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CULTIVATOR.

"AGRICULTURE NOT ONLY GIVES RICHES TO A NATION, BUT THE ONLY RICHES SHE CAN CALL HER OWN."—*Dr. Johnson.*

VOL. III. TORONTO, MAY, 1844. No. 5.

THE CULTIVATOR.

"Agriculture is the great art which every government ought to protect, every proprietor of lands to practice, and every inquirer into nature improve."—*Dr. Johnson.*

TORONTO, MAY, 1844.

MONTHLY CALENDAR.

This is really a joyous month for the husbandman: his crops now begin in earnest to improve, and his stock are no longer confined to the farm-yard. Spring wheat, oats, peas, and cultivated grasses must first be sown; and then follows, in succession, the sowing of barley, the planting of potatoes, and the drilling of turnip and other root-crops. The whole of these departments of labour will be fully completed by the intelligent cultivator at or near the close of the present month. Carry out dung from your compost heap, if you have previously made one, and apply it to your meadow grounds: top dress also with gypsum or charcoal-dust; either of these substances have great attraction of moisture from the atmosphere, thus cooling the air in summer, and also being more efficacious to dry sandy soils than cold wet clays. To corroborate the truth of this statement, it is worthy of remark, that the dew has been known to stand two hours later in the morning upon clover and other plants which had gypsum spread upon them, than upon others, on which there was none. If you have never made an experiment with dressing your land with marl, now is the time: try only a few square rods: any crop will be benefitted by its application, and its effects will be apparent in the soil for eight or nine years. Lucerne, vetches, and rape may be sown the latter part of this month, for soiling: the soil for these crops require to be deep, rich, and well-worked: ashes and gypsum are the best dressings for these crops: if our readers have not been in the habit of growing these crops, for soiling and for feeding sheep, it is worth the trouble to give them a trial, although it be but on a small scale.

At the close of the month, commence sowing Swede turnips, mangel wurzel, and carrots, for the winter feeding of stock. A small farmer, who has only fifty acres under cultivation, ought to cultivate, in a proper manner, an acre of each of these roots, and four acres of potatoes, for the winter feeding of stock; and those who have larger farms in that proportion. After the root-crops are gathered and housed, the ground should be seasonably prepared, and sown with spring wheat, and laid down with cultivated grasses. Root-crops are generally planted or sown too late in this country: the early sown produce the most certain and heaviest crops; and the larger the roots the better for feed, as regards nutriment: the ripest roots, in all cases, contain the most sacharine matter. By early sowing, the young plant has fewer insect enemies to encounter; and, in case of failure, time is given for another sowing.

WESTERN DISTRICT PHILOSOPHICAL AND AGRICULTURAL ASSOCIATION.

We have read, with considerable interest, the proceedings of the above Institution, as contained in a late number of the *Western Express*. The plan of organizing Township, District, and Provincial Societies is highly approved of; and it appears that a correspondence has been entered into with the different Councillors, and other influential individuals, on the subject, to ascertain how far it would be practicable to carry the same into effect. We understand that the President, Major R. Lachlam, J.P., intends publishing a synoptical view of the various parts of the Province, which

must prove highly interesting to those who are not familiarly acquainted with the subject. As soon as the paper alluded to appears in public print, we shall embrace the first opportunity to give it in sertion in the *Cultivator*.

INDIAN CORN.

The culture of this crop requires very great attention, and, in order to make it it a profitable one in this country, it is necessary that the cultivator should display far more skill than is usually given. When the country was new, large crops of Corn were grown, and the labour connected with the management was very inconsiderable. It may still be grown on new land without much difficulty, but to ensure a good crop on land which has been long under cultivation, a heavy dressing of a rich stimulating compost is almost absolutely requisite. This compost may be made of vegetable mould, ashes, bones, old chip manure, where soap-suds, &c., have been thrown, manure from the hen-house and hog-pen, street scrapings, &c. &c. If these be mixed intimately with the soil, and the latter be ploughed a good depth, there can be no question but that the chance for a crop will be as likely as though the land were lately cleared from the forest. The largest crop of corn that we have any recollection of seeing was grown in the Niagara District, which averaged 90 bushels per acre. The ground was ploughed very deep in the Fall, and manured in the following Spring with a rich compost, very similar to the one just recommended. The land on which this great crop was grown received in all three ploughings. The rows were made four feet apart, and the corn was planted in the rows, about six inches asunder. It was worked during the months of June and July with a one-horse cultivator, and, apparently, the whole management was conducted with the greatest degree of taste. It is stated, in a late census, that the entire Indian corn crop of the United States, for the past year, equalled the enormous amount of *four hundred millions of bushels*. As our knowledge of the culture of this crop is trifling, when compared with some of our American cotemporaries, we make the following extracts upon this subject from a late number of the *Albany Cultivator:*—

"Mr Stephens gave his ground three ploughings before planting, and before the last ploughing put on 700 horse cart loads of street manure. He then planted in double rows 5½ feet asunder, dibbling in each grain. To do this with expedition and accuracy, he bored two rows of holes in a piece of board about four feet long, so as to form equilateral triangles, the sides of which were seven inches, as thus,

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Into these holes he drove pegs 3½ inches long. As the corn was dropped into the holes so made, a man followed with a basket of rotten dung with which he filled them up. During the season the corn was suckered three times. The intervals were repeatedly ploughed, and the rows kept clean of weeds by hoeing and hand weeding."

This corn was raised on a bet of 50 guineas, between Mr. Stevens and a Mr. Ludlow. Mr. L. planted his rows four feet apart, and the corn 8 inches from stalk to stalk in the rows. His ground was manuerd with 300 loads of street dirt. His crop was 98 bushels and 14 qts. per acre; Mr. Steven's 118 bushels and 2 quarts per acre. Unless the great quantity of street manure used made it necessary, or the condition of the soil was bad, no good reason can be given for so many ploughings for a corn crop.

In 1831, B. Butler, Esq. of Chenanago co., in this state, raised 140 bushels of corn from one acre. The soil was a stiff loam, nearly covered with small stones, of which 50 load to the acre were taken off before tillage. It was ploughed but once, but this was done in the best manner. Mr. B. adds—"We then drew on 25 cart loads (about 25 bushels to the load,) of sheep manure, and spread it evenly on the furrow. Rolled and harrowed with the furrow, with a light double harrow containing 40 teeth, until it was a complete garden mold, and the earth well incorporated with the manure. Again picked off the stones, and again rolled and planted on the 22nd and 23rd of May, on an even surface, with the early small white flint corn steeped in a solutation of copperas and saltpetre, and then tarred and rolled in plaster, and planted in doubledrills 3½ feet from centre of the middle drill. The plants standing single from 12 to 13 inches on the main drill. The corn was once ploughed, and afterwards kept clean with the hoe, plastered well on the plant, topped at the usual time, was ripe on the 15th of September, and was harvested on the 14th and 15th of October.

In this case the sheep manure sustained the high reputation it has acquired for the corn crop, both at home and abroad, and with the exception of that produce in the hog pen, our experience would lead us to prefer the manure from the sheep fold, to any other ordinary farm manures. One thorough ploughing was here found sufficient, the rest being left to the harrow; and we are convinced that in most cases one ploughing well done, will be found better then more. A fine mellow seed bed must in any event be had, and the soil must be moved with either plow or harrow until this is provided.

Another example of a good crop of corn, is that of Mr. Bugbee of Palmer, Mass. who raised from five acres of land 540 bushels, or 108 bushels per acre. The following is the account given by Mr. B. of his mode of culture:—"Last spring I ploughed up a piece of green sward, measuring about five acres, and prepared it for corn as well as my means would permit. ploughing, 30 loads of manure to the acre, spread over the ground, and thoroughly mixed with the earth by means of the harrow, without turning up or breaking the sod. The ground being now prepared, on the 30th of May I planted my corn. A small quantity of ashes, lime, and plaster of paris, mixed together and prepared for the purpose, was used at the time of planting, or put in each hill. Of this mixture, there were 2½ bushels of lime, 2½ bushels of plaster, and 25 bushels ashes for the 5 acres. This corn was hoed but twice, a third hoeing being unecessary."

This crop affords another of the many proofs already existing of the excellent effect of such a compost of lime, plaster, and ashes, especially on inverted sward, as that prepared by Mr. B. Those farmers who sell off their ashes, and harvest corn crops of only 30 or 40 bushels per acre, would do well to imitate Mr. B. in the use made of his.

In 1823, Leonard Hill received the premium offered by the Plymouth (Mass.) Agricultural Society, for the best crop of corn. We condense his statement of the culture, &c. The soil naturally was deep and rich. During the previous winter, while it was greensward, his cattle were foddered upon it. In May, it was ploughed very deep into squares 2 feet 7 in width. It was then manured in the hole, 64 cart loads barn manure being used. It was planted early with white and flesh colored corn, varieties having small cobs. The kernels were placed about four inches apart in the hills, not thrown together as usual. In the middle of July, the corn spindled, grew very thick, and so filling the spaces that the rows were scarcely discernible. It was hoed three times, and all the suckers early cleared from it. It was gathered on the first of October. The quantity of shelled corn, ascertaind by disinterested men, was 139 bushels, 3 pecks.

This was a great crop, but the account is defective in not stating the number of stalks left in each hill. The varieties of corn must have been of the small kind, or such close planting would have prevented the formation of ears. The quantity of manure was enormous.

Some of the most extraordinary crops of corn ever grown in the United States, were those produced by the Messrs Pratt of Eaton, Madison county. In 1822, they obtained from 3 acres, 517½ bushels, or 172 bushels per acre, and in 1823, from 4 acres, 680 bushels, or 170 bushels per acre. They prepared their land in the best manner, then with a shovel plough made a trench 20 inches wide into which the manure was placed and covered. On these trenches, so covered, the seed corn was drilled in three rows, thus:—

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Two feet nine inches distant, or 3 feet 9 inches from centre to centre of the rows. Another trench was made, filled,

covered and drilled in similar manner. Thus the corn stood in single stalk, 6 inches a part every way, and 2 feet 9 inches clear between the rows.

It is evident that planted in this manner, more stalks would be placed on an acre than in almost any other way, but nothing short of the most heavy manuring would carry through such a crop. We have found by experiece that in very dry summer, close planted corn suffers far the most, and if too near, is a total failure. We once planted a piece 2½ feet by 18 inches in the rows, intending 3 stalks to the hill. The corn was manured in the hill. The growth was very rapid and promising until the ears were about setting, when a drought of some weeks occurred, and the result was not more than half a crop. The year in which Messrs. Pratts' crop were grown, were of the most favorable kind, and the crops, under their course of planting and culture, most astonishing.

In 1835, Mr. Brewster of Oneida county communicated to Judge Buel an account of a crop of corn and potatoes raised by him in that year. He says, "I had a ten acre lot of stiff strong sward, that had not been ploughed for many years; this I intended chiefly for Indian corn. In one corner of this I measured off one acre for corn, and by the side of it another acre for potatoes. I drew on about twenty loads of yard manure to the acre on each, turned it over, followed the plough with the roller, harrowed and furrowed three feet apart from north to south, and put down about the same quantity of manure that was turned under. Commenced planting the 20th of May; seed soaked, rolled in tar and water and plaster, put 4 grains in a hill, one foot apart. The first day planted one-forth of an acre, which came up well; the other planted on the 22nd and 23rd, did not come up well, owing, as I thought, to the seed lying too long in the hot sun after being soaked, and we replanted it on the 2nd and third of June." From the ¼ acre first planted Mr. B. had 26 bushels 8 qts., or 105 bushels to the acre; the other ¾ did not do so well, and he only got 94 bushels and 2 quarts of shelled corn from the acre. The potatoes were planted on the 1st and 2nd of June, furrows three feet apart, and the seed all whole and large, dropped one foot apart in the rows. One good dressing was given them with the plough and hoe, which was all the attention they received. At gathering, by measure he had 519¼ bushels, by weight, 560.

Several years since that excellent farmer, Mr. Reybold, of Delaware, on a field of 22 acres, raised 2216 bushels of corn, or 100¾ bushels per acre. Seven years previous to the crop, he put on 60 bushels of lime per acre, and planted it to corn; in the following spring he put it in oats; in the fall put on 40 loads of barn yard manure per acre, and sowed it to wheat and timothy seed, and the ensuing spring with clover. It remained in grass some five years, and received one top dressing of 40 loads per acre of manure. It was mowed four or five years and gave from 2½ to 3 tons per acre. In the spring of 1835 he gave it another dressing of 40 loads per acre of long manure, allowed the grass to start through it, and then with a furrow 10 inches deep, turned the whole under. The corn was planted in shallow furrows 3½ feet each way. The plough was never used in the field after planting, the cultivation being performed by the cultivator and hoe; and no hilling was allowed. Three good stalks were left on each hill. When the corn was glazed it was cut up, and put in shocks. On this statement, Judge Buel remarks: "The management which led to this extraordinary product of corn should be deeply impressed on the mind of every farmer. 1. The ground should be well dunged with long manure. 2. It was planted on a grass ley with one deep ploughing. 3. It was well pulverized on the surface with the harrow. 4. The plough was not used in the after culture, nor the corn hilled. 5. The sod was not disturbed, nor the manure turned to the surface: and 6th, the corn was cut at the ground when it was fit to top."

We had marked several other crops as worthy of note, but have room for only the following, which we select as showing what crops of corn may be grown on the very northern verge of its culture, and what the treatment was that produced it:—

The soil was gravelly, dry, had been cropped seven years in succession, and manured each year. In the spring of 1838, the hills of the previous year were split, a good dressing of manure put on and ploughed in, harrowed, and with a light plough opened into drills 2½ feet apart. On the 19th of May, 1½ bushel of seed corn was put in a tub, and hot water poured on it, till too hot to stir with the hand. It was steeped two hours, then dried by rolling in plaster, and planted the same day in hills 16 to 18 inches apart, and from 5 to 7 kernels in a hill. On the 5th of June it had come up; on the 11th a small plough was passed between the rows lightly, turning the little mold raised to the middle, and care being taken to stir the whole surface of the ground. It was harrowed and hoed the next week, and again the week after that, the owner believing that the maturity of corn may be hastened some two or three weeks by frequent hoeing, while the plants are young. In hoeing, the earth was left nearly flat. On the first of September the corn was cut up, and husked out the last of the month. The crop when shelled, fell a few pounds short of 150 bushels of corn per acre. It should be stated, that though plenty of seed was used, only three stalks were allowed to remain in a hill, the best being selected for this purpose.

To prevent the Bleeding of Vines.—If a piece of moistened bladder be folded over the end of the vine which is cut, and then bound tightly around with wrapping thread, it will effectually prevent bleeding.

ON RAPE CULTURE.

The cultivation and use of this crop is but little understood in this country, especially by the native Canadians. It is principally grown for food for sheep; and on rich clay soils, or such as are rich with vegetable substances, may be cultivated for seed, with large profits. Forty bushels of seed per acre is frequently raised upon soils of this description. As we deprecate the practice of making naked summer fallows, where the soil is tolerably free from wild grasses and other foul weeds, we would recommend our readers to make the experiment of sowing a quantity of Rapeseed upon their fallow grounds. When it is intended for a smothering crop, four pounds of seed per acre will not be found too much. It might be sown at three different periods, between the 10th of May and the 20th of June, and the sheep might be put upon it about the 1st of August. By the 1st of September the whole should be eaten off, and the ground ploughed for wheat. With this management, two ploughings, and no manure further than the droppings of the sheep, will give a larger average crop of wheat than almost any other system of cultivation. Few plants are less liable to failure than this: it merely requires the land to be in good heart, and the cultivation attended to, to remunerate the husbandman liberally for his toils. In a country like this, where the pastures are very apt to get short in the months of July and August, every farmer should grow more or less rape upon his fallow grounds, for soiling. Almost every description of stock are partial to it. It is, however, worthy of remark, that a luxuriant plant of rape, with a thick stem, is more palatable for stock than a thin sickly growth, and that such plants can only be grown upon land of the richest description.

MANGEL WURZEL.

This is a species of the beet-root, and may be cultivated as a field crop to a limited extent, with much advantage. Horned Cattle are very partial to this root. The culture is so nearly similar to that of turnips, that very little further detail than what should be given for the latter is necessary. The ground, as for turnips should be drilled, and it should be ploughed very deep, and heavily manured, with a rich vegetable compost. The most usual, and perhaps the best method of sowing the seed is to put it in with a dibble, upon ridges twenty-four inches apart, each seed being deposited one and a half inch in depth, and twelve inches distance in the drill.

The advantages which this crop possesses over the turnip are these:—It is less liable to receive injury from the fly or grub: it will produce more weight of tubers from a given piece of ground: it is off the land earlier: it is a better spring food for stock, and will produce

a considerably greater amount of flesh than sweeds, from a given weight of fibers.

Although neither Mangel Wurtzel nor Turnips can be profitably grown in this country to the same extent that they are grown in Britain, still every farmer might profitably cultivate far more than are grown at present.

VETCHES.

There are several varieties of Vetches, although only one may be grown in our climate with any certainty of profit. The management of this crop is so very similar to the field pea, that they scarcely deserve to be treated separately. The proper time for sowing is about the 10th of May, and about two bushels of seed per acre will be a liberal seeding, in an average of cases. They thrive best on clay soils. When the soil contains 60 per cent. of sand this plant will rarely succeed, unless heavily dressed with barn-yard manure; though a top-dressing of gypsum, at the rate of one bushel per acre, would increase the product upon light soils, to an extent equal, if not greater, than if grown upon heavy soils. Vetches or Tares are very valuable for soiling, and may be sown upon fallow-grounds with much advantage.

CORN STALK SUGAR.

A Corresponden, residing in the Western District, feels anxious to obtain further information on the subject of cultivating Indian Corn, for the purpose of being manufactured into sugar. We beg to give him the following, from the pen of Mr. William Webb, of Wilmington, Delaware, from whom, on a former occasion, we copied some remarks upon this subject. If only 500 lbs. of sugar could be produced from an acre of Indian corn, in an average of cases, it would be well worth the attention of the Canadian farmers. We would recommend our intelligent correspondent to make a few experiments upon the culture of corn, for the purpose above alluded to, and furnish us with the results of those experiments, for the general benefit of the readers of this Journal. As our Correspondent intends to engage largely in the cultivation of Broom Corn, he would find it to his advantage to favour us with his success, in detail, as we would then be enabled to assist him in establishing a market for the material, in the towns and cities east of Toronto:—

Wilmington, Del., Sept. 13 1843.

To Dr. W. Thompson, President of the Newcastle County Agricultural Society:—

Dear Sir,—Since my last communication to you, on the subject of manufacturing sugar from corn, a sufficient time has elapsed to bring the ideas then advanced to the test of experiment. This has been done to a considerable extent by many individuals in different parts of the county; the results (so far as known) have confirmed every reasonable expectation, and given confidence to all interested in a successful issue.

Notwithstanding the disappointments and failure necessarily attendant on all new enterprises, enough has been developed by the efforts of experimenters to show, beyond a doubt that this manufacture can be profitably carried on.

If any one skeptical on this subject, will take the trouble to chew the pith of a corn-stalk which has ripened without producing grain, his doubts will vanish. Indian corn and sugar cane belong to the same family of plants, and offer many points of resemblance. The saccharine matter found in the stalk, is exhausted by the process of vegetation in the formation of seed, and the sugar cane will no more yield sugar after it has perfected its seed, than will corn under the same circumstances. From analogy then, we must conclude that the plants most productive in seed, will be most productive in sugar. This plant is Indian corn. That such a result has not yet been fully confirmed by experiment, is no proof of its incorrectness. The best mode of preventing the formation of grain upon the plant is not yet understood. The plan hitherto practised of taking off the young ear, is as objectionable as injurious to the stalk. From some trials made the present season, it is believed that taking off the tassel will be found effectual in securing the object. Let the corn be cultivated at such distances (according the quantity of the land) as will grow the stalk about an inch in diameter.

As soon as the tassel appears sufficiently to be taken hold of with the hand, it should be pulled out; this operation does not injure the stalk in any perceptible degree.

But without anticipating improvements we will give a calculation from the results which have been actually obtained. In the first place, the fodder is at least equal in value to a crop of the best timothy hay. No green food which can be raised on a farm, is to be compared to it for increasing the milk of cows. It may be preserved for winter use to great advantage, by packing it when partially cured, alternate with layers of dry straw. If properly saved, this part of the crop will pay all expenses. We last season obtained from one acre between six and seven hundred gallons of juice. This quantity, if properly manufactured, will make at least five hundred pounds of sugar and fifty gallons of molasses.—*Southern Cultivator,*

REMEDY FOR SCARLET FEVER.

As our Journal has now by far the widest circulation of any publication in British America, and as it is received by many scores who have not been in the habit of subscribing for periodicals of any description, we consider it to be our duty to publish any and every description of matter-of-fact information that would tend, in the slightest degree, to add to the comforts, or increase the store of general knowledge, of those who have favoured us with their patronage. With this view of our duties as a public journalist, we copy the following extract from a late number of our cotemporary, the *Christian Guardian*:—

Remedy for Scarlet Fever.—As soon as any appearance of sore throat, scarlet blotches, or the scarlet shews itself on the body, or other symptom of fever present themselves, immediately give an emetic, as it is very essential the stomach should be cleansed, and the bowels open; if the fever advances, wash the body three or four times a-day with vinegar and water, blood-warm; the clothes should be changed, every other day; let the patient drink freely of tea made from slippery elm bark; form a washer on the handle of a tea-spoon, with soft linen cloth, and wash the mouth with the tea, and occasionly a little warm vinegar and water, the mouth and throat must be kept as clean as possible; if the throat should be swollen, take a pint of sharp vinegar, boil it on the fire; when taken off, add to it a sufficient quantity of scraped potatoes to make it thick for a poultice, apply it to the throat till it gets dry, then re-apply till the swelling abates; when the mouth becomes sore, black currant preserve is very beneficial. to eat as much as can be got down. In Scarlet Fever, the patient has a great objection to be moved, handled, or to take anything necessary to be given; but these must be no trifling, especially with the children; compulsion is necessary, the welfare of the patient depends upon the prompt attention of those in charge, in keeping the mouth and throat clean, and steady perseverance in the means used.

We also copy the following, from the *Southern Planter*, the writer of which appears to have much confidence in recommending it to the public, as a cure for chills and fever:—

Dear Sir,—According to promise, I give you below the recipe for the pills; go to a drug store and have it put up:—

21 grains gumme.
20 grains blue mass.
16 drops oil black pepper.

Have them made up into twelve pills; take one every hour for six hours, and the next day take the other half, say six, in the same manner. The next day they must be taken in the absence of fever; if necessary, open the bowels with a dose of calomel and castor oil. You may have confidence in this remedy; I have cured, I may say, a thousand persons, and in no instance has a failure been known to me. All I can say to you is, try it, it can do you no harm, and will only cost you twenty-five cents.

Yours, respectfully,

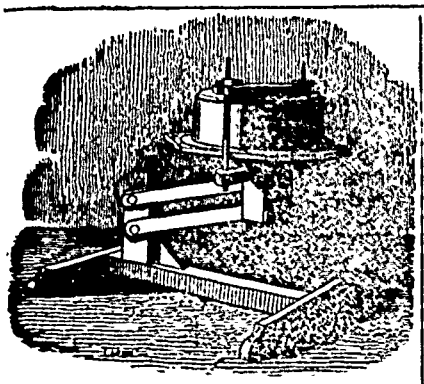
SOLOMON DAVIS.

PRUNING APPLE TREES

Mr. Hiram Bartlett of Quincy, writing in a late number the Massachusetts Ploughman, says:—

I have become sanguine in my opinion as it respects the best time and mode of pruning apple trees in order to produce the most beneficial results—and I firmly believe that any one who will try the experiment will agree with me.

Many writers recommend pruning in March, and others as late in the season as June. I cannot approve of either; experience has taught me that the former is quite too early, and the latter too late, unless the course I shall recommend be adopted, then it may be said I approve of both. I propose and recommend as the safest and most advantageous manner, particularly where much pruning is required to go over the trees twice,—the first time in March, or earlier, if more convenient, and lastly in June; if the trees require but a slight pruning, they having been properly attended in previous seasons, it is of much less consequence, but then May or June is the most suitable time; but where a heavy pruning is to take place, and large limbs are to be taken off, it should be done before the sap moves or the buds start, and the limbs should be cut about a foot from the main trunk or branch at this season, and during the time the trees are in bloom these stubs should be cut off close to the trunk of the tree, with a fine sharp saw, leaving the surface smooth as possible, and the bark roled around the wood; this will facilitate the process of healing, &c. The advantages derived from this manner, are many; for by taking off the large branches before the buds start, you are able to separate them from the tree without injury to buds remaining, and do not rob the tree of sap as you would, if it was not done until May or June; if you cut close in March, you leave the wound exposed to the drywind and sunwhichwould require (if ever healed over) double the number of years it would if made when there was a full flow of sap and the tree in foliage."



[From the Albany Cultivator]

SELF-ACTING CHEESE PRESS.

In vol. 9, page 167, of the Cultivator, we gave a description of this press, (fig. 41) At that time it had not been generally used, but since then, experience has fully tested its superiority. We placed one, which had been sent us, in the hands of Messrs. H. P. and G Allen, of Duanesburgh, well known as extensive manufacturers of cheese, and after giving it a thorough trial, they have forwarded us the following certificate.

Messrs. Editors,—We have had one of Messrs. Collins and Stone's Patent Cheese Presses in use the past season, and consider it much superior to any thing of the kind we have before seen, and think the properties of this press need only to be known, to bring it into general use.

H. P. and G. Allen.

Duanesburgh, Feburary, 1844.

N.B. Mr. L. Kennedy, Jnr. of Hartford, Connecticut, is general agent for this press.

CHEESE MAKING.

Our Canadian correspondent, "*Enquirer,*" says—"If it would not be trespassing too much on your indulgence, I would solict an article on the best method of making cheese, either from your own experience, or that of some experienced cheese maker. I do not recollect meeting with any thing of the kind in your publication for this year (1843), or at any rate, nothing sufficiently explicit to enable a beginner to count upon success. The best method of reserving the oily particles to the cheese, and at the same time expressing the whey well, is not well understood in this country. There appears to be various opinions with regard to the method of separating the whey from the curd, also of the proper way and time of salting it. It has been observed to me that the Americans incorporate a little lard with their cheese, thereby imparting the mellowness so much desired in that article."

If *Enquirer* will turn to the 147th page of the Cultivator for 1843, he will find the concluding part of one of the best papers on the subject of the dairy or cheese making, yet published in this country; but as the present volume will pass into many new hands, we shall give an article which we hope will meet the whishes of our correspondent and others.

Having had considerable experience in the dairy business, we have found that there are so many things to be taken into consideration, that all rules for their management must be more or less general; and no directions, however minute, can compensate for experience. In lage dairies, curds are turned, or cheeses made, at both morning and night; in smaller ones, the night's milk is set, and the cheese made in the morning; in still smaller ones, the milk of two or three days is required to make a cheese, and of course different methods must be adopted in each case. We shall suppose the quantity of milk given at two milkins, to make a cheese of some 30 or 40 lbs. weight, a medium perhaps of our dairies.

In making the rennet, the dried stomach of a calf is the best material; it should be cut in small pieces, soaked in water or sweet whey, to which must be added salt enough to keep it sweet; and at the pleasure of the maker, sage, summer savory, or rather aromatic herbs. If the rennet is properly made, a gill will be sufficient for a cheese of 20 lbs., but its strength can only be ascertained by experiment. If too much is used, the cheese will be puffy and strong; if not enough, the curd will not be formed, and a waste of milk will ensue.

In hot weather it will be found necessary to reduce the temperature of the milk drawn at night, to 50 to 55 degrees of the thermometer, which is best done by placing the pans or vessels in cold water. In the morning, the cream must be carefully skimmed off and put in a pan. As the milk when set, should be of the temperature of 90 to 95 degrees, the quantity of milk to be warmed, will depend on the external air; as in a cool day, the milk of the morning will be lower than in a warm day, and a too low temperature must be guarded against. Into this milk while warming, the cream taken off must be put, and raised to such a temperature that when it is united in the tub with the remainder, and with the morning's milk, the temperature may be about 90 degrees. Sometimes it is necessary to warm the whole night's milk; but this is only in very cold weather; while, when the weather is warm, the cream may be put in the strainer and melted by pouring the morning's milk over it. The thermometer in these cases, must, however, be the guide; and the operations of the dairy cannot well be conducted without this instrument.

When the proper warmth has been given to the milk, and the cream fully incorporated the rennet is to be added, and throughly stirred into the mass. The time allowed for coagulation will depend on the strength of the rennet, and if good, an hour will be about the proper time; during which, more or less of the cream will naturally rise to the surface. When properly coagulated, the curd will bear a slight pressure on its surface without breaking; but experience here is much the best guide. To prevent the escape of what cream may rise with the whey, it should be carefully skimmed to one side of the tub, and covered with some of the coagulated milk laid upon it with a skimmer. The whole is then carefully broken up with a cutter like a long wooden knife. Much is depending on this operation, as if not well done, the butyraceous matter which gives character and excellence to the cheese, will be carried off by the whey and lost. A coarse strainer or cloth, is best thrown over the curd, through which the whey is dipped as it rises as long as it can be dipped conveniently. The curd is then again broken up, and the whey more completely dipped off than before. Some of the first whey is to be heat as soon as dipped off for the purpose of scalding the curd. Great care must be taken not to scald the curd too much. Two pail-fal at 130 degrees will scald a curd of 20 lbs.; but the weather and the quantity of curd must be consulted to determine correctly. When the hot whey poured on the curd should be broken up and mixed by hand, that all parts may be equally treated, and made as fine as it can be broken. It is now removed to a strainer and basket, and when the curd is drained, it is returned to the tub for salting. Half an ounce of good salt to a pound of cheese, will prove a good rule, but the taste of the dairy woman is perhaps as good as a regulator of this matter as any. The salt must be pure and fine, and thoroughly mixed with the curd, or it will not ripen equally, and the unsalted places will acquire a bad flavor.

The pressure required, mainly depends on the size. The curd is put into the hoop or vat in a strainer, and remains in the press about two hours. It is then removed, placed in a dry cloth, and returned to the press. It should not remain in the press without turning, longer than five or six hours at a time, and from 24 to 36 hours will be necessary to complete the operation. A power of from 80 to 100 pounds for every 15 pounds of cheese, will be a sufficient pressure. Where large cheeses are made, it has become a common practice to pass a bandage made of thin cotton cloth, of the same width as the thickness of the cheese, around them, and secure it by stitching it together at the extremities. This will prevent the spreading of the cheese, and thus prevent the danger of cracking and of loss from that source. We have found such strips of cotton of the greatest use; and the large and richer the cheese, the greater their value to the dairyman. Milk may be tinged so as to give a richer hue to the cheese; but if the cream is all added, and the cheese well made, coloring matter will be unnecessary. Annatto is the best coloring material, as it is harmless, which cannot be said of all the ingredients sometimes used for this purpose. There should be a free ventilation to the cheese room, but they should not be exposed to strong currents of air, as it makes them liable to cracking. Cheese should be turned on the shelves daily, and rubbed with butter made into an oil, at each turning.

We have never known an instance where lard has been used inany way in the making of cheese, unless perhaps sometimes as a substitute for butter at turning the cheeses during the process of churning, and we think it would scarcely produce the effect attributed to it by our correspondent, even were it adopted in the place of cream, at the time of making. In our next, we will give the mode of making the celebrated Gloucester cheese.

CREAM CHEESE.

Mrs. Reynolds, of Connecticut, desires to be informed of the mode of making cream cheese, mentioned in Mr. Sotham's communication in the Januaary number of the Cultivator. In reply to her inquiry, we are pleased to give the following communication from Mrs. Sheldrick, under whose superintendence the cheese spoken of by Mr. Sotham was made.

Messrs. Editors,—According to your request, I herewith send you a recipe for making cream cheese; and if any of your numerous readers can learn any thing from my experience, I shall feel most happy in communicating what I well know to be worthy the trial of all good house-wives.

Recipe—Take one quart of very rich cream, a little soured, put it in a linen cloth and tie it as close to the cream as you can. Then hang it up to drain for two days—take it down, and carefully turn it into a clean cloth, and hang it up for two more days—then take it down, and, having put a piece of linen on a deep soup plate, turn your cheese upon it. Cover it over with your linen; keep turning it every day on to a clean plate, and clean cloth until it is ripe, which will be in about ten days or a fortnight, or may be longer, as it depends on the heat of the weather. Sprinkle a little salt on the outside, when you turn them. If it is wanted to ripen quick, keep it covered with mint, or nettle leaves. The size made from a quart of cream is most convenient, but if wished larger, they can be made so.

Arabella Sheldrick.

Hereford Hall, March 8, 1844.

Illustration of Early Rising.—The difference between rising at five and at seven, in the course of forty years, amount to 58,400 hours, or ten years allowing eight hours in twenty four for sleep. Thus, the man who saves these hours, saves in forty years ten. These hours, spent in useful reading, having the balance of the day, if a laboring man, for meditation, would be equal to twenty years continual study.

To Select a Good Wife.—Choose a woman who has been inured to industry, and is not ashamed of it. Be sure she has a good constitution, good temper, and has not been accustomed to "*dashing*" without knowing the value of the means, is not fond of novels, and has no gidd and fashionable rel' s, and you need inqui no further—*she is a fortune.*

ROAD MAKING.

But few subjects are of greater importance to the interests of agriculture, as well as the general welfare of this country than that of constructing good and substantial roads. As the subject of plank-roads is now being agitated, through the columns of a number of the most talented and respectable journals in the Province, we would beg to copy the following extract, from an able report on the subject, published by Colonel J. W. Hudson, United States Engineer, who was recently employed by the citizens of Oswego, to make a tour through Canada, to examine and report upon the plank-roads in use in this Province :—

The plank are pine, three inches thick, 16 feet long, and laid on four stringers of scantling, only four by six inches in size, and spiked to the same at the end of each plank These stringers are said to be too small, although when well imbedded in the earth, they are quite sound after eight years' constant use. Col. J. states, that where the bed of the road is level, the constant pressure of loaded carriages passing over the centre of the track, renders the road dishing, and collects water after rain, which softens the plank, increases the wear and tear, as well as makes them more prone to rot. To remedy this, he recommends that before the plank are laid, the road or grade be made crowning, so that the water may run off each way from the middle of the track.

Planks have been put down and tried *transversely, diagonally, and lengthwise*, with the line of the road. The transverse mode is preferred. A plank road made of hemlock plank four inches thick, 14 feet wide with a carriage track to turn out on each side, having five good stringers, six inches by eight, all complete, will cost about $2500 per mile. The following is the estimate of the engineer—there are several, but this suits my idea of economy better than those that cost more or less.

The stringers must be so placed, as to be directly under the carriage wheels, giving a *continuous bearing*. These should be six inches by eight, at $4 per M. feet, board measure—

	$ 211.26
195,680 ft. plank, 4 inches thick, 14 ft. long. $4	1,182.72
Digging trenches for stringers, putting them down, spiking plank, &c., ...	268.00
	1,661 92
Contingencies, 10 per cent., ...	166.19
Estimate cost of superstructure....	1,828.11

Grading, dependent on the peculiarities of surface, &c, say from $500 to 770. Total cost, $2,500.00

A good road will last from eight to ten years, with very slight repairs. The plank should rest firmly on the earth beneath the stringers, which gives solidity to the structure and increases the weight that can be drawn on the road. A horse can draw much more on a good plank road than on any Macadamised road.

As anxious as we would be to see the main arteries, or principal roads of the country either Macadamized, planked, or gravelled, as circumstances might prudently dictate, still, we are of opinion that it would be imprudent in the extreme to plunge the country still further in debt for improvements, without there was a certainty of the tolls arising from the works paying the interest and principal of the investment in a reasonable time. In all cases where moderate tolls would pay the interest of the money, and keep the works in complete repair, there would be but little risk in borrowing money to effect such improvements; as the increase of wealth that would be brought into the country by means of having good roads would, ultimately, enable the Commissioners, or Overseers, to liquidate the original investment.

Although the main roads should be improved to the fullest extent possible, yet the principal concessions and side roads are of equal importance, in a local point of view, and should receive every attention by the farmers. A farmer should feel as much interested in improving the roads in the immediate neighbourhood where he resides as he would in repairing his fences, or making other improvements on his farm. How few there are that take this extended and patrotic view of this highly-important subject. It is only natural to suppose that those who are anxious to make all the improvements possible on their farms, that they would feel an equal interest in having a respectable road alongside of it. To those who entertain a desire to improve in this particular, we would recommend them to adopt the plan which we have seen practised, with remarkable success, in some of the northern settlements of this District. Instead of the road overseers ordering the farmers in their section or division to bring each a hoe, to fill up the *ruts*, as they are usually called, they should request and enjoin upon every man who had a strong pair of horses to appear upon the ground with his team, and the strongest plough that he could procure, and then pursue the following plan, which we saw practised :

A line of road, precisely twenty feet wide, was previously staked out, and as near the centre of the road allowance as was practicable, and the ploughmen were then directed to plough a straight furrow in the centre of the line of stakes; and, after forming a crown for the ridge, they turned the furrows towards the centre, until the whole of the space between the stakes were completely ploughed, farming fashion : this process was repeated *four times*, which raised the centre of the road about three feet higher than the outside, or ditch which was formed by the plough. The road was then thoroughly harrowed and rolled, which gave it a most beautiful appearance.

We passed over the above piece of road about a fortnight ago, and, although the roads were extremely bad in other sections of the country, we found it to be very passable, and by far the best piece of mud turnpike that we met with in a journey of 150 miles.

Most of the mud roads in the country are by far too wide : where they are not much travelled upon, 16 feet from outside to outside would be preferable to 20 feet. If the land be tolerably free from stones and roots, a great amount of mud turnpike could be made, with but very little labour or cost, if the plan above specified were followed. It is quite impossible to have good roads unless they be thoroughly drained; it is, therefore, of equal importance to keep open the cross drains.

Where there are stones, roots, and other impediments to hinder the progress of the plough, the ploughshare and coulter should be locked together, somewhat after the style of the old-fashioned barshare ploughs.

We would recommend the following article to the notice of the Canadian farmers. We have no doubt but that subsoil ploughing would be found to be advantageous on most of the arable lands in this country; but, on close retentive soils it would prove an evil, unless accompanied with thorough drainage, an operation of itself so very expensive, that, on such soils, neither the one or the other need be attempted. A Scotch iron plough, without any mouldboard, would answer as an excellent substitute, to follow in the furrow after the common plough; or even a common plough might serve to make a trial on a small scale :—

[From the American Agriculturist.]

SUBSOIL PLOUGHING.

We are highly gratified to observe an increased attention to subsoil ploughing, for we consider if it could be generally introduced among us, it would be found one of the greatest agricultural improvements of the age. In vol. I, page 199, we gave full details of the successful operation of the subsoil plow in England, where it was shown, that by its use, crops may be doubled without adding a particle of fertilizing materials to the land. Two years subsequent experience by the farmers of that country, corroborate the benefits to be derived by the free use of the subsoil plow, for grain as well as root crops. Mr. Tilley recently asserted before the Cornwall Agricultural Association, that he had the past year raised hundreds of roots of mangel-wurzel, weighing 25 lbs. each; that the crop of these per acre, as well as carrots and turnips, was at least doubled by subsoil ploughing.

Five years ago we had a piece of land containing 2½ acres of a hard clay soil, which, with the best management we could bestow upon it, yielded less than 150 bushels of potatoes to the acre, and 400 of sugar-beet—while parsneps, carrots, or any long roots, it would scarcely grow. We had just heard of Mr. Smith's subsoil plough in Scotland, and determined upon an experiment. We had no plough of this description, nor could we then obtain one; we accordingly took the mould-board off from a large, strong road plough, and used the point of the share alone for subsoiling. We ploughed the land in the fall of the year, by taking a common plough and one yoke of cattle, and turning over a surface furrow six inches deep. We then followed directly after this in the same furrow, with three yoke of cattle attached to the road plough, stirring the soil eight inches deeper, making fourteen in all. This we then bountifully limed, and the next spring as bountifully manured and planted it with roots, and the following autumn obtained over 1,100 bushels of sugar-beet to the acre from it, and other crops in proportion.

Subsoil ploughs may now be had in this city, of excellent pattern and strongly constructed, from $10 to $15 each, which will stir the earth 12 to 18 inches deep, requiring from two or five yoke of cattle to move them, according to the nature of the soil, and the depth required to plough.

[from the Yankee Farmer.]

PREPARATION OF CLOVER SEED.

We have received two communications from Joseph Warbasse, of Newtown, Sussex county, New Jersey, on the preparation of clover seed for sowing, by which the writer calculates he makes a saving of one half the seed required. This is a matter of no little consideration at the present price of seed. Mr. Warbasse's process seems to be predicated on the assumed fact that ordinarily more than one half of the seed sown does not germinate, either from the want of the moisture to swell it or of gypsum, the presence of which he considers essential to stimulate the germinating principle. Mr. Warbasse is probably right in stating, that one half the clover seed sown does not come up, and he is strengthened in his supposition that much of it remains dormant in the soil by the fact he states,, and which is of common notoriety, that plaster sown upon light lands, will bring in clover, where no seed is sown at the time Mr. Warbasse's remedy for the evil is, to saturate and swell the seed thoroughly in soft water. to which a small quantity of salt is added, and after it has become well saturated, to coat it with gypsum, &c., the effects of which seem to be to prevent the escape of moisture which the seed has imbibed, and thus insure its germination and growth. A further advantage may be, that the salts impart fertility to the soil which comes in immediate contact with the seeds, and causes a more vigorous growth. Such seems to be the philosophy upon which Mr. Warbasse's is founded. We give the process of preparing the seed in his own words:—

"This seed is to be made thoroughly wet with a strong pickle from your pork cask, so as to wet the floor; then let it remain in a heap one day, it being thus made larger in each grain. In cold weather warm your pickle and give it an additional salting next day. Spread it about 1 or more inches thick on a dry floor, and in a few days a crust of salt will be formed on each grain, again enlarging it; when you wish to sow it, the weather being calm moisten it with more salt pickle; spread it over a floor, and put on it about three quarters or more of plaster to a half bushel of seed: mix it well: the plaster will adhere to the crust of salt on each grain, still further enlarging it: and thus you have in bulk nearly one bushel out of half a bushel of seed. Keep it moist in a cellar until you sow it, and take no more seed in your fingers but rather less than in the old way, making longer steps while sowing, and go over the eight-pace land three times. I have thus sowed twelve acres or more with one bushel of seed, and all in good condition.

For want of plaster, strong dry ashes may be used, not over moist; but as I have not fully tested the advantages of the latter method, I shall leave it as it is."

We doubt not the correctness of the above experiment; but the recommendation of sowing them is not based upon either sound theory or practice. From eight to ten pounds of clover seed per acre is not too great a quantity: an experiment on this point will convince the farmer of the propriety of sowing his seed, of almost every description, with a liberal hand.

We look forward to the day, with pleasing emotions, when agriculture in this country will have made such rapid advancement, that seed grain, of every description, will be prepared previous to sowing, by some chemical process, which will have the effect of increasing the product 50 per cent.

VALUE OF HORN SHAVINGS AS A MANURE FOR CORN.

Its Mode of Operation—An Artifical Substitute—Importance of Urine, Charcoal and Plaster—and, The best Method of applying them.

To the Editor of the American Farmer:

Dear Sir,—Although an entire stranger, you have kindly noticed some remarks of mine on various subjects connected with the practice and science of rural economy, for which I desire to make due acknowledgement. If the following suggestions be deemed worthy of the persual of your readers, they are written for that purpose.

Last Thursday evening we had an interesting agricultural meeting at the Hall of the State A. Society. His honour, the Mayor, Friend Humphrey, Esq., stated that by the use of a small quantity of horn shavings obtained at a comb factory, and put into each hill of corn, on two acres of ground, *very poor* and *sandy*, he had harvested 120 measured bushels of shelled corn. Where none of this remarkable fertilizer was used, the crop did not exceed 15 bushles per acre. Of the correctness of this statement there can be no doubt. I inquired carefully into the matter as it has an important bearing on some experiments of my own, and on the science of vegetable physiology. This was the material fact in the case: a few pounds of ammonia in horn shavings called into existence on an acre of land an increase of 45 bushels of corn, together with all the extra stalks, leaves, &c. necessary for the perfection of so much grain. How did the horn shavings operate to produce a result so extraordinary, and truly useful?

In the first place, I conjecture that they were decomposed slowly and gave up to the roots of the plant a moderate supply of ammonia for months. This active substance served alike to feed and stimulate the living assimilating organs of the corn, from the first sprouting of the germ to the full maturity of the ear. Had the same quantity of like constituents been placed in the hill when the corn was planted, but in a condit on to escape at once, like hartshorn from a smelling bottle, their fertilizing influence would have been next to nothing. But it may well be asked: How can one half ounce of ammonia, or any thing else, produce 100 ounces of living vegetable matter?

It will be borne in mind, that the increase in this instance was from 15 bushels to 60 per acre, and of course the soil contained enough of the elements of corn to yield that small crop without the aid of horn shavings. A ripe dry corn plant contains, I belive, between two and three per cent of nitrogen—the important ingredient in ammonia. A small quantity then of ammonia will suffice. But it has been demonstrated that plants derive a considerable portion of their nitrogen from the air, and not from the soil—I mean, not from the nitrogen in the atmosphere itself, but from ammonia, nitric acid and the like gaseous matters that contain it, and fall to the earth in dew, rain, and snow. It is also worthy of consideration that about 94 per cent of corn plants are composed of the elements of water and carbon; and that a sterile sandy soil contains but a small portion of the carbon necessary to build up a crop of corn equal to 60 bushels per acre. The subject is not without its difficulties. I will, however, venture a solution of the problem, whether satisfactory or otherwise.

The slow decomposition of the horn greatly nourishes the young plant, and gives to it the benefit of a larger and longer root, and shortly more of them, than it otherwise would have. This enables it to imbibe more food from even a poor soil, and from a greater distance from the stalk or stem, than it could command without this artificial fertilizer. As a consequence of obtaining a double quantity of nourishment from the soil, its leaves grow to a double size, and of course present to the gaseous elements in the atmosphere a double surface for drinking in carbonic acid and other necessary ingredients Now, if the roots being double in number, length, and size, or any thing approximating to it, would double the crop from 15 bushels to 30; then the doubling of the length, number, and size of the leaves ought to double the crop from 30 to 60 bushels per acre—being just the gain actually harvested by Mr. Humphrey. Of course the precise increase in the roots and leaves of corn, is hipothetical. But that a field of corn that will yield 60 bushels per acre has far more roots and leaves, of surface or those bibulous organs, no one will deny.

As a good deal of the nourishment of plants taken up by their roots comes from the atmosphere in falling dews and rains, and also from weighty carbonic acid, it is important to have a light, deep, mellow soil, whatever may be its strength For other things being equal, a free soil will allow more and longer roots to grow in it, than one which is hard, shallow, and impenetrable.

Every man, however, cannot have a comb factory at his door; and it may not be amiss to inquire what is the cheapest and best substitute for horn shavings?

I answer, *human urine and the liquid and solid excretions of domestic animals.* The ammonia, and other volatile elements contained in all these animal matters should be *fixed* in something like plaster of Paris, charcoal, black vegetable mould, or muck, before they are applied to the soil. Where I reside, charcoal is cheap and can be used to fix the volatile matters in urine and manure to great advantage. It can be applied to the soil before sowing the seed, or as a top dressing to wheat or grass with good effect, without any thing added to it, at from five to 75 bushels per acre. If coal be expensive, 10 bushels mixed with one of gypsum and moistened with human urine will form a valuable compost. A small handful of this compound covered in the hill with corn when it is planted, will have an excellent effect. Seed corn soaked in a strong brine of sal ammoniac and rolled in plaster, will give a better crop for the operation. Urine that is allowed to stand in an open vessel soon loses nearly all its volatile ammonia. It should be applied at once to a heap of fine coal, or the latter should be placed in a tub, barrel, or vat. Not a particle of offensive gas will escape from the coal till it is saturated. A much larger portion of gypsum can be used if it do not cost too much. To raise a crop of corn on poor land, and plow in after harvest all the crop except simply the kernels of grain, which may be 25 bushels, is a pretty cheap method for renovating a barren soil. This adds a good deal of carbon, and all the salts contained in the ash of the plant except what are in the berry.

All the information I can acquire from foreign publications, the experience of many gentlemen of science, and from my own observation, goes to establish the fact that a large quantity of manure is not essential to good crops, provided the little we use be precisely the matter needed, and in a condition to act rightly upon growing plants.

Yours respectfully,

Daniel Lee.

CHARCOAL AND ITS USES.

Five years since, I received from Italy several hundred mulberry trees, comprising the rarest and most tender varieties, packed in pulverised charcoal dust, in tight boxes. On their arrival, I found the roots as well as the buds had grown to the length of six inches. The growth was of course perfectly white, and when exposed to the atmosphere wilted immediately—the trees were in the most perfect order.

This led me to try various experiments with charcoal dust: such as striking soft wooded geraniums, of one summer's growth, wax plants, grape cuttings, and various other plants, with complete success. I likewise use it in growing vegetables, planting grape vines, trees, shrubs, &c., in considerable quantities on strawberry beds, potato fields, grass and wheat lands, sown broadcast. Last Febuary I cut a young grapevine into single eye in the open garden, and freely manured it with charcoal dust Before the 20th of August it had grown 32½ feet. My gardener soaked a kernel of sweet corn in *spirit of ammonia* double F. F., for the space of 12 minutes, and planted it in a pot filed with pu

ulverised charcoal dust, which he then thurst in a well-prepared hot bed: in 24 hours it had grown one inch; other grains he soaked 25 minutes, and killed the vital principle of the kernel. So strong were the fumes of the ammonia, that it destroyed a bed of cucumbers in 20 minutes, placed in a saucer in the midst of the vines under glass. The object in putting it there was to kill insects, which it did most effectually in three minutes: and had it been then removed, the probability is the plants would have been improved by the gas—there were cucumbers on them at the time six inches long.

Charcoal as manure will be found invaluable: it is pure and incorruptible, absorbs from the atmosphere 90 volumes of ammoniacal gas, 55 of sulphuretted hydrogen, and 35 of carbonic acid gas. By uniting with oxygen, it forms carbonic acid gas, and constitutes about 42 per cent. in sugar, 41 per cent. in gum, 43 per cent. in wheat stareb, 52 in oak wood, 51 in beech wood, 46 in pure vinegar, 36 in tartaric acid, and 41 in citric acid; as carbonic acid gas, it is found in all cultivated soils, in all waters, and in the atmosphere. It is absorbed by every plant that grows, the carbonic acid gas being composed of oxygen and hydrogen; it will therefore be readily conceded, that being necessary to plants, in all stages of their growth, there cannot be applied to them a substance more requisite. Charcoal from pine wood is the best for agricultural purposes, on account of its fine texture, which enables it to absorb moisture, together with the other gases before enumerated, more rapidly, and may be easily incorporated with the soil, where it protects plants, not only from decay, but worms. It insures them without cessation, all the elements most required, and essentially necessary to their healthy growth, and gives them a beautiful green appearance, and luxuriance, not obtained by the use of any other substance as a manure.

All farmers are familiar with the fact that coal-beds, where pits have been formed for the purpose of preparing charcoal, produce a most luxuriant growth of vegetable substances or weeds. It has been generally supposd by those who have witnessed the fact, that it was caused by the ashes remaining on the bed, which is not so. It is owing to the hydrogen, oxygen, nitrogen, azote, &c. absorbed by the carbon. If the coal were even deprived of all the qualities specified, its black color alone would make it valuable, if only to attract the sun's rays, and thereby warm the soil.

ROBERT L. PELL.

[From the Genesee Farmer.]

CHARCOAL AND AMMONIA.

I clip the following from the March number of the New Genesee Farmer:—

"Is 'D. L.' quite sure that the charcoal in a filtering cistern will absorb the ammonia to any perceptible extent? The only use that can be made of it there is, to stop the impurities contained in the water—not to absorb the ammonia; for if D.L. ever noticed it, the amount of ammonia contained in rain-water does not unfit it for culinary purposes, any more than the lime held in solution in hard water. "P."

Allow me to suggest, that the above is in bad taste. If "P" knew of any error in the remarks of your correspondent "D. L." he should have pointed it out, or at least given *one reason* for so flat a contradiction.

But waving the discourtesy, how does "P." know that "The only use of charcoal in a filtering cistern is to stop the impurities contained in the water, not to absorb the ammonia? Beside ammonia, and other analogous gasses contained in rain-water, what "impurities" does it hold in solution when it falls from the clouds? And if the coal acts merely as a strainer, to "stop impurities" mechanically, how could matters held in perfect solution be arrested in their progress through such a filter? Unrectified whiskey holds volatile elements in solution—"impurities" which coal will separate by its chemical affinity, although such affinity is less than it has for ammonia. Speaking of wood coals, Professor Johnston, of Edinburgh, in the first volume of his valuable work on Agricultural Chemistry, says, "They have the power of absorbing, in *large quantity*, decayed animal matters held in solution in water: hence their use in filters, in purifying impure river, rain, and spring water. This action is so powerful, that port wine is rendered perfectly colorless, by filtering through well prepared charcoal." He adds, in a note, that coal will absorb 95 times its bulk of ammonia, 55 times its bulk of sulphuretted hydrogen, &c. Will "P." tell us what sort of mechanical action that is, which enables one body to "stop" the further progress of a liquid, or moving gas, *ninety-five times its own bulk?*

Again we are told, "If D L ever noticed it, the amount of ammonia contained in rain water does not unfit it for culinary purposes, any more than the lime held in solution in hard water." A great discovery, this! I had been silly enough to believe, that the experience of ages had induced all civilized nations to use well and spring water, "hard" as it might be, "for culinary purposes," rather than use rain-water, containing as it does, before it is filtered, ammonia, sulphuretted hydrogen, and other deleterious gasses, that rise into the air from rotting vegetables, and millions of dead animals undergoing decomposition. I had supposed, that an infinitely wise and benevolent Creator had made the soil a vast filtering apparatus, for separating the organic matters held in solution in falling rains, that such organic ingredients might again become living plants and animals. A little of the ammonia thrown so profusely into the atmosphere from putrid animal matter might not, in warm weather, render rain-water unfit to make tea for Mr. "P.;" but I submit to the reader, if the entire separation of this offensive animal matter, by the aid of a charcoal filter, would not be desirable, especially when coal thus saturated would become manure of great value.

In justice to himself, your correspondent "D L." feels bound to say, that in early life he had the advantage of attending four full courses of lectures upon the science of chemistry, at one of the best institutions in the Union, and having been bred to the business of farming, he has spent much time, and some money, in trying a great variety of chemical and physiological experiments, in connection with practical husbandry and the arts. He has also studied much to keep up with all the wonderful improvements of the age in agriculture, and most of the arts that appertain to productive industry. Nevertheless, he has abundant cause to deplore his ignorance, and will be happy to learn from any one who will condescend to impart instruction in kind or courteous language.

I think I am not mistaken when I say, that a very large portion of the fertilizing elements of the liquid and solid secretions of animals is needlessly, and I am tempted to say heedlessly, lost in this State, by bad management. When I stated, in the January number of the Farmer, that twenty years' experience had taught me the great value of charcoal to absorb the fertilizing ingredients in urine and manure, I published a fact of considerable importance to the practical agriculturist. Let any one take an old barrel that will hold water, fill it with pounded coal, place it under his wood shed, and empty his chambers into it until the coal is saturated with human urine. Not a particle of ammonia, or of any offensive gas, will escape till the coal is saturated. Then apply this substance in the quantity of a tea-cupfull to a hill of corn or potatoes: give some, also, to your growing wheat, and sow some with your seed, in putting in your spring wheat. Put the coal, saturated as above directed, in the hill with the corn, beans, or potatoes.

Dissolve one fourth of a pound of sal. ammoniac, which will perhaps cost 6 cents, in two quarts of hot water, and when reduced to blood heat, put two quarts of seed corn into it to soak. Let it remain eighteen hours, then plant in a row by itself, after it has been rolled in plaster. (I have soaked some in urine with good effect.)

At a meeting of the friends of agricultural improvement in Albany, a few evenings since, the Mayor, Mr. Humphrey, stated, that by the application of a few drachms of the light shavings of horns from a comb factory to each hill of corn, planted on very poor sandy soil 34 miles from this city, he had been able to harvest 60 bushels of sound shelled corn per acre. Where nothing was used, the crop was only about 18 bushels per acre. Horns contain more ammonia than almost any other known substance. Mr. Bement had tried refuse bristles, obtained from a brush factory with results lasting three years, and alike beneficial.

Professor Emmons stated, that he had lately obtained a sensible quantity of ammonia from snow. He also said, that the precise difference in the quantity of ammonia which *dry* and *wet* charcoal will absorb is not definitely settled. Prof. E. is now engaged in the analysis of soils, in connection with the geological survey.

D. L.

LIQUID MANURE.

There is but one other manure of animal origin to which it will be necessary to allude in this place, and that is urine, or as it is commonly called, liquid manure. Analysis proves that this is a substance peculiarly rich in materials required by plants, and experience enforces the results of analysis; yet not one farmer in a thousand makes an effort to convert this mine of riches to any account, but the whole is most generally lost to him. Dr. Dana gives the following as the constituents of cattle urine, which may stand as the type of all others, though human urine and that of the horse differ from this in the character and quantity of some of the salts contained in them.

Water, ...	66
Urea, ...	5
Bone dust, ...	5
Salamoniac and muriate of potash,..	18
Sulphate of potash, ...	6
Carbonate of potash and ammonia, ...	4
	100

Value of Urine.—Compared with cattle dung, it will be seen that while that gives only 2 lbs. of carbonate of ammonia to 100 lbs. of dung, the urine gives 5 lbs. of ammonia in its urea, and nearly three times that amount in the other ammoniacal salts. One third of urine is composed of salts, whose action on vegetation is of the most energetic and favorable kind; and yet there are thousands who call themselves pretty good farmers, who use all reasonable precaution to preserve the solid parts of their animal manures, that have never made an effort to save that which is of far the greatest value, the liquid part. But it must not be forgotten that soils must contain decayed organic matter or humus for these salts to act upon, otherwise liquid manure of pure urine can do no good. Where the wash of the barnyard and stalles is saved, the loss of a large part of the urine is prevented; but when, as is too often the case, this is wholly lost, not only is the urine thrown away, but a large part of the soluble humus of the manure accompanies it. It is an excellent plan, therefore, to have some reservoir for the reception of such liquid matters as would otherwise be lost. If this cannot be done, cover the bottom of your yards with muck, or even common loam, as this will absorb and retain much of the urine and liquid matters of the dung. Experience has demonstrated that a load of loam, saturated with urine, has a more powerful effect on vegetation than the same quantity of best rotted stable manure. Human urine is richer in salts useful to vegetation than any other, containing, according to Dr. Thompson, in 1,000 lbs., 42½ lbs. of salts. The slightest attention on the part of the farmer, might prevent the loss of this; and many a load of swamp muck, or loam mixed with gypsum, might, when saturated with urine, be added to his available manures. Liquid manure, or rather urine, differs much in the salts it contains, according as the food is rich or otherwise. "White turnips give a weaker urine, than the Swedish, and green grass is worse than either," according to Dr. Dana, Turner and Liebig found that the urine of fattening animals is richer in salts than that of store animals. Indeed, the law so well known with regard to solids, that the richer the food the more valuable the dung, it is probable holds good in regard to the urine also.

SOOT.

Soot is a valuable manure, peculiarly rich in humus as well as salts, and in its composition more nearly allied to the solid substance of animals than any thing else. It contains of humus or geine 30 70, of nitrogen 20, and of salts of lime 25.31 parts in 100. It also abounds in salts of soda, potash, and ammonia. According to the analysis of Dr. Dana, 100 lbs. of soot contains as many of the valuable salts as a ton of cow dung, and its nitrogen, compared with that manure, is as 40 to 1. The ordinary farmer can make but little use of soot, as it is not to be had in the country in any considerable quantities; but those in the vicinity of cities may avail themselves of this manure with much profit. For the gardener or the floriculturist, soot is an excellent manure; but care must be taken not to use it too freely, as we have known tender garden plants at once destroyed by too liberal applications of it, particularly in a dry state. Mixed with water, in the proportion of six quarts of soot to one hogshead of water, it has been found a most efficacious liquid for watering plants, particularly those grown in green houses.

ASHES.

Ashes, leached or otherwise, are of great value as a fertillizer, especially when used on soils that are sandy or light. Unleached, the potash contained goes to form silicate of potash, and gives the supply of silex necessary for the stems of the grasses or corn; and leached, although the potash is the greater part of it separated, the remaining phosphates of lime and magnesia go far towards restoring to the fields on which such ashes are strewn, the necessary matters of which previous cropping has deprived them. 100 parts of the ashes of the wheat grain contain 32 parts of soluble, and 44 parts of insoluble phosphates, in all 76 parts. The value of ashes abounding in the required phosphates, when used on grain lands, may be seen at once. as well as the folly of those farmers who waste or sell the ashes produced in their dwellings.

ENGLISH METHOD OF FATTENING CATTLE.

I have been greatly interested in reading your "Tour in England," as contained in the first two volumes of the American Agriculturist. Did your remarks and general detail of English farming operations require confirmation, I, as a practical English farmer, should be exceedingly willing to subscribe to their general correctness. But such, I feel, your readers can not deem necessary, inasmuch as the clear and lucid style in which your interesting tour is written, as also the absence of any of those tales, surpassing credit, with which modern travellers love to interlard their works, bears sufficiently evident upon itself the impress of reality.

You cleverly remark, in one portion of your Tour, that "you are not *particularly* ambitious of becoming the Trollope of English manners, and I congratulate you most heartily in withstanding the temptation of passing severe, or even *just* strictures upon peculiarities, which a traveller will more or less find to belong to every people. However, such indulgence among travel-writers is of course a matter of taste, and allow me to add, I thing yours to be good in refraining from such indulgence.

In reading your Tour, it struck me that there was one subject which might with benefit to farmers in this country, be more fully enlarged upon. I allude to the English method of fattening cattle. I do not wish to be understood as believing that the entire system would be applicable to American grazing; but I do believe, after close observation, that some hints may be gathered from our method, which grazers in this country might turn to account; and before making any remarks upon the matter, I will give in as concise a form as possible, the plan I have pursued in England upon my own farm.

My stock is of the Durham breed. It has been my object, when possible to have my cows calve some time in January or February, and I would never rear any produce for fattening that fell later than the last of February; my reason is that they would not be ready to make a start with the grass in May, and consequently be a year behind the earlier ones in coming to perfection.

I wean my calves when a fortnight old, (I allude to those intended for grazing,) feeding them on milk, oats, bran, carrots, and in fact, something of everything that the farm produces, and which they can be made to eat. At this period I consider the calves require the greatest care and most constant attention; and keeping them clean and warm are not the least important requisites. I give them a little food at a time, but feed them six or seven times a day. Almost the only ailment I have found my calves subject to at this age, is scouring; this, if not checked by times, will weaken the animal greatly, and not unlikely cause death. The remedy which I apply is at once simple and efficacious, viz., boiled rice with a small quantity of powdered ginger; administered, if the calves will not drink it, from a bottle. As soon as there is grass and the weather is warm, which is general with us about the 1st of May, my calves are turned out in the morning and taken up again at night—well littered, with wheat-straw, (barley straw engenders lice,) and fed with a little corn. [*Note*—When the term "corn" is used, I mean beans, peas, oats, or barley.]

As the weather gets warmer, I allow them to remain out all night, always feeding them night and morning with oil cake or oats. This treatment continues through the summer. In the October following they are taken up and yarded for the winter; running in an open yard, with a shed which they use at pleasure, behind the bullocks which are tied up and fattening. In this yard they have the odds and ends of vegetables, which the bullocks will not eat, some rough hay, and 3 lbs. of oil-cake each per day; or sometimes, in its place, a bait of bean meal.

On or about the 1st of May, in the following year, they are turned out to grass for the summer, except in the hottest weather, when I have them driven into the yard during the heat of the day to protect them from the flies, and supplied with a few green tares or a little clover; but they seldom eat much of either during the excessive heat.

In October they are again taken into the yard, but this time to be tied up to fatten, as we now call them bullocks, and that year's calves take their places in the open yard. I commence feeding them with turnips, hay, and 3 lbs. of oil cake each per day—generally Dutch cake, which is inferior to our English cake. When the turnips are all gone, I go on upon beet root, and increase the quantity of cake to two quarts per day. I next change the cake from Dutch to English, and I may here remark incidentally, that American oil-cake is the best for grazing purposes, and on this account used very extensively by many of our principal breeders.

The principle upon which I graze is simply this, constantly to change, and always *improve* when I do change, the feed of my bullocks. Thus when my bullocks are being what we term "topped up," (the last stage of fattening) they are feeding on the best hay or clover I have, beet-roots, oil-cake, and perhaps bean-meal. In February and March they are ripe or ready for the butcher—they being just two years old. Their weight will vary from 750 to 860 lbs.

I will now, as nearly as I am able, lay before you the expense which I consider these beasts have been to me during these two years.

	£	s.	d.
1st Year.—I calculate the prime cost of the calf at	1	0	0
Keep from January to May	0	10	0
Do. from May to October.	1	0	0
2nd Year—Keep from Oct. to May	2	2	0
Do. from May to October, ...	2	10	0
Cost of fattening.....	12	0	0
	£19	2	0

Supposing my fat beef to be worth 7*s.* 6*d.* per stone of 14 lbs., that, at 800 lbs. would be £21 7*s.* 6*d.*, thus leaving me £2 5*s.* 6*d.* profit besides the manure, the value of which it would be difficult to estimate. Suffice it to say, that if we obtain the manure *only*, as our profit, we consider ourselves amply repaid for our outlay. In making inquires of butchers and graziers in my hitherto somewhat limited travels in this country, I have been surprised to learn that artificial food is seldom or ever used to force your beef to market, and that consequently, it is four to five years old before fit for the butcher. [*Note.*—The writer might have said with greater truth, five to six years old, which tells still more strongly against our slow, wasteful, half-starving method of rearing and fatting cattle.] When expressing my astonishment at this, I have invariably been met with the answer; "The price of meat will not warrant our going to much expence in fattening our beasts in this country." Now, sir, I would respectfully submit, through your columns, to the farmers of this country, whether it would not be preferable to obtain *two returns for their money instead of one;* or to be content with small profits every *two* years instead of larger ones every *five*; besides improving to an inconceivable extent, the quality of their farmyard manure.

The above calculation is of course not at all applicable to grazing in America; I have merely inserted it to show the relative bearings of expense and returns attendant on foreing beef in England. Another advantage belonging to fattening early, I consider to be lessening the risk and chances of loss or accidents to the beast.

It is fair to supose that five years will be more prolific in casualities than two

I have thus laid before your readers a subject which I believe worthy their attention and consideration; and I feel convinced they will receive my observations and hints in the same spirit which influenced me in writing them—the pure spirit of good feeling and a sincere desire to see the agriculture of the world prosper and advance.

DENLY SHARWOOD.

New York, January. 10th, 1844.

[From the Albany Cultivator.]

EXPERIMENTS IN MAKING BUTTER.

The following communication we think valuable, because the experiments which are detailed, seem to have been conducted with the care and judgment necessary to establish a fact. We are not disappointed at the results—former experience having led us to believe that where milk is kept at the right temperature, all the cream will rise, and we can get no more than *all* by the scalding process. Either of our correspondent's plans is far better than letting the milk freeze, which should not be permitted.

Messrs. Editors,—In the winter of 1841, we instituted some experiments by scalding the milk with a view of ascertaining a better method of obtaining cream and making butter in cold weather than heretofore adopted. Our experiments then were confined to the milk of one cow; it now embraced the milk of five cows, which probably may account for the difference in the amount of milk taken to produce a pound of butter. It is well known that cow's milk is liable to vary considerably, according to the nature of the food and the state of the weather. The quality of the milk of a cow, can easily be decided by a lactometer, or by setting a portion of it for cream, in a wine-glass, and comparing it with others in the same way, and under the same circumstances: or the milk of a particular animal can be placed by itself for a period of time, and the actual produce determined.

There is a great difference in the quality as well as the quantity of milk given by cows of the same appearance and treated in the same manner. Not unfrequently in the same herd, the product of one cow is worth double that of a nother. The writer has known one cow whose milk would not produce butter, and strange as it may appear, she raised the fattest calves of any cow in the herd. It is presumed that every person who keeps a cow is desirous of having one of superior quality, but it is more the result of good fortune than prudence if he obtains such an one in the ordinary way.

Our object in the present experiment, was made not only with a view to ascertain the comparative advantage, if any, of heating the milk, but in the time employed in covering the

cream into butter; the amount obtained from a given quantity of milk; and the quality of the butter, all managed under circumstances as nearly alike as possible. The difficulty of raising cream and making good butter in cold weather is well known to all who have paid any attention to that branch of the farmer's business.

The result of our experiments in 1841 induced the belief that heated or scalded milk produced the greatest quantity of cream and best quality of butter: but the comparative experiments now made, and the results, confound us. The process of scalding milk is troublesome, and the milk after the cream is removed, is poor and of but little use, except for the pigs. Although we are much disappointed in the result, we take great pleasure in making it known. The object is interesting not only to those who make farming their business, but to every family whose situation and circumstances make the keeping of this valuable animal, the cow, practicable: it is important not only because cows supply the market with milk and butter, but because they contribute so much to substantial domestic comfort and convenience.

Experiments correctly made and fairly tested form the data on which improvement should be founded. Exactness is important to one's character and usefulness. There is a satisfaction, too, in knowing what we do. For this reason we were very particular to weigh the milk when taken from the cow and strained into the pans, to note the temperature when setting for cream; to weigh the cream before churning; to note the temperature while churning; the time employed in churning; and the weight of the butter after having been thoroughly worked.

Agriculture must be considered as one of the exact sciences, and we shall never know whether our progress in it is forward or retrograde, until we have done with *guessing*. But, methinks I hear you say, "it is troublesome to be exact." We answer, the trouble is not so great where the habit is once formed; and is very much more than compensated by the satisfaction experienced in doing it.

The result of the experiments are as follows: The night's milk of five cows, commencing on the 5th of January, and ending on the 9th, was subjected to the following process. As soon as the milk was drawn from the cows it was strained into tin pans, and weighed, and amounted to 70¼ lbs. After standing twelve hours, boiling water was introduced in an under pan, made for the purpose, which is sufficiently deep to hold about the same quantity of water as there was of milk, the top of the under pan fitting closely to the upper part of the other; the under one nearly straight on the sides, the other flaring, by which means sufficient room is left to retain the steam. From the 70¼ lbs. milk, after standing in a room, the temperature of which was from 50 to 55, thirty-six hours, 6¼ lbs. of cream was taken from it. This cream was churned in a temperative of 60 degrees, and produced 3¼ lbs. of butter—time churning 17 minutes.

On the 11th of Janurary, we commenced setting the milk for cream in the usual way, from the same cows in the same room, in a temperature ranging from 48 degrees, to 56 degrees; after standing forty-eight hours it was skimmed. It was so managed that the same amount of milk, (70¼ lbs.) was used, which produced 14 lbs. cream, in which unavoidably remained considerable milk. This cream was subjected to the same process and temperature as the former, (60 degrees,) and produced the same amount of butter, and occupied 12 minutes in churning.

Now, there may have been some ounces difference in the two parcels, as our steelyards mark nothing less than ¼ pounds, but we were particular in noticing the movement of the beam, and did not discover any material difference.

From the above experiments we have arrived at the following conclusions: That when the milk room is cold, say 30 degrees, it is most advantageous to scald the milk, but when the temperature does not fall below 48 degrees, little or nothing would be gained by adopting it. There is so little difference in the quality of the butter that it would be difficult for the nicest taste to distinguish which was made the one way or the other. The color too, is so similar that it would be supposed both rolls were made from one churning.

C. N. Bement.

Three Hills Farm, Janurary 20, 1844.

[From the New England Farmer.]

DANA'S PRIZE ESSAY ON MANURES.

SECTION SECOND.

Shovelling over the Compost Heap.

The above remarks (Section 1st), may be called our compost heap. It must be well shovelled over, You must, reader, before you cart it out and spread it, understand well what this compost contains. Now just let me turn over a few shovels-full, and fork out the main points to which I wish to call your attention.

1st, That all plants find in stable manure every thing they want.

2nd That stable manure consists of water, coal and salts.

3rd. That these, water, coal and salts, consist in all plants of certain substances, in number fourteen, which are called—1. Oxygen; 2. Hydrogen; 3. Nitrogen; 4. Carbon; 5. Sulpher; 6. Phosphorus; 7. Potash; 8. Soda; 9. Lime; 10. Magnesia; 11. Alumina or clay; 12. Iron, 13. Manganese; 14. Chlorine, which last, as we have said, forms about one-half the weight of common salt. And if you always associate with the word chlorine, the fertilizing properties of common salt, you will, perhaps, have as good an idea of this substance as a farmer need have, to understand the action of chlorine

4th These fourteen substances may be divided into four classes: 1st, the airy or gases, oxygen, hydrogen, nitrogen and chlorine. 2nd, the combustibles carbon, sulphur and phosphorous. 3rd, the earths and metals, lime, clay, magnesia, iron and manganese. 4th, the alkalies, potash and soda.

You may be surprised that I have not turned up ammonia, but this exists in plants as hydrogen and nitrogen.

5th. The term salt includes a vast variety of substances, formed of alkalies, earths and metals, combined with acids. Fix well the meaning of this term in your mind, and remember the distinction pointed out, that some salts are volatile, and act quick in manure, and others are fixed and act slower.

6th. When plants die or decay, they return to the earth or air these fourteen substances. Those returned to the earth from mould, which thus is composed of carbon, salts, and water, is natural manure.

7th. Mould consist of two kinds, one of which may be, and the other cannot be dissolved by water. Alkalies put it into a state to be dissolved, and in proportion as it is dissolved it becomes valuable as a manure.

8th. If then manure contains only water, carbon, and salts, any substance which affords similar products, may be substituted for it. Hence we come to a division of manures into natural and artificial. The consideration of these is the carting out and spreading of our compost. And we shall first consider in detail the natural manures. That is, those which are furnished us by the dung and urine of animals, and the manure or mould formed by the decay of animal bodies or plants. These are truly the natural manures, consisting of water, mould, and salts. This is all that is found in cattle dung. This been premised, we may divide manures, reader, for your more convenient consideration, not by their origin, but by their composition. We may divide manures into these three classes: First, those consisting of vegetable or animal matter called mould: Secondly, those consisting chiefly of salts; and, thirdly, those consisting of a mixture of these two classes. And beginning with the last first, we will now proceed to their consideration.

SECTION THIRD.

Carting out and spreading.

The general chemical information set forth in the preceeding section, will be of no service to you, reader, if it conducts you not beyond the result arrived at in the close of the last section, that cattle dung is composed of water, mould, and salts.

You want to know what salts, and how they act. If you understand this, you may be able to say beforehand, whether other things, supposing their nature understood, can take the place of the mould and salts.

The mould, then, of cattle-dung, as all other mould, contains the following substances:—

The water consists of oxyen and hydrogen.

The mould consists of carbon, oxygen, hydrogen, nitrogen, and ammonia.

Thus it is seen that the mould contains all the substances found in the first class into which the elements of plants were divded. The salt contain the sulphur, phosphorus, and the carbon as sulphuric, phospohric, and corbonic acids, and the chlorine as muriatic acid or spirits of salt.

The acids formed of the elements of the fourth class of the substances entering into plants, are combined with those of the second and third classes, namely: the potash, soda, lime, clay, magnesia, iron, and mangenese. Here, then, we have all the elements of plants, found in cattle dung. Let us detail their several proportions. We have all that plants need, distributed in cattle-dung, as follows:—

In 100 lbs. of cattle-dung, are,	
Water,	83.60
Mould composed of hay,	14.10
Bile and slime,	1.275
Albumen, a substance like the white of an egg	.175
Salt, silica, or sand,	.14
Potash, united to oil of vitriol, forming a salt,	.05
Potash, united to acid of mould,	.07
Common salt	.08
Bone dust, or phosphate of lime,	.23
Plaster of Paris,	.12
Chalk, carbonate of lime,	.12
Magnesia, iron, manganese, and clay, united to the several acids above,	.14
	100

SECTION FOURTH.

Of the action of Mould in Cattle-Dung.

Here then, we have cattle-dung with its several ingredients, spread out before us.

We have now to study its action. We need here consider only the salts and mould. The water is only water, and no other action than water. The mould includes the hay; for that has, by chewing, and the action of the beast's stomach, lost so much of its character, that, mingled with the slime and bile, &c., it more rapidly decays than fresh hay would, placed in similar circumstances. During this act of decay, as you have already learned, the volatile parts of the mould are given off in part. These escape as in burning wood, as water or steam, carbonic acid, and ammonia. In consequence of this slow mouldering fire or decay, the manure heats. Here, then, we have three very decided and important actions produced by the vegetable part, or mould of cattle-dung. First, carbonic acid is given off; second, ammonia is formed; third, heat is produced. Let us now consider each of these, and their effects.

First, the great action of the carbonic acid is upon the soil, its earthy parts. It has the same action on these, that air, rain, frost, have; it divides and reduces them. It not only reduces them to powder, but it extracts from the earth potash and the alkalies. This is a very important act, and shows why it is necessary that decay or fermentation should take place in and under the soil among sprouting seeds and growing roots, in order that they may obtain from the soil the salts they want.

If well-rotted manure contains abundance of these salts, ready formed in its mould, then there will be less necessity of this action of carbonic acid. But here again it must be remembered, that this abundance of salts, ready formed in mould, can be produced only at the expense of great loss by fermentation of real valuable parts. For,—

Secondly, the next great action of the mould of cattle dung is, to produce or form ammonia.

This plays a threefold part: its first action is to render the mould more soluable; this action it possesses in common with the fixed alkalies, potash and soda. All the alkalies put a large, but undefined portion of mould into a state fit to become food for plants. The second action of ammonia is this, it hastens decay. It is the bellows, we may say, kindling the slow mouldering fire. The third action of ammonia is to combine with any free acids, such as vinegar, or even an acid formed of mould itself, but especially with aquafortis, or nitric acid, which is always produced where animal or vegetable matters decay. This is a highly important fact. The result of this action, the production of ammonia and aquafortis during the formation of mould, is, that a kind of saltpetre is thereby produced. That is, the ammonia and aquafortis unite, and form a salt with properties similar to saltpetre. But we want the first and second action of ammonia to occur, before the third takes place. Consider now, reader, whether a more beautiful and effectual way can be devised to hasten decay, and render mould more fit for nourishing plants, than this which nature has provided. The ammonia is volatile. It remains, not like potash and soda, where it is put, incapable of moving unless dissolved by water; but ammonia, like steam, pervades every part. It is as expansive as steam. Heated up by the slow mouldering fire of decay, it penetrates the whole mass of mould. It does its work there. What is that work? It has already been told. But, if it finds no acid to combine with, it then unites with the mould itself. It is absorbed by it. The mould holds it fast; it stores it up against the time when growing plants may need it. Now it is only where the abundance of ammonia produced satisfies these actions of hastening decay, making mould soluble, and filling its pores without combining with it, that the formation of saltpetre takes place. So where animal matters, which are the great source of ammonia, decay, there we may expect all these actions to occur.

How important, then, is that action of mould ering which produces ammonia, If, reader, you will reflect upon the consequences of this action, you will at once see, that if the mould is in too small a quantity to retain the ammonia, it may escape. If, by wasty exposure, you allow your mould to dissipate itself in air, as it certainly will, you not only incur the loss of that part of the mould, but you diminish, at the same time, the chance of keeping the ammonia which has been formed. No doubt all cattle-dung exposed to air, forms more ammonia then it can retain. Hence the necessity and the reason of forming composts with this substance. "Keep what you have got, and catch what you can," must never be lost sight of in manure.

The third action of mould is, the production of heat. Little need be said upon this. That a slight degree of heat hastens the sprouting of seeds, you well know. That different manures produce different degrees of heat; that some are hot, some cold, you well know, and adapt your seed and manure to each other. The degree of heat depends upon the rapidity with which decay occurs. And this is affected by the quantity of ammonia which each manure can afford. The great point to which your attention should be directed, when considering the power of mouldering to produce heat, is, that it shall not go so far as to burn up your manure, just as hay will heat and take fire.

[To be Continued.]

EXPLANATION OF TERMS.

Acids—are substances of a sour taste.

The acids are very numerous. Their most distinguishing properties are,

1st. They change to red those colors of vegetable which the alkalies change to green.

2nd. They combine with alkalies, and thereby form various kinds of salts.

Thus the combination of muriatic acid with soda forms common salt.

Some of the acids are met with in a solid state—others in a fluid state, as vinegar—and others in a gaseous state. Of the latter is carbonic acid, which requires a more particular description.

The carbonic acid, when uncombined with any other substance, is always met with in a state of gas, and hence it is called carbonic acid gass. It is the same substance which was formerly called fixed air. It exists in a small proportion in the atmosphere. It destroys life and extinguishes the light of a candle when immersed in it. It is disengaged largely from liquors, such as beer, cider, or wine, when in the act of fermentation. It is this gas which produces the many unhappy accidents in some subterraneous caverns, in closed cellars containing large quantities of fermenting liquors, in some deep wells, and in bed chambers, warmed by burning charcoal in pans.

This acid combines with a great variety of substances, which are then called carbonates It exists in marble, chalk, and limestone, in different proportions, all of which are called carbonates of lime, and the burning of limestone is for no other purpose, but to expel the carbonic acid, which is done by heat, in which operation the limestone loses nearly half its weight

The alkalies attract it from the atmosphere. It is present in pot and pearl ashes, from which it is disengaged by the addition of a stronger acid, as every one may have seen in throwing pearlash into cider, as some people do to drink in the morning. The acid in the cider, in uniting with the pearlash, displaces the carbonic acid, which rises in the form of gas through the liquor, producing much foam with a hissing noise called effervesence.

48. *Atmospheric air*—or the air which surrounds this earth, is a mixture of two different kinds of air, called *oxygen* and *azote*. It likewise contains a small proportion of carbonic acid gas, a substance already decribed.

It is well known that no animal will live, or fire burn, without air, but it is that part of the air called oxygen which is necessary for both. It is this which supports life and combustion, and where there is no oxygen, an animal will die and a light will be extinguished as suddenly as where there is no air at all.

All this may be made plain by a very easy experiment. Take a little candle, put it into a candle-stuck, and set it into a pail of water so deep as that the light of the candle may rise three or four inches above the surface of the water. Then take a deep tumbler, or a wide mouthed decanter, invert it, and let it down over the candle till the brim shall dip into the water. As the candle continues burning, the water will be seen rising in the decanter, till it shall be about one quarter part full, when the candle will suddenly go out. Now the reason of the water's rising in the decanter is, because the oxygen is gradually consuming by the lighted candle; and the reason that the candle goes out, is, that the oxygen at that instant is all gone, or has all been expended in the combustion. What is then left in the decanter will be the other part or kind of air called azote, and if a small animal should be introduced into this air, it would die as suddenly as if it had no air at all.

Oxygen gas, (for you must remember that every substance in the form of air is called a gas,) is a very wonderful substance. It unites with iron when exposed to the atmosphere, for any lenght of time, and converts it into rust, it unites with melted pewter or lead, and converts them into dross, or oxyde, as it is called, it unites with another kind of gas, called hodrogen, and forms water. Yes, what perhaps it may surprise you know, water is not a simple, as most people suppose, but a compound substance, composed of oxygen and hydrogen gas Both its decomposition and its composition are common experiments in every chemical room.

Oxygen likewise is one of the ingredients in the composition of acids all of which are compound substances; hence, oxygen has been called the great acidifying principle. Thus, it unites with sulphur, in the act of combustion, and forms sulphuric acid, or oil of vitriol, as it was formerly called; it unites also with carbon or charcoal, when burning, and forms carbonic acid gas, already decribed; and hence, we see how the carbonic acid gas, which sometimes proves fatal in close shut bed-chambers, heated with burning charcoal, is produced. The oxygen in the atmosphere unites with the charcoal or carbon in burning, and thus produces this gas, so deliterious to life when breathed without a due proportion of atmospheric air mixed with it.

These four elementary substances, oxygen, hydrogen, azote, and carbon, possess a very wonderful agency in nature, and every one who has any wish to look beyond the mere surface of things, cannot but be gratified in knowing more about them. We shall have further occasion to speak of these substances in the Cabinet; it is important, therefore, that the character and distinguishing properties of each should be well understood These are given in the following concise definitions, which are not to be forgotten, viz:—

49. *Oxygen*—is one of the constituent principles of water; it is called vital or respirable air, and essenial both to the support of life and combustion.

This substance performs an important part in most of the changes which take place in the mineral, vegetable, and animal kingdoms.

50 *Hydrogen*—is one of the constituent principles of water; it is very inflammable, and was formely called inflammable air. It is the lightest of all ponderable substances.

This is the substance generally used in filling air-balloons. It is readily obtained by the decomposition of water. Vegetables and animals also in a state of decay and puterfaction afford it, and it is evolved from various mines and volcanoes.

51. *Azote*—is that part of Atmospheric air which is incapable of supporting life or combustion.

All combustible substances burn violently in pure oxygen gas, and if it was not diluted in the atmophere by a large portion of azote, it would be impossible to extinguish any considerable fire when once lighted up, and something like the general conflagration of the world would immediately commence

Azote exists abudantly in nature, forming the greater part of the atmophere, and is one of the principal ingredients in animal substances.

52. *Carbon*—is the pure part of charcoal.

Carbon forms a large proportion of all vegetables; it exists also in animals, but its quantity is small.

53. *Carbonic Acid*—is a combination of carbon and oxygen, in the proportions of 18 parts carbon to 82 parts oxygen.

An account of this substance has already been given under the article "Acids." It may here be added, that the sources of this acid are immense. It exists in the atmosphere; it is found in abundance in many mineral waters, as at Ballston and Saratoga, in the State of New York: it is produced by the combustion of wood and charcoal, by the fermantation of liquors, and by the decomposition or putrefaction of vegetable substances, but the largest store of it is that enormous quantity solidified or rendered solid in all the immense beds or chalk and limestone with which every part of the globe abounds.

Of limstone, 45 parts in every 100 are computed to be canbonic acid.

As before observed, when uncombined with any other substance, it always exists in the state of gas. It is heavier than atmospheric air. If this gas be poured from a wide-mouthed jar upon a lighted candle it will be as effectually extinguished as by water.

54. *Effervescence*—is a sudden disengagement of gas taking place within a liquid and separating from it with a hissing noise.

55 *Chemical Affinity*—is a term used to signify the attraction or tendency there is between the particles of certain substances, of different natures, to unite, thereby forming a third substance possessing properties altogether different from those of either of the two substances of which it is composed.

Thus, potash and oil have a tendency to unite, thereby forming soap, which is a third substance very different either from the oil or the potash, of which it is composed.

Those substances which are capable of uniting in this manner, are said to have an affinity for each other, as oil and potash, but oil will not unite with water, and therefore these substances which do not form a chemical union, are said to have no affinity.

56. *The Primitive Earths*—are four, viz: clay, sand, lime, and magnesia.

These are the only earths which enter into the composition of soil; they enter also in very minute portions into the organizations of plants

Sand and clay are by far the most abundant: lime is required but in small proportions; every soil, however, is defective without it. Magnesia is found but in few soils; its place is well supplied by lime; its entire absence, therefore, is not considered any defect.

[To be continued.]

GARDENING.

[By John Morris.]

The first things to be taken into consideration, to ensure a good degree of success, is the proper construction and management of the seed beds; a failure in the first effort to obtain a crop, is almost always attended with a partial failure at least, of the second or third. A seed bed should, in the first place, be located in a door-yard pathway, or some place where the ground is trodden, and frequented during the growth of the plants. The bed should be made in shape, not to exceed two feet in width, and as long as maybe required, also be raised six or eight inches by perpendicular board edging. Previous to putting in the earth, let it be thrown in a pile, and a fire made thereon, sufficiently hot to to destroy all insects, or germs of weeds that may be in it: place the earth so prepared in the frame of the seed bed, and as soon as it is sufficiently cooled, sow in the seed, patting firmly with the back of the spade For celery, and such tender plants, a covering of brush, to partially protect them from the heat of the sun, may be necessary. One of the first vegetables of importance in the list of culinaries, is—

Cabbages.—When the plants have attained to a size for transplanting, the ground should be prepared by thorough plowing, and laid out in furrows three feet apart; on the side of these furrows set the plants, after pinching off the downward root: two feet apart in the rows As cabbages are inclined to bind the soil, to their own detriment, they must be freely cultivated with the plow, until they have attained almost their full size. No sprout should be left to grow on a seed cabbage but that which shoots from the centre of the head.

Onions.—In the cultivation of onions, a spot of ground should be selected that can be used for the purpose several years in succession. After laying out the ground in drills 16 inches apart, sowing and covering the seed, sprinkle over leeched ashes freely, roll or pat the ground firmly; leave no lumps or litter on the bed for destructive insects.

Tomatoes—are becoming so generally used on our tables, that a few remarks on the culture may not be out of place. The seed may be sown in the fall or very early in the spring, in a sheltered situation; if the plants appear too early to escape frost, they may be protected by some covering. Set the plants in the poorest ground you have, four feet apart each way, in hills made for the purpose, three or four inches high, and as they grow, continue to hill up, as long as the plant remains upright. One or two plants are enough in a hill.

Lettuce.—The lettuce bed should be well manured with hen dung. If transplanted 16 inches apart, in a bed well prepared, they will afford a much better salad then if left to grow in a cluster in a seed bed, as is too generally the case.

Transplanting from seed beds.—if the weather should prove so dry as to endanger the plants which you may want to put out, it may be done with safety by thoroughly wetting the seed bed then prepare a liquid of fresh cow-dung and water, draw the plants, dip the roots in the liquid, and transplant, in the evening, watering freely when done.

In raising seed, the following has been the result of my observation:—Cucumbers will destroy the flavor of melons, pumpkins of squashes, squashes of the melons, ruta bagas will incline cabbages to grow clubfooted, different varities of the melons will sometimes produce a better variety, but two thirds will be good for nothing Different varieties of the same species will always mix and almost always lose the size and flavor. Fifteen rods is my rule of distance between plants of the same species.

Prevention of Mildew on Peach Trees.

—We find the following remedy for mildew on Peach and Nectarine trees, recommended by the sagacious London:—

"Take sulphur and rain or river water, proportions of two ounces of sulphur to every four gallons of water. Put the quantity which may be required into a copper or boiler, and let it (after it commences boiling) boil for half an hour; after which it may be taken out, or suffered to remain until it becomes of a tepid state, when it ought to be applied to the trees by means of a garden engine or syringe, as in a common washing with water. The time for applying it is annually, as soon as the fruit is set and considered out of danger."

Grafting Grape Vines.—

The following is the mode practiced by the late Mr. Herbemont, of South Carolina. "Take away the earth around the vine to the depth of four or five inches—saw it off about two or three inches below the surface of the ground. Split it with a knife or chisel, and having tapered the lower end of the scion in the shape of a wedge, insert it in the cleft stock, so as to make the bark of both coincide, (which perhaps is not necessary with the vine:) tie it with any kind of string merely to keep the scion in its place, so as to leave only one bud of the graft above the ground, and the other just below the surface, and it is done."

To Kill the Peach Tree Borer.—

Mr. James Camack, of Athens, Georgiana, in a letter published in the Magazine of Horticulture, recommends fish brine, diluted with an equal quantity of water, and a pint to be turned round each tree in the spring or fall. The trees on which he used this liquid were 2½ to 3 inches in diameter. To smaller trees he thinks less brine should be applied.

THE EFFECTS OF AGRICULTURAL PAPERS ILLUSTRATED:

Or, The Story of Uncle Tim and his Son.

Mr. Timothy Treadmill, was about the tightest man that ever came from "down east", but although penurious in the last degree he never became very rich. He was a firm believer in the doctrine of "following in the footsteps of his predecessors," and practiced it to an iota. The way his father planted corn, he planted it—the same time in the moon that his father sowed peas, he sowed them. The last pair of cart wheels that were seen wearing a streak tire, were Uncle Tim's—and the last of the old wooden plows was seen mouldering into its original elements at the back of his wood-house. In short, with the exception of adopting some few improvements in the way of implements, he was precisely as good a farmer the day he left his father's roof, as he was forty yeas afterwards.

That there was any better way of farming than that practiced by his father and the rest of the good people down in old Connecticut for so long a time, nothing short of actual demonstration could make him believe. The idea of improvement in farming seemed to be as absurd in his mind, as that the bees should set about making an improvement in the construction of their cells, or the birds in building their nests. Book farming and *new notions* were his utter abomination. What! such men as Judge Buel, who never pretended to be a farmer till he was forty years old, undertake to teach *him* how to raise corn and potatoes, who had been a farmer all his days, and his father before him. *He* take a *newspaper* to learn how to farm!—no—he knew better than to pay his money for such foolery as that. If any body wanted to read the big'ger es of *them new fangled farmers* about Albany, about their great crops and their new fashioned kinds of cattle and hogs, he was willing they should, but *for his part*, he believed he could farm about as well as those that printed newspapers and raised spotted hogs to sell.

His farm was "suitably divided into mowing, pasturing, tillage, and wood-land,"—what was in pasture when he bought the farm remained in pasture still, and what was "mowing at that time, the plowshare had never disturbed, and what was plowland then remained still the same. His manure always laid at the barn till fall, because it was so much better for corn after it was nicely rotted, and his barnyard was so situated that the water would run from it in all directions—of course it was always *nice and dry.* When he happened to have a little manure left after planting, he had been known to put a little sprinkling on some spot in his meadow, where he thought daisies and June grass were likely to run out—but as long as the daisies flourished well he was not alarmed, for he said the farmers down in Connecticut, thought they made about the best hay of any thing. In hoeing he was not over anxious about the weeds, for he said they kept the ground light and moist, and that where the quack grass was thickest, he always had the best corn. But as Uncle Tim was not deeply read in natural philosophy, it did not occur to him that the corn and quack both would grow most luxuriantly on the richest spot of ground.

But as I said before, Uncle Tim never grew very rich—for, although he saved every thing, the fact was he had *not much to save.* His cattle and his fields being lightly fed, fed him lightly in return. It seemed to him that all he gave his cattle beyond what was barely sufficient to keep skin and bone together, was about the same as thrown away, and every hundred of hay he could save to sell in spring, was so much clear gain And as for laying out any expense to increase his quantity of manure, it was a thing he never dreamed of. But as I said before, starving his cattle and his crops proved to be a bad business, for there seemed to be a fair prospect that it would end in starving himself. He could perceive that the products of his farm gradually diminished from year to year, still he never seemed to suspect that the cause was to be attributed to bad management,

There were, however, good things about Uncle Tim. And although errors and prejudices of this kind seemed to be, in a great measure inexcusable, his were entitled to as large a share of charity as those of most other men. There was one thing about which he evinced quite a commendable degree of liberality He had a son growing up to manhood, and his better feelings induced him to go so far as to say he thought young people now-a-days ought to have a better education than they had 40 or 50 years ago, when he was a young man. In fact he afforded his son a very tolerable opportunity for acquiring a good common education. And finally young Timothy was becoming quite a reading, and consequently, intelligent young man This, however, led to consequences entirely unforeseen by the father, and which for a while gave him a good deal of uneasiness.

In his intercourse with the more intelligent of their neighbours the young man had occasionally met with agricultural papers, and perused them as far as opportunity permitted, with a good deal of interest. He saw that many of his father's notions about farming were erroneous. The evidences that great and important improvements were taking place, were to his mind altogether irresistible. And although he well knew that his father would oppose any innovations, he began occasionally to make known the result of his reading and reflection on the subject, by pro-

posing some little changes in their mode of management, and finally intimated that he should like very well to take the Cultivator. But it was a desperate case, for whatever faith Uncle Tim might have had in more distant things, it was clear that in the matter of *Agricultural improvement*, he had neither faith nor works. The old gentleman, while he felt disposed to gratify his son in all prudent desires, could not but feel vexed to find him inclined to depart so far from what he considered "the good old paths." Things went on however much after this fashion for a considerable time. Timothy would occasionally quote Judge Buel, and speak of the increased profits of the improved methods of husbandry. But to all these representations the old gentleman had always a ready answer. All this he said, might do very well for *rich men* who lived near a market where all the productions of the farm would sell for ready money, and plenty of manure could be had near by, and for little or nothing. But for small farms, situated as they were away back in the country, to attempt to take those big men for a guide, would be ruinous extravagance. One of Timothy's suggestions, however, rather staggered him.

"Well, father," said he one day as they went out towards the barn, just after a shower, and the streams of water *as black as your hat* were running out of the yard, "I think," said he, "there is one thing we small farmers in the country might do as well as the large ones that live near the cities. If we cannot buy manure, we might take care of what we have: you see that if your barn-yard was *turned bottom up*, it would be just in the shape recommended by Judge Buel, and would hold all this liquid manure that we see running off into the road."

Somewhere about these days it came into the heart of Uncle Tim to visit his old friends and relations down in the land of wooden nutmegs, and as his son had never seen much of the world he thought it might be well enough for him to go along too, so after mature deliberation, it was decided that it would be most economical on the whole to go with their own conveyance. Old grey, to be sure, had been worked hard and not *very high fed*, and was a little thinish, but Uncle Tim guessed he would do to go well enough—he would have a good rest and good keeping down there, and plenty of time to recruit after he came back. Well, after preparing their box of provisions and their bag of oats, they set off. But Uncle Tim had never foundered a horse in all his life, by giving him too many oats, and he did not mean to begin then—so the bag was not a very big one, and the journey was somewhat longer than they calculated: old grey was a pretty slow horse the latter part of the journey, and if he could have told his mind, would probably have said he was very glad when he reached the end of it. He had then a week or two to rest, but it seemed as if hard times had got to Connecticut before they did, for the granaries were very poorly supplied with oats. The time, however, soon arrived when they were to set their faces homewards, and the poor old horse, although somewhat rested, was not very much improved in his capacity to perform a journey. Even their small bag was but scantily filled, and to buy oats on the road seemed to Uncle Tim a very improvident way of travelling. So they jogged on with such speed as the circumstances permitted; but before they were within fifty miles of home, old grey gave out, and they were obliged to haul up. The fact was, old grey was a good horse, but he was *used up*. Although he had been a good horse a great while, it was not old age that prostrated him. He had skin and bone and muscle and wind, and four sound legs. The machine was in order, but the *moving power* had been withheld. The poor old horse was as useless as the steam engine without the steam.

Well Uncle Tim and his son were in a bad fix. Their passage home in the stage would cost considerable money, and then to leave old grey there to recruit, and the expense of sending for him, would increase the sum to a pretty important amount—and they could hardly think of selling the old horse for the small sum of ten dollars, which was the most they could get offered for him. The result of their deliberation was, that old grey was left with a farmer near by at a moderate expense, and the father and son took passage home in the stage. It so happened they were the only passengers, so they had plenty of time to think, and to occasionally, as the spirit moved, to talk a little.

"Well, father," said the young man, after a pretty considerable long silence, "I do not know as you think as I do, but it appears to me that our farm and old grey are very nearly in the same situation."

"I do not know said his father," what there can be about a farm and a horse, that can make them resemble each other so very much."

Timothy then undertook to explain. "There is, said he, what was *once* a good farm, and the foundation on which to make a good farm now. So there is what was *once* a good horse, and a good frame to make a horse of now. But both have been so overworked and poorly fed that they have become exhausted, and are of but little value. The farm, you know produces little if any thing, more than enough to pay for the labor we bestow upon it, and the value of old grey we have had a pretty good opportunity of testing. Now it appears to me that I can convince you that under a different course of management, both the farm and the horse would have much more than repaid the extra expense bestowed upon them, and been worth at this day more than double what they are. I am very certain I can as respects the horse, and it is equally clear to my mind with respect to the farm. Suppose then, we had given the horse one peck of oats per day, for the last two months in addition to what he has had—would not that have enabled him to work considerably harder than he has done, and kept him in good condition? The old gentleman could not but admit that he thought it would. Well now, said Timothy, do you not think that if old grey was in good working order, he would sell for forty dollars? Yes, and more too, was his father's prompt reply. Now said the young man, let us calculate the cost of oats; one peck a day for two months, would be nearly sixteen bushels—that is twenty-five cents per bushel, would amount to four dollars: and as things have turned out I am sure you will be willing to admit that sixteen bushels of oats disposed of in that way, would have been a very judicious expenditure, as, according to our calculation, it would have produce a difference of thirty dollars in the value of the horse. But, said his father, old grey is actually worth more then ten dollars, as it will not cost thirty dollars, to recruit him up. Perhaps not, said Timothy, but whatever it does cost, added to the extra expense of our getting home, and the loss of the work of the old horse after that would at any rate, have been saved by the four dollars worth of oats. And now, said he, with regard to the farm, you have always told me that it was originally rich and produced great crops, and if it were as good now as it was then, could we not make one hundred dollars more easily than we can fifty now? Yes said his father, I suppose we could. Well, now, resumed the young man, the only question is whether or not it could have been kept up in its original state of fertility till this day, with the ordinary available means, by a different course of management. I think that it could, and will try and explain as well as I can with my small knowledge of improved husbandry, what course of management would have been required to effect so desirable a result. The first great object would have been to increase, by all prudent means, the quantity of manure, and either to use it in a fresh state, or prevent waste by washing or evaporation; and one means of accomplishing this would have been, to *sell no hay*, unless a corresponding amount of manure could have been purchased—but to keep more stock, or, perhaps, to feed what was kept better so as to consume all the fodder at home. The next change would have been to divide the farm into smaller lots, so as to pursue what is called a rotation of crops, that is, that the whole may be in turn manured and appropriated to the different kinds of crops; other changes would have been to cultivate the land *better*—to procure more and better implements, and to pay more attention to the breeding of animals of all kinds.

These are the important changes required by what is called 'improved husbandry.' There are of course many small matters belonging to each that I have not metioned.

And now, although the farm is as we say, *run out*, a resort to the same measures will raise it to the desired state of fertility; but the improvement must of course be very gradual, unless considerable expense is laid out at the commencement for manure, fencing, &c. I am aware that this may not appear so plain a case as that of the horse, but I am not able to see how any one can, upon reflection, avoid coming to the conclusion that the two cases are precisely similar. The *fact* is they have both been starved, and for all useful purposes, in their present state, are of very little value. By good feed and proper management both may be restored.

Uncle Tim kept cool all this time, but it was evident from the way he used up the ends of tobacco, that he felt a *leetle* uncomfortable.

Well, said he, I do not think that I shall ever become much of a *book-farmer* myself, but as I am getting old and as I expect the farm to be eventually yours, and as you are so confident that these new ways are the best, I am willing that you should take the management, and try, and satisfy yourself and *me too*. I will try and look on your management without prejudice, and at the end of three years, should we both live till that time, if I feel satisfied that the new way is the better way, you shall have a deed at that time. We will only add that sometime before the three years expired, Uncle Tim's deed was made out, "signed and sealed;" and what was still a greater wonder, he had become a constant reader of the Cultivator, and said he really did think that Judge Buel had done some good in the world.

Finally, we cannot but hope that many *Uncle Tim's* are every year becoming converted from the error of their ways by means of the *Central New-York Farmer*.

CHARCOAL.

(To the Editor of the N. Y. Mechanic & Farmer.)

MR. FLEET,—Nothing has surprised me more than the fact that so little is known of the use and benefit of charcoal. Five years ago I witnessed immense benefit from its use in Ohio. It is estimated that the wheat crop of France has been increased many millions of bushels yearly. An English gentleman, travelling in France, within two or three years observed the general improvement of the wheat crop, from what it was years before in the same section of the country. Upon enquiry, he found that the farmers had been using fine charcoal, sowed on the ground broadcast. In 1842, R. L. Pell, Esq., of Pelham, Ulster County, N. Y., cultivated a field with a hoed crop, and used three hundred bushels of oyster-shell lime to the acre; in the fall he sowed it down with wheat, and added fifty-two bushels of fine charcoal to the acre. The wheat before sowing had been soaked in strong brine, and then rubbed in charcoal and slacked lime. The product was at the rate of *seventy eight* bushels and three pecks to the acre.

B.

TOWNSHIP OF YORK AGRICULTURAL SOCIETY.

The Sixth Monthly Meeting of this Association took place on the 3rd of May instant. The subject for discussion was, "The best Rotation of Crops for increasing the produce, as well as the fertilising qualities of the soil." The subject, although tolerably well discussed, was considered to be of such great importance, that it was resolved that it should be further discussed at the next meeting, which takes place on the first Friday in June.

A committee was appointed to prepare and submit a report, at the next meeting, on Calcareous Manures, an abundance of which, in the shape of carbonate of lime, abounds in several parts of the township; and we have no doubt but the subject will receive that justice which it so richly merits. Another committee, composed of three practical farmers, was appointed, to draw up a report upon the best methods of making hay, which is also to be submitted at the next meeting, for the approval of the Society.

If we may form an opinion upon the value of the information that will be submitted, at the period alluded to, by the fitness of the parties who have been selected to execute the task, we should judge that it would comprise most interesting and useful matter for the columns of this journal. We may almost safely promise it to our readers, as well as similar future proceedings of this local institution.

It was also resolved, that, at every subsequent meeting, there should be committees appointed, to report upon the crops, to furnish statistical information, and generally to examine into and state their opinions upon every branch of farming, the choicest and best-written specimens of which to be published in the Cultivator, for the benefit of its readers in general.

We shall watch the proceedings of this local Agricultural Institution with much interest, and, at the same time, shall endeavour to prevail upon the officers of similar Associations to adopt the same patriotic course, in discoursing, and in collecting, and publishing information upon the science and practice of Agriculture. When the District Agricultural Societies throughout the extent of the Province have adopted the plan of forming Branch Societies in the Townships, upon the plan acted upon in the Home District, and those Township Societies adopt the plan of meeting monthly or quarterly, to discuss Agricultural topics, and appoint talented practical farmers on committees, to report upon any and every topic that has a bearing upon Agriculture, then, and not till then, will a mighty revolution take place in the Agricultural, as well as in the social, condition of the people of this country. When that period arrives, there will then be but little necessity of our selecting information from foreign papers—our columns will be much enlarged, and stored to overflowing with well-written articles upon Agriculture, penned by those who cultivate the Canadian soil.

We anticipate, that, before the close of the present year, an Agricultural Society will not only be formed in all the most populous townships in the Home District, but that periodical discussions on Agricultural topics will take place, and interesting and valuable reports upon every branch of Agriculture will be published by those local institutions. We not only anticipate all this, but we expect to see at least six District Societies adopt the plan of organizing Branch Societies in their several townships, before the close of the present year.

To assist our friends in other Districts, in this matter, and to stimulate, in some measure, our countrymen to act in the great Agricultural movement now in progress, we propose to publish a series of articles, upon the manner in which, in our opinion, Agricultural Associations should be managed. In these communications, we shall enter into every minutia of detail, so that the most unskilful in such matters may engage with credit in the work.

The Eggs of Land-Birds.

According to a correspondant of the Gardeners' Chronicle, are, generally speaking, much more numerous then those of sea-birds; while the sea-birds themselves are much more numerous than land-birds, Sea-birds, though they have considerable labour in finding their food, have nevertheless, plenty of it at all seasons; and beside, they are exempted from many of the casualties which land birds have to suffer; not the least of which are the attacks of beasts and birds of prey. From both of these the sea birds are comparatively free, and perhaps they owe some part of their safety to the unpalatableness of their flesh. Hence it is, we presume, inferred that Providence has given a less fecundity to the sea-birds. Exposed to fewer casualties, the smaller family serves sufficiently well to keep up the breed.

Fire-Flies of Jamaica.

The fire flies of Jamaica emit so brilliant a light, that a dozen of them, inclosed within an inverted glass tumbler, will enable a person to read or write in the night-time without the least difficulty. Indeed, it is an expedient to which many resort. These flies are in size as large as a common hive bee, and perfectly innocuous. Their appearance in unusual numbers acts as a thermometer to the natives; and it is an unquestionable indication of approaching rain. To travellers they afford, even on the darkest nights, sufficient light to guide their footstepswith the greatest safety. The light which they send forth is in every respect equal to that of the purest diamond; and hence the Creole coquettes frequently insert a few of them, confined in pods of gauze, in their hair and other parts of their dress, in the same manner as actresses avail themselves of the paste jeweller's art.—[Phillipo's Jamaica.

AGRICULTURAL EXHIBITIONS.

SCARBORO PLOUGHING MATCH.

We lately attended a ploughing match in the township of Scarboro, and, although the day was rather unpropitious, it came off with a considerable degree of spirit. Most of the ploughing was admirably well executed; and, when the circumstance is considered that only those who came to the country under the age of fourteen were allowed to compete for the prizes, we may with much safety say, that we seldom witness a more creditable performance. The officers of the Scarboro Society, who were on the ground, informed us, that their number of members were gradually increasing, and that they hoped a still greater increase would take place in the course of the present summer.

VAUGHAN PLOUGHING MATCH AND SHOW OF HORSES.

On the 30th ultimo, we were present at the above performance, and were highly gratified with the arrangement and manner in which the whole affair was conducted. This was the first exhibition of the kind that took place in the township, and every person on the ground appeared well satisfied that an increased interest in future would be felt in the success of their infant institution, by all who had any claim to intelligence or patriotism. The treasurer, Mr. Thomas Cook, informed us that he had added between twenty and thirty new members to his list on that day alone. This Society, although in its infancy, has adopted the plan of holding monthly meetings in alternate sections of the township, most of which we hope to attend, and shall be most happy in reporting to our numerous readers any matter-of-fact information upon Agricultural topics that may be communicated on those occasions.

We should have remarked, that, although the number of ploughs on the ground was not so numerous as we usually see at those exhibitions in other townships, still the work was performed, without an exception, in a most masterly style.

The show of horses would have done credit to much older Societies than the one under notice.

MARKHAM PLOUGHING MATCH AND SHOW OF HORSES.

On the 2nd of May instant, we attended a very spirited ploughing match and show of horses, in this old and wealthy township. Considering the busy season, the attendance was numerous, there being from 400 to 500 spectators on the ground. Twelve ploughs entered the field for competition, and most of the work was tolerably well executed. The show of horses at this meeting was, by all odds, the most creditable part of the proceedings of the day: indeed, we have visited District Exhibitions that were less numerously attended, and where the show of animals were less worthy of eulogy than at the Markham Exhibition, now under notice.

The Managing Committee, to whom the whole performance was entrusted, acquitted themselves in a most masterly manner, and the Chairman of the Committee, Mr. R. N. Harrison, through whose exertions, in the main, the funds for the ploughing match were collected, deserves the gratitude of every member of the Institution.

The Markham Society have adopted the plan of holding Monthly Conversational Meetings, most of which we hope to attend; and we anticipate that the future proceedings of this Institution will form very interesting and suitable matter for the columns of our Journal.

On a former occasion, at one of the Monthly Meetings, a very talented and practical discussion took place, on the cause of, and the cure for, the disease of smut, blight, and mildew in wheat, which would have been reported in full, in the columns of the Cultivator, had it not been for the circumstance that every moment of our time has been occupied in matters which required our immediate attention; but the substance of the discussion alluded to shall be given in a future number of this Journal.

GANANOQUE AGRICULTURAL SOCIETY.

LIST OF PREMIUMS to be awarded by the *GANANOQUE AGRICULTURAL SOCIETY*, for 1844:—

A SILVER MEDAL

To the Farmer displaying the most skill and industry in the Management of his Farm.

CATTLE.			
For the Best Bull	£1	0	0
2nd Best Do.	0	15	0
3rd Best Do.	0	10	0
For the Best Cow	0	15	0
2nd Best Do.	0	10	0
3rd Best Do.	0	5	0
For best Pair Working Oxen	1	0	0
2nd Best Do.	0	15	0
3rd Best Do.	0	10	0
For the Best 3 Year Old Steers	0	15	0
2nd Best Do.	0	10	0
3rd Best Do.	0	5	0
For the Best 2 Year Old Steers	0	15	0
2nd Best Do.	0	10	0
3rd Best Do.	0	5	0
For the Best 1 Year Old Steers	0	15	0
2nd Best Do.	0	10	0
3rd Best Do.	0	5	0
For the best 2 Year Old Heifer	0	10	0
2nd Best Do.	0	7	6
3rd Best Do.	0	5	0
For the Best 1 Year Old Heifer	0	10	0
2nd Best Do.	0	7	6
3rd Best Do.	0	5	0
For the best Calf of 1844	0	10	0
2nd Best Do.	0	7	6
3rd Best Do.	0	5	0
HORSES.			
For the Best Stallion	1	10	0
2nd Best Do.	1	0	0
3rd Best Do.	0	15	0
For the Best Breeding Mare, with Colt by her side	1	0	0
2nd Best Do.	0	15	0
3rd Best Do.	0	10	0
For the Best Pair of Working Horses or Mares	1	0	0
2nd Best Do.	0	15	0
3rd Best Do.	0	10	0
For the Best 3 Year Old Colt	0	15	0
2nd Best Do.	0	10	0
For the Best 2 Year Old Colt	0	10	0
2nd Best Do.	0	5	0
For the Best 1 Year Old Colt	0	10	0
2nd Best Do.	0	5	0
SHEEP.			
For the Best Ram	0	15	0
2nd best Do.	0	10	0
3rd Best Do.	0	5	0
For the Best Pen of Six Ewes	0	15	0
2nd Best Do.	0	10	0
3rd Best Do.	0	5	0
For the Best Pen of 6 Lambs, of 1844	0	10	0
2nd Best Do.	0	10	0
3rd Best Do.	0	5	0
SWINE.			
For the Best Boar	0	15	0
2nd Best Do.	0	10	0
3rd Best Do.	0	5	0
For the Best Breeding Sow	0	15	0
2nd Best Do.	0	10	0
3rd Best Do.	0	5	0
For Best Pair of Spring Pigs	0	10	0
2nd Best Do.	0	7	6
3rd Best Do.	0	5	0
CROPS.			
For the Best 2 Acres of Wheat	1	0	0
2nd Best Do.	0	15	0
3rd Best Do.	0	10	0
For the Best 2 Acres of Oats,	0	15	0
2nd Best Do.	0	10	0
3rd Best Do.	0	5	0
For the Best 2 Acres of Peas	0	15	0
2nd Best Do.	0	10	0
3rd Best Do.	0	5	0
For the best 2 Acres of Barley	0	15	0
2nd Best Do.	0	10	0
3rd Best Do.	0	5	0
For Best 1 Acre Indian Corn	1	0	0
2nd Best Do.	0	15	0
3rd Best Do.	0	10	0
For the Best ½ Acre of Potatoes	1	0	0
2nd Best Do.	0	15	0
3rd Best Do.	0	10	0
For the Best ½ Acre of Turnips	1	0	0
2nd Best Do.	0	15	0
3rd Best Do.	0	10	0
For the ⅛ Acre of Sugar Beet	1	0	0
2nd Best Do.	1	0	0
3rd Best Do.	0	15	0
For the Best ⅛ Acre of Carrots	7	0	0
2nd Best Do.	0	15	0
3rd Best Do.	0	10	0
For Best ¼ Acre White Beans	0	15	0
2nd Best Do.	0	10	0
3rd Best Do.	0	5	0
DOMESTIC MANUFACTURES.			
For the Best 20 Yards of Cloth	0	13	0
2nd Best Do.	0	10	0
3rd Best Do.	0	5	0
For Best 20 Yards of Flannel	0	10	0
2nd Best Do.	0	7	6
3rd Best Do.	0	5	0
For Best 6 Pair of Socks	0	7	6
2nd Best Do.	0	6	0
3rd Best Do.	0	2	6
For the best 20 lbs. of Butter	0	10	0
2nd Best Do.	0	7	6
3rd Best Do.	0	5	0
For the Best 20 lbs. of Cheese	0	10	0
2nd Best Do.	0	7	6
3rd Best Do.	0	5	0
For Best 25 lbs. Maple Sugar	0	10	0
2nd Best Do.	0	7	6
3rd Best Do.	0	5	0
For the Best 10 lbs. of Honey	0	7	6
2nd Best Do.	0	5	0
3rd Best Do.	0	2	6
PLOUGHING MATCH.			
1st Premium	1	10	0
2nd Premium	1	5	0
3rd Premium	1	0	0
4th Premium	0	15	0
5th Premium	0	10	0
6th Premium	0	5	0

The Judges may award discretionary Premiums when they see fit.

J. LEWIS MACDONALD, Secretary.
Gananoque, April, 1844.

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