well known that the wholesomeness of milk is affected by the above-named matters which are occasionally put into oil-cake. Oilcake crushers at the present time claim to have the privilege of incorporating any kind of oily refuse, no matter what it may be, with linseed-cake; and since this has taken place I have heard more frequently of diseased milk, and of milk which has a disagreeable taste. Watery food, distillery wash, the acid refuse of starchmakers, and similar refuse make a

well known, watery ; and this dispenses with the necessity of mixing it afterwards with water. By far the most common adulterating material is watery food. Water is not so much added to milk as it is incorporated in the animal system before the milk is produced. It is well known that acid water, and especially water that contains lactic acid, has a tendency to produce an abundence of milk. When animals are fed with concentrated food, such as beanmeal or cake, it may perhaps be advisable—in the absence of brewers' grains or distillery refuse, two materials which contain lactic acid—to generate some lactic acid by keeping barley-meal for some time in contact with water, and by letting it slightly ferment, perhaps with some vegetable matter, which has a tendency to hasten the formation of lactic acid from barley-meal. By doing this, I am inclined to think, concentrated food like cotton-cake, or bean-meal, or rapecake, would be rendered more digestable—more readily available for the production of milk of a good quality.

The owner of a dairy will do well to compare his practice with that of Mr. Dumbrell, and with the valuable chemical inquiries of Professor Voelcker. It is more than probable that the information he will obtain will well repay him for the time he employs in the study. The butter prepared in different districts of England we are all aware, widely differs in its quality ; and yet it is a very reasonable conclusion, that by a little more attention to the dairy and to the pasturage, and artificial food of the cows, the inferior butter produced in several counties may be very materially increased in value,"—*Farmer's Magazine* (*English.*)

The Poultry Yard.

The Best Way to Dispose of Bones.

Messrs Editors :—After reading the various communications which have been published in the *Country Gentleman* on the different methods of disposing of bones which accumulate about the premises of the farmer, and converting them into an available manure for agricultural purposes, I will inform your readers how I dispose of my stock of bones. All the bones which are obtained from the meats used in the family, are saved and carried to the hen-house, and deposited there to be used when wanted. Near the bones is placed a flat stone large enough to break them on. At the commencement of winter I begin to break them up, and dispose of them in the following manner:—Laying the bones on the stone, with an old axe, I pound them up fine enough for a hen to eat, and then let my hens *eat them*. In this way of disposing of bones it requires no sulphuric acid, potash or other costly drugs, which are somewhat dangerous for persons to use who are not acquainted with their nature. Neither does it require any fixture to prepare them in, nor time and labor to manufacture the bones into as good manure as any that is made on the farm.

At the present time I do not propose to discuss the comparative merits of the various preparations of bones that are used for manure, neither am I prepared to decide whether bone manure or hen manure is the most valuable for agricultural purposes ; but I am well satisfied as to the value of hen manure for any use that I have made of it. I believe it is an established axiom in agriculture, that the richer the food on which an animal is fed, the richer and more valuable will be the manure. As fresh bones contain much animal matter, as well as phosphates, the manure of hens fed with bones must be much more valuable than when kept in the ordinary way.

But the most profit which I obtain from bones used in this way, is the extra quantity of eggs which my hens produce when fed with the bones. I have found that it is necessary to give my hens a generous supply of animal food, as well as that containing phosphates, if I wanted them to lay well, and other things being equal, the supply of eggs has always been governed by the supply of these articles of food.

As my hens have the run of the farm when the ground is bare, they get a supply of animal and vegetable food, but in the winter season they must be furnished with these things from other sources. I think there is no one thing that furnishes a larger proportion of egg-producing food than fresh bones, as there is always more or less animal substance adhering to them. By making a little calculation with my bones and other animal offal, I give them this food several times a week during the season that they cannot get to the ground. Since I commenced feeding my hens in this way, the average weekly production of eggs has been full as large through the winter, as during any other part of the year. The price at which eggs sell for in this vicinity, is generally one-third more in the winter than in the summer, so that when the eggs are sold it makes a considerable difference to what it does not to have any eggs through the winter, as is the case with many who keep hens, and to sell what eggs are disposed of in warm weather, at the low prices which generally rule at such times. The past winter I kept fifteen hens. Early in the spring, a neighbor, on being told that my hens had laid nearly fifty dozen of eggs since December last, said, that his "hens had not laid an egg then, that he had not commenced feeding them yet to make them lay," their principal food previous to this being boiled potatoes and oats—thus showing conclusively in this instance, that hens must have the right kind of care and food to make the keeping of them pay well—C. T. Alvord, in *Country Gentleman.*

Veterinary Department.

(Conducted by A. Smith, V. S.)

Draught Stallions and their Selection.

Farmers have by this time made choice of the horses to which to put their breeding mares, and such selection has, we trust, been judicious and sensible. The recent reduction in the price of horses ought to direct more attention to the subject, and increase the production of those first-class animals which are always so saleable at remunerative prices. There is certainly no department of farm management in which the penny-wise and pound-foolish system is more frequently exhibited. Male animals with faulty pedigree, of shapeless appearance, and with obvious hereditary defects are too often used, simply because they are of convenient access, or the price charged is somewhat lower than for more perfect animals. It is too frequently forgotten that in breeding, whether horses or cattle, the first outlay for the use of the sire is but a small item as compared with the subsequent cost of rearing. The extra sovereign for the use of the superior horse is surely well bestowed when it adds in three years four or five pounds to the price of the progeny if he is a cart colt, and possibly double or quadruple the amount if he be a hack or a hunter.

First in importance in the recommendations of a stallion we would place his pedigree. In horses for the turf, and in the breeding of the best Arab steeds, the descent of both sire and dam receives primary attention, and should not be less important in the farm horse. By using animals which have been carefully and judiciously selected for several generations, we obtain good qualities that by repetition and transmission have become firmly impressed upon the stock, are less accidental and more permanent, and greatly more likely to re-appear in the progeny. Every breeder of superior short-horns or first-class sheep admits and acts upon this fact, but too often disregards it in the case of his draught horses. In many parts of the country inattention to the breeding of the cart stallion has led to much disappointment and loss. At present we know of several neat, compact, and tolerably good-looking stallions, once in good repute, which have left, from all sorts of mares, a multitude of undersized, shabby, valueless colts, which undoubtedly owe their deficiencies to the half-bred small parent stock from which the parents sprung. This disregard of good descent, operating with two-fold effect when involving both horse and mare is, we believe, the main cause of the notorious scarcity of first-class horses.

We must not be supposed to advise the farmer to place his trust in pedigree only. It can never be accepted in the room of good and useful qualities which the well-bred cart-horse must in addition possess. Most of those so called 'points' are so familiar to the experienced eye of the practical farmer that they require little notice here. We would only insist at present upon two most important matters, of which the value is scarcely sufficiently appreciated, namely, a stout, short back, and good action. So intimately connected are the several parts of the animal machine that a disproportion in one respect seriously interferes with the general symmetry and harmony, and especially is this the case if the back be long. The ribs will then seldom arch as they should do, the chest is apt to be shallow, whilst the space between the last rib and the crest of the ilium will tell only too truly of weak digestive organs, and want of hardiness and endurance. If any horse proprietor looks over his stables he cannot fail to realize the fact that, whether in the saddle or harness, the cart or the plough, the well ribbed up, short-backed horse is the one for the hard work and the long day. Many farmers overlook or underrate the importance of action in the draught horse. They prefer the straight and upright shoulder to that which slopes and is well laid back. But good action is almost as requisite in the farm horse as in the hack or the hunter. If he can easily and gaily step out at the rate of three-and-a-half or four miles an hour, the walking which constitutes an important part of his daily labor is materially lightened. The importance of this is very notable in the case of coarse, heavy, under-bred horses, such as abound in some of the midland counties of England, and, indeed, are everywhere too numerous. They plod dully and clumsily along, generally finding it work enough lazily to drag an empty dung cart at the rate of about a mile an hour. It is also amongst horses of this unenviable discription that we find the round, rough, hairy, greasy limbs, the short pasterns which predispose to ring and side bones, and the flat, brittle feet which so seriously interfere with the usefulness of any animal intended for work upon the roads.—*N. B. Agriculturist.*

Condiments.

The veterinary profession must feel an interest in the great agricultural questions of the day, and especially in all those that concern the management of stock. We devote upwards of sixteen pages of this number to the report of a meeting of the Royal Agricultural Society, at which cattle condiments were fully discussed. We have one great objection to the discussion, and that is, that Mr. Thorley has had the benefit of a gratis advertisement, for which he could well afford to pay several thousand pounds out of the extraordinary price he induces the British farmer to pay for his medicine. It is a great thing for a dealer in a specific to get a Mr. Beale Browne with his pile of letters, and Ma-

r Mona with his conclusive facts. These gen-men have done for Mr. Thorley what hun-ds and thousands have hitherto done before m for infallible pills and ointments which pu- "the tree of life." The recent meeting in anover-square affords a striking contrast to the telligent manner in which such subjects are en up on the continent. The subjects there tested by scientific commissions. The Dan- government, we believe, was the first to take the subject of cattle condiments in a syste-tic manner, and judiciously-conducted exper-ents led to conclusions similar to those already blished by our illustrious countryman, John rnet Lawes.

How well Mr. Thorley has succeeded is pro-d by the manner he has raised himself to the ition of a martyr in the eyes of Mr. Beale owne, and similar judges of fact and charac-. There are two ways to make money in eat Britain out of medicines and other extra-dinary preparations. The one is to give an aluable article, which soon proves an essen-l commodity, at a small price. The other is select an article which will not injure, adver-it to any extent, and charge the public for extraordinary faith in puffs. Many in this rld were never born to think much for them-ves, and the advertiser has learned that for class it is essential to assert loudly enough order to make it believe anything and buy . Thorley will continue to advertise, many will y and extol his preparations, but the enlight-ed and provident farmer will think more than ice before he pays for the pretty pictures at railway stations, and for which the nice man-in which, as the advocates for the food at recent meeting said, Mr. Thorley's announce nts were displayed.

But we have another view to take of the mat-, and this not as the result of a prejudice, but om observation. We were once told that the ndimental food was concentrated—that was a rong statement, and we are now asked to look on it as Worcestershire sauce to the beef-ak. So far as simple condiments are concern- in their effects on man, physicians are at one urging their very sparing employment. They useless to those, who, being healthy, are also oderate in their tastes, and are neither intem-rate feeders nor drinkers When a man eats eating sake, he forces his digestive organs to unnatural work by cayenne and mustard, ich he cannot afterwards dispense with with-suffering from dyspepsia.

Salt is the material most universally and ne-sarily employed to render foods palatable, d to aid their nutritious properties. But in cess salt is also very injurious; and Professor derson's recent lecture should not be lightly ed over by the man of science and the man practice. Professor Anderson's statement recent experiments on pigs by Mr. Lawes, ill receive that confirmation by after-experi-ence which will tend to keep the condiments in their right place, as good property for advertisers, though bad investments for the stock-owner.

To turn more particularly to the somewhat new view we take of this matter, we must mention that condiments, even in the simple form of common salt, but especially aromatic substances, may often kill. The diseases of cattle in Great Britain are undergoing great changes—Deaths from the results of plethora are now far in excess of deaths from other causes. It is not the poor condition, but the extravagantly high condition, of our stock that we must correct. Splenic apoplexy, liver diseases, and other affections due to feeding, and to food grown on rich soil under a forced system of cultivation, are largely on the increase; and if farmers think the medicine, which the Royal Agricultural Society has now helped to advertise, will have as good an effect in these cases as on Major's Munn's six-shilling sheep and his old horse they will be repaid for their credulity by a high mortality. We have frequently been in a position to confirm the observation made by the late Professor Delafond, that condiment, though no more than a small quantity of common salt, is sufficient to turn to death's side the hesitating balance between health and disease in the plethoric animal.

The motto of the English society is, practice with science; and, in accordance with that, let us not have medicine vendors, whose nostrums are wonderful in the mystery which veils their nature and action, puffed to the detriment of agriculture. No British farmer should pay but for that which he thoroughly understands the composition and properties of. Manures are being rigorously tested; they are being sold with analyses, and adulterations are being rendered more and more difficult. Any veterinary surgeon may, for a guinea fee, furnish Mr. Beale Brown, or any other advocates of condiments, with a prescription which will save him hundreds and even thousands, which he might expend in advertised materials, if he wishes *medicine to improve health (?)* Let the drugs be bought in the cheapest market, with open eyes, and mixed by the most careful of old women, and our extensive advertisers must shut up shop. We wish them that share of the good things of this life which they deserve; but we do protest in the interest of the British farmer, and in defence of British common sense in the sight of the world, against the twaddle-talking in the Royal Agricultural Society's rooms in Hanover-square. —*Edinburgh Veterinary Review.*

Analysis of linseed according to Dr. Voelcker:

Water	7·50
Oil	34 00
Flesh-forming matter	24 44
Heat-giving constituents	30·73
Inorganic matters (ash)	3·33

Miscellaneous.

Paraffin, or Coal Oils

Paraffin—or, as this fluid is frequently termed, coal oil—has been, for some years past, largely used as an illuminating agent. The cleanliness and the economy of the paraffin lamps, with the brilliancy of the light produced, has led to their very general adoption, especially in those places where the conveniences of gas have not as yet been made available. Paraffin, and, indeed, all the varieties of the oils which are sold under this name, are, like it, compounds of carbon and hydrogen. They are produced by the distillation, at carefully regulated temperatures, of coal, of certain carbonaceous shales, and the different varieties of petroleum which are now so largely obtained in America and in Asia. As we have said, from whatever source derived, these oils are hydrocarbons, and, according to the temperature at which the distillation is effected, there result heavy or light oils, as they are termed by the manufacturers. These oils are of variable specific gravities, and their boiling points range all the way from 46 degrees to 600 degrees Fahr. Hence it is that explosions have arisen from the improper admixture of the lighter oils with the heavier ones. In some cases this has arisen from insufficient purification of the oil for burning, and in others (which include by far the larger number of cases) by the mixture of volatile oils obtained from other sources with the less inflammable oils distilled from coal. In the early stages of this manufacture, Cannel coal was almost exclusively used as the oil-yielding material; but since the discovery of the oil wells of Pennsylvania and other places, petroleum has, in a great measure, supplanted the use of coal, some establishments using the natural oil alone. The object of this is readily appreciated. The petroleum being naturally in a liquid state, there is no necessity for a preliminary distillation, as in the case when coal is used, in which event the crude oil must be first produced by exposing the coal to distillation at a low heat, and the resulting product be treated in the same manner as the oil already formed in the wells. By the use of petroleum the retorts for the first distillation are dispensed with, and thus a saving is effected in apparatus as well as in time and labour. When petroleum alone is used in the manufacture of kerosene oil the product contains a much larger proportion of volatile hydrocarbons than when coal is wholly or partially employed, and, therefore, more precautions are necessary, and greater labour is requisite, to effectually get rid of these dangerous substances. Some manufacturers not only neglect to remove these volatile compounds from the oils, but actually purchase the light oils from more conscientious refiners, in order to mix them with heavy oils to make them burn. This is an exceedingly reprehensible practice, and deserving severe punishment; for the heat generated by the heavy oils in burning vaporises the volatile portion, and renders it liable at any time to explode. The oils distilled wholly from coal or those with which but a small portion of petroleum has been mingled, are much more easily freed from dangerous portions. By a careful refining, and after distillation, steaming, and a large surface of atmospheric exposure, every dangerous compound can be removed, and no fear need be apprehended from oils which are known to be subjected to a rigid and conscientious refining. In purchasing oils, however, nothing should be taken for granted. They should be carefully tested, and their liability to explode fully investigated. The simplest and most satisfactory test of safety is to place the oil in an open dish in a water bath, and heat it up to 130 deg. to 140 deg. Fahr. If, when elevated to this temperature, and applying a match, it does not ignite, it may be pronounced very safe. If it ignites but slowly or sluggishly it is safe. But any oil that lights quickly in an open dish at a temperature below the 130 deg. Fahr., must be considered as dangerous. We have seen oil the vapour of which ignited with a smart puff or explosion at 60 deg. Fahr., on holding a lighted match more than one inch above its surface. This was dangerous in the highest degree, and the vendor of such a compound should be held to strict accountability for any accident occurring from its being burnt in lamps. The extensive use of these oil-lamps among the working classes induces us to call especial attention to this very simple test. To those who may not be provided with a thermometer to measure the temperature, the following simple rule may be adopted;—Pour into a basin a pint of boiling water, and allow it to stand to cool for five minutes, then pour some of the paraffin oil into a teaspoon, and having floated the bulb of the spoon on the hot water, leave it at rest for a few minutes; then hold a lighted match a little above the spirit; if it ignites quickly, it is dangerous; if not at all, or very slowly, the paraffin may be used without fear of accident. A metallic fountain or reservoir should always be avoided in using any of those hydrocarbon oils. To show the vast difference of the oils now on sale as paraffin oils in this country, Dr. R. Angus Smith, F. R. S., of Manchester, an eminent chemist, has lately found that oil made by Mr. Young, the inventor, and his partners, from coal, and who have really the only right to call their oil paraffin, will not ignite in an open vessel at 154 deg. Fahr.; while a sample of American rock oil, sold as paraffin, exploded at a temperature of 46 deg. Fahr.—*Mining Journal.*

Nine-twentieths of the flesh-forming matter are stated to be found again in the manure of animals fed upon oil-cake.

Root Cutter and Cleaner.—A writer in the ...try Gentleman says:—When potatoes are ...l whole, or other roots are cut coarsely, the ...imal is obliged to hold its head so high to ...p the root in contact with its teeth, that grav... ...tion alone will pass it to the gullett, and ordin... ...it will pass thence unmasticated, if not too large ...if cut properly and mixed with cut stalks; ...w or hay, as they always should be, they will ...eaten with the head down, as in eating grass, ...d consequently be more thoroughly masticated ...mixed with other food, and all danger from ...cking is wholly avoided. hence the preventive ...ll have used for five years, and recommen... ...to others to use, is, to cut up the vegetables ...freely as possible with a good root cutter and ...ver.

Pictures from Memory.

...e mind of every man has its picture gallery ...nes of beauty or magnificence, or of quiet ...fort, stamped indelibly upon his memory. ...e than half the exile's recollections of home ...teries of landscapes. The poor untaught ...lander carries with him to Canada pictures ...gh in the style of M'Cullough to store an ...ition room—pictures of brown solitary ...s, with here and there a grey cairn, and ...and there a sepulchral stone—pictures, too, ...row secluded glens, each with its own ...y stream that sparkles to the light like am... ...and its shaggy double strip of hazel and ...—of hills, too, that close around the val... ...and vary their tints, as they retire, from ...n to purple, and from purple to blue. He ...s them all with him to the distant country. ...gloomy forest rises thick as a hedge on ...side of his wooden hut; the huge stumps ...up abrupt and black from amid his corn, ...little angular patch which his labor has ...open to the air and the sunshine. These ...e objects which strike the sense; out the ...fill the mind; and when year after year ...one by, and he sits among his children's ...a worn-out old man, full of narra ives ...the brown moors and the running streams ...own Scotland, his eyes moisten as the ...rise up before him in more than their ...al freshness; and he tells the little folks ...press around him, that there is no place ...world that can be at all compared with ...ighlands, and that no plant equals the ... One of Wordsworth's earliest lyrics ...weet little poem which he gave to the ...at a time when the world thought very ...of it, though it has become wiser since— ...s a similar thought. The poet repre... ...a poor girl—originally from a rural dis... ...who had been both happier and better ...had come to form a unit in the million ...don—passing in the morning along ...et, when a bird, caged against the sun... ...ny wall, breaks out in a sudden burst of song. Her old recollections are awakened at the sound; the street disappears and the dingy houses; she sees the meadow tract, with the overhanging trees, where she used to milk her cattle; she sees, too, the cattle themselves waiting her coming; and, in the words of the lyric, "a river flows down through the breadth of Cheapside." Poor Susan! 'her heart is stirred,' and her eyes fill.

Every human mind has its pictures. Were it otherwise, who would care anything for the art of the painter? When standing in front of M'Callough's exquisite Landscape, I was enabled to call up some of my own—moonlight scenes of quiet and soothing beauty, or of wild and lonely grandeur. I stood on a solitary seashore. A wall of cliffs, more than a hundred yards in height, broken, rose abruptly behind—here advancing in huge craggy towers, tapestried with ivy and crowned with wood—there receding into deep gloomy hollows. The sea, calm and dark, stretched away league after league in front of the far horizon. The moon had just risen, and threw its long fiery gleam of red light across the waters to the shore. A solitary vessel lay far away, becalmed in its wake. I could see the sail flapping idly against the mast, as she slowly rose and sank to the swell. The light gradually strengthened; the dark bars of cloud, that had shown like the grate of a dark dungeon, wore slowly away; the white sea-birds, perched on the shelves, became visible along the cliffs; the advancing crags stood out from the darkness; the recesses within seemed, from the force of contrast, to deepen their shades; the isolated spire-like crags that rise thick along the coast, half on the shore, half in the sea, flung each its line of darkness inwards along the beach. A wide cavern yawned behind me, rugged with spiracles of stalactites, that hung bristling from the roof-like icicles at the edge of a waterfall; and a long rule of light that penetrated to the innermost wall, leaving the sides enveloped in thick obscurity, fell full on what seemed an ancient tomb and a reclining figure in white—sports of nature in this lonely cave. There was an awful grandeur in the scene: the deep solitude, the calm still night, the huge cliffs, the vast sea, the sublime heavens, the slowly rising moon, with its broad cold face! I felt a half superstitious feeling creep over me, mingled with a too oppressive sense of the weakness and littleness of man. Pride is not one of the vices of solitude. It grows upon us among our fellows; but alone, and at midnight, amid the sublime of nature, we must feel, if we feel at all, that we ourselves are little, and that God only is great.

The scene passed, and there straightway arose another. I stood high in an open space on a thickly-wooded terrace, that stretched into an undulating plain, bounded with hills. The

moon at full looked down from the middle heavens, undimmed by a single cloud; but far to the west there was a gathering wreath of vapor, and a lunar rainbow stretched its arch in pale beauty across a secluded Highland valley. A wide river rolled at the foot of the wooded terrace; but a low silvery fog had risen over it, bounded on both sides by the line of water and bank; and I could see it stretching its huge snake-like length adown the hollow, *winding* with the stream, and diminishing in the distance. The frosts of autumn had dyed the foliage of the wood; the trees rose around me in their winding-sheets of brown, and crimson, and yellow, or stretched, in more exposed openings, their naked arms to the sky. There was a dark moor beyond the fog-covered river, that seemed to absorb the light; but directly under the nearest hill, which rose like a pyramid, there was a tall solitary ruin standing out from the darkness, like the sheeted spectre of a giant. The distant glens glimmered indistinct to the eye; but the first snows of the season had tipped the upper eminences with white, and they stood out in bold prominent relief, nearer, apparently, than even the middle ground of the landscape. The whole was exquisitely beautiful—a scene to be once seen and ever remembered.—*Essays by Hugh Miller.*

PLANTED BY NATURE.—Some seeds when ripe are provided with hooks made to catch hold of passing animals, which after a time, get rid of them by rolling on the ground. Those seeds which are surrounded by a succulent pulp, and are swallowed by birds and quadrupeds, are generally favourably consigned to the earth. Most seeds pass uninjured through the stomach and intestines of all animals, with the exception of gallinaceous fowls. Currant seeds, after having been eaten by man, can germinate. Foxes sow seeds of the cranberry (vaccinum) after eating its red berries. Apple and pear trees are often found in ditches and under hedges, proceeding, it is said, from fruit which has been devoured by peasants. Farmers are often astonished when, after having, as they think, perfectly prepared their fields, and sown excellent corn, on reaping they find some places covered only with useless oats. In other cases, mamifers and birds devour only a portion of seeds while the rest fall and become productive. When the squirrel shakes the cone of the pine tree to obtain the seeds, a great number fall to the ground and are lost to him. The inhabitants of Iceland call a particular sort of nut "rat's nut," from the circumstance that the rats gather them in great numbers, and hide them in the ground. But as the rats are very often killed by one or other of their enemies, the nuts are often left to germinate. Seeds falling into worm-holes are sure to germinate, as well as seeds which drop into subterraneous passages made by the moles to ensnare worms and insects. The hog by tearing up the earth as with a ploughshare, prepares it for the reception of seeds. The hedgehog passes his life doing the same service.—*Dickens's All the Year Round.*

FOREST TREES.—From the manner in which the Germans preserve and improve their forests our countrymen might take a valuable lesson. Hohenheim, this forms one of the most important departments of study. The pupils are instructed in the best method of preserving, propagating, and improving their forest trees, while at the same time a proper estimation of the pecuniary and moral value of those productions of nature is instilled into their minds, which must eventually become the common sentiment. Our people must give attention to this subject sooner or later; and every day's neglect of this practical science will entail evils upon us which years of labor can hardly make amends. We do not as people appreciate the value of our forest. Negligently, carelessly and wantonly, we are destroying them on every side, not considering that in them lies a mine of national wealth; for the time comes with every people when they can turn their own natural products to the most advantageous use for themselves, and this law applies as firmly to the trees as to the coals and various mineral ores. For connection and family health, enjoyment and comfort, with a grove of primeval forest about the homestead, never entered the practical heads of our fathers; *and their* sons, true to the example before them, pursued the same suicidal course. Down came the lofty pine and the beautiful maple, leaving the home to parch, and the spring to dry up in the scorching rays of the sun.

If there are any exceptions here and there you will find the value of the farm increased a thousand fold, simply because the trees were let alone; and what if they have been cultivated with proper care? All along the line of the road in Southern Germany, I saw acres and acres of forests trees, from ten to fifteen and perhaps twenty years old, planted in rows as regularly as corn is with us, and all cultivated in the most scientific manner.

When will our people learn wisdom in this matter. Will they heed the warning of the World—listen to the admonitions and counsels of science, and be prudent in good time? Or will they wait to learn it too late from their own experience?—*Feild Notes*

In a soil unmanured the produce was five-fold, the nitrogenous substances being 93·3 and the non-nitrogenous substances 66·7 parts. In the same soil manured with farmyard manure, the produce was five-fold, the nitrogenous being 9·6 and the non-nitrogenous 6·5 per cent.

HISTORY OF THE NORMAN HORSE.—This horse, known as the Crawford horse, was brought from Lower Canada, about 60 miles below Quebec, in March, 1850, when he was three coming four years old, by T. H. Hussey and Alexander Crawford, of Skowhegan, in this State. Mr. C. has kept him ever since. He is therefore fifteen years old this spring. He is of a light chesnut color, and weighs from twelve to thirteen hundred pounds. He has not been trained for trotting, and yet he has gone at our cattle shows in one or three minutes. He was sired by the famous horse Trudell, and out of a Norman mare. He has always done a fair business until within the last year or two, in which time he has very much declined. His colts are generally well known over the county, and are all good size, weighing from ten to thirteen hundred pounds, and they are generally smart travellers, and good workers. Norman has got more trotting colts than all other horses that have been kept in the county since he has been in the county. His colts have sold for more money than the colts of any other horse kept in the county. In 1859 at the State Show in Augusta, four of his colts took premiums. Brookside, owned by Mr. Gilman, one of his colts, made 2 42. At the show of the Central Agricultural Society, in Somerset, the same year, there were eleven colts entered for trotting and eight were young Normans. The famous Harvill colt, a Norman, was matched against the Crockett horse of Lewiston, in which the Harvill colt led in three out of four heats. Harvill colt was five years old and weighed eleven hundred and seventy pounds when a gelding. He has since been sold in New York for $2 000. I think Norman took all the purses where they were matched at this Show. At the Farmington Show the same year, two of the Normans took the two first purses—Benj. Wilson's colt, the other by Samuel Jacobs, called Blue Stockings. Last fall, at Anson, three purses were offered and one bet made, in which the Normans were entered and took two purses and a bet. Last fall, at Skowhegan Show, a four years old mare trotted in three minutes and three seconds, without making a skip She was owned by Mr Walker, and raised by H. K. Bigelow of Cornville.—*Maine Farmer.*

A hundred pounds of red beet contain of sugar 10.bs., of water 89, and ash 1.

A hundred pounds of oats contain of husk starch gum 46·1 of gluten, albumen, &c. fatty matter 6·7.

A hundred pounds of barley straw contain of dry nutriment, and 49·81 of heat and waters.

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