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THE BRITISH AMERICAN



CULTIVATOR.

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

VOL. III.

TORONTO, DECEMBER, 1844.

No. 12.



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, DECEMBER, 1844.

MONTHLY CALENDAR.

If you have not already settled your accounts, it is high time that you should prepare yourself for performing this duty,—“collect what is due you, and pay what you owe,”—and whilst doing the latter, by all means pay the printer every farthing that is due him. Examine carefully your farm statistics, and weigh well the result of each experiment and operation; and if the balance-sheet should not give as large a return in profits as you had previously anticipated, the best course to pursue is to obtain during the winter season an increase of knowledge upon the various operations of farm management. Recollect the old motto, that “*knowledge is power.*” If one class more than another require to be well in-

formed upon the principles which influence and govern their profession, it is the cultivators of the soil. It is high time that the ridiculous notion should be exploded, that any man, no matter how mean his capacity, is qualified to be a successful cultivator. This idea may to a certain extent be correct, in the clearing up and the management of a new farm, but it will not apply to the cultivation of old lands. This fact has been proved to a demonstration, in the former history of Canadian agriculture. Causes and effects must be capable of being traced to their true bearings, in any branch of business, to secure the attention and respect of the thinking portion of the population—and this is especially true in agriculture. Now, if agriculturists respect themselves, and wish other classes to respect them, they will at once set about the matter of informing themselves upon the several influences that affect their noble and independent profession. This may best be done by obtaining a knowledge of the views and experience of the best instructed farmers of this and other agricultural countries. It is truly desirable to see every man who can boast of being a tiller of the soil, well instructed in the mysteries which are involved in

the various branches of husbandry. Information is acquired by reading, by conversation with intelligent men, and by closely observing the movements and operations of men and things. No farmer need urge in excuse for his ignorance upon matters that so deeply concern his own and his children's welfare, that he has no time to read and acquire information. Only two hours per diem, spent in the acquisition of knowledge, would enable a man of only ordinary talents, in the course of a few years, to converse freely and intelligently upon almost every topic that concerns himself and the welfare of the nation to which he belongs.—This is the proper season to set a good example in this particular, and we hope that each farmer will resolve in his own mind to aid in collecting and propagating useful information, and especially of that class that relate to the practice and science of agriculture. The way in which this can best be done, has been described on former occasions; but it may not be amiss to here observe, that Magazines like the *Cultivator*, and agricultural clubs and libraries, are the most efficient means that have yet been introduced, to improve the condition of agriculture.—No farmer should content himself with

less than one agricultural paper, and as this is the usual season to renew the subscription to such periodicals, we would embrace this opportunity to urge the claims of the *Cultivator* to the attention of every Canadian farmer. It is not sufficient that it should be in the hands of the best farmers of the country. Every man should take it. Even the humble cottager and his family might receive from its columns a fund of knowledge that would be worth as many pounds as the cost of the paper would be in pence; and if the contents of only one volume were read, understood and practiced, even by the best practical farmer in the province, it would be worth in the end, to such a farmer and his family, far more than most people would imagine. We trust that none of the present subscribers will fail in renewing their subscriptions in time to get the first number of the forthcoming volume as soon as it is issued, which will be by the 25th inst. If the present subscribers would exert their influence with their friends and neighbours in behalf of the *Cultivator*, it might be placed in the hands of all the principal farmers of the country. Every farmer should be in possession of a periodical devoted to the science and practice of agriculture, and this is the proper season to attend to this matter. So much valuable information upon Canadian agriculture, has never before the existence of the *Cultivator*, been offered to the public at so low a rate, and it would be strange indeed if the intelligent portion of the agricultural classes should prove to be so indifferent to their own interests, as not to subscribe at once for the work.

While every intelligent farmer should feel an honorable pride in devoting a portion of his time, especially the long winter evenings, in mental culture, he should at the same time not neglect to execute any branch of business which could be better and more profitably performed at this season than any other. It looks bad to see a farmer constantly spending valuable time in visiting, loitering about public-houses, attending places of idle and silly amusement, when there is much to be done at home, which really requires his attention. A twelve month stock of fire-wood should be first provided, then saw-logs should be drawn to the mill, so that an abundance of lumber may always be at hand for building purposes; and when this is done, a quantity of rails

should be split and drawn to the spot required for use; and next comes the making of sap troughs or other vessels to be in readiness to hold the sap taken from the sugar-maple in the spring, all of which should be done while the snow is on the ground. Many say in excuse for spending their time to so little purpose in winter, that they have nothing to do.—Without a desire to unnecessarily dictate to any, we would suggest to those who have such a surplus of spare time, the necessity of procuring suitable material for draining the intervalles and other wet spots of ground upon their farms. The best material for constructing covered drains is cedar, though straight pieces of other durable wood laid at the bottom of the drains, about six inches asunder, and covered with slabs, will make a durable drain. If only eighty or one hundred rods of such drain be made each year, a vast improvement at a very trifling expense will thus be effected. To make home cheerful and pleasant, it is indispensably necessary for its owner to study a little taste in planning and arranging his dwelling, farm offices, and fences in their immediate neighbourhood. Now, the latter should be made of posts and boards, in such a style as would correspond with the character of the buildings, and the pecuniary circumstances of their owner. It would require but little effort and expense to construct 40 or 50 rods of post and board fence each year, and the farmer who totally neglects this branch of operation, to say the least of it, is a man of little taste. This is a good time for cutting and getting out posts for fencing. We hope that the foregoing hints will have the desired effect upon all who wish to be considered models in every thing that is excellent that pertains to agricultural improvements.

TALBOT DISTRICT AGRICULTURAL SOCIETY.

We are happy to observe that an Agricultural Society has been recently formed in the Talbot District, and that the first Show under its patronage, which came off on the 8th of October last at Port Rowan, produced a general interest in its favor among all classes. This society, so auspiciously begun, already numbers about 100 members, and bids fair of exciting a very laudable spirit of rivalry among the friends of agricultural im-

provement in this fertile and highly favored District.

We have on various occasions written to a number of respectable parties in the Talbot District, pointing out to them the advantages that would result to the cause of agriculture, and to the prosperity of the inhabitants in general, if a well organized and an efficiently sustained agricultural society were in operation. The reply in every instance was, that the proposition could not be carried into effect, as party politics ran to such an extreme, that the two parties would not meet on common ground to act for the good of the country. It, however, appears that such a society has at last been established, and we earnestly desire that the intelligent farmers of Norfolk may throw all party difference of opinion in the shade, and unite for the general good in improving the condition of their excellent country.

If we were to pronounce a blessing upon Norfolk, it would be, that may her Agricultural Society accomplish for her as great a change in her agricultural condition as have similar institutions produced in favor of the agriculture of Norfolk, England. The natural qualities of the soil of the two Norfolks are strikingly similar; but the present state of agriculture in the two countries is so great in favor of the former, that our Canadian friends will have to bestir themselves, if in the course of the ensuing twenty years they arrive at the same state of excellence. The founders and patrons of the Talbot society will please accept our best wishes for the success of their infant association; and we at the same time assure them, that we shall watch with much interest their future proceedings.

TO OUR PATRONS.

This number completes the third volume of the *Cultivator*, and also the present series. The next number being the commencement of a new series of volumes, will contain thirty-two pages, upon a sheet considerably larger than those used for the three first volumes. The type employed in printing the work will be entirely new, and the paper and other material, will be of a superior character, compared to that formerly employed.—As an evidence that the proprietors are not actuated by selfish motives in improving the style of the *Cultivator*, they have decreased the price to clubs, so that it may now be virtually called a *half dollar paper*. The editor being a practi-

oal farmer, and having made himself acquainted with the successful systems of agriculture practised in other countries, as well as in the various sections of his own, will feel no longer any diffidence in conveying to his numerous readers his views and experience upon matters that will have a tendency to inspire the agricultural classes with an increased degree of confidence, in adopting means to improve the condition of their agriculture. The *Cultivator* is now beyond a doubt established on a substantial basis, and the difficulties that have heretofore impeded its progress have been by degrees surmounted. The only anxiety that now pervades the mind of its conductor is, a wish to concentrate the greatest amount of useful practical information in the least possible space, in the columns of the Journal. To judge of its future success from the ratio of increased support which it has received, whilst in a doubtful existence, would lead to the highest expectations. The circulation of the first volume amounted to only 2200, that of the second to 3200, and of the third to 4400 copies. The first volume of the new series will be commenced with an edition of 8000 copies, and it is earnestly expected that the whole of this large edition will be disposed of before the close of the year.

The *Cultivator* would have ceased to exist at the close of the first volume, had it not been for the liberal support received from agricultural societies. Those societies that have so nobly assisted in establishing a Magazine devoted to the cause of Canadian Agriculture, deserve the support of every true friend of his country. The experience of the past has clearly demonstrated that the best method to support an Agricultural press is, through the agency of agricultural societies. If either district, county, riding, or township societies were established, so that their influence would extend throughout the entire province, and those societies were severally to adopt the plan of supplying each of their members with a copy of a well conducted Agricultural Magazine, there would then be comparatively no difficulty in inducing every respectable inhabitant to become a member of those societies, because he would feel confident of obtaining full value for his subscription in the paper, and the other advantages that might accrue from the membership of the society would be so much clear gain. The proprietors would therefore recommend their present supporters, to assist in the establishment of an Agricultural Society in their several respective localities, if they have not previously done so, upon the plan alluded to in the foregoing remarks; and thus they will not only ensure a liberal support to the *Cultivator*, but they will also have the satisfaction of witnessing the greatest change in the condition of the agriculture of their noble province that ever took place in the same space of time in any country.

In conclusion, the proprietors would embrace this opportunity of tendering their thanks to their numerous supporters for the past favors received at their hands; hoping by assiduous exertion and industry to merit a continuance of their support and influence in the great cause of a progressive system of agricultural improvement being introduced and carried out into the several settlements of the British North American Provinces.

THE BACK VOLUMES.

We beg to acquaint the friends of this paper that we have a few hundred full sets of the second and third volumes on hand, which will be disposed of at the very low price of *one shilling and three pence* per copy; and the two volumes bound in one, may be had for *one dollar*. Agricultural Societies would confer a substantial benefit upon their members if they would order a number of unbound copies for gratuitous circulation, and the bound volumes for premiums. Those of the present subscribers whose sets have been broken, or in any way impaired, would act wisely if they were to order the second and third volumes before they are all disposed of.

If it should happen that there is a single farmer in Canada who has been so unfortunate as not to have had the opportunity of carefully reading a work upon agriculture, he should embrace this opportunity of purchasing two full volumes for the mere nominal price of *two shillings and sixpence*. Will our present subscribers please use their exertions with their friends who have not yet taken the work, to prevail upon them to do so? It appears to us, that, with a very little exertion on the part of the present subscribers, the few hundred back copies on hand may be disposed of in the course of a few weeks.

PRODUCTIVE FARMS.

To a person not familiarly acquainted with the history and statistics of English husbandry, the extreme productiveness of the farms of that country, will appear incredible. Nearly nine-tenths of the cultivated lands in Great Britain and Ireland, are rented to tenants, who pay, usually, from four to five pounds sterling per acre annual rent. Where is the farmer in this country, who could live under such a burden? Here a farm comprising a hundred acres is often rented for one hundred dollars, and even at this rate the tenant has a hard task. The cultivation, even where there are a large number of acres in grass, will little more than pay the rent and taxes; but in England the result is widely different. The tenant who there pays £5 per acre annual rent, and finds all appliances, obtains not only a comfortable living, but in many cases wealth, from the prosecution of a business which here, with like burdens, would doom him to want and misery.

In 1811, Irwin estimated the produce of one English farm of eight hundred and ninety acres, at £9,578, or \$38,000! The quantity of manure applied was 13,746 one-horse cartloads in one year, and 10-250 the next! Now admitting the rent of this farm to be \$12 per acre, and the cost of manure and its application \$12 more; and if to this sum we add, for interest, or expenses, taxes, and the various contingent expenses of cultivation, &c., \$12 more, we shall find, upon striking the balance, that there will remain a profit of \$10 the acre, amounting in the gross aggregate to the sum of \$10,000 clear gain to the tenant in a single year.

In the vicinity of London, a hay farm, comprising one hundred and sixty acres, was rented. The rental in this instance was \$12 per acre, amounting in the whole to \$1,920 per year. A very heavy expenditure was required for manure—probably as much as many a New England farmer would have been willing to give for the land, and yet the tenant succeeded, and has since become wealthy, and with no other income than the produce of his farm.

In Ireland, a poor man hired an acre of land, erected his cottage, purchased manure and farming tools, and the first season cleared all expenses and had a balance of £8 left. And yet that Irish peasant, in addition to the expenses and outlays above enumerated, had a church tax to pay, and to be at the expense of purchasing his own seed, and maintaining a family of four besides himself and his wife. The frugality of the Irish peasantry is proverbial. But there was something more than mere frugality at the bottom of this man's success. There was *thorough cultivation*—a thing which in New England may be said to be wholly unknown. This is the mystery, and the only one. That Irish peasant, with like expenses, would have starved here on forty acres with our cultivation.—*Connecticut Courant*

Rearing Peach Trees.—Mr. Allen W. Dodge, says in the Mass. Ploughman, that he prefers the following mode of planting peach stones:—"Deposit the stones, after being taken from the peach, in sand or dirt; put them in the ground, slightly covered, in the fall. As for the cotton bag in which to keep them under ground, I have never tried it, or any other covering but the ground itself. Take up the stones early in the spring, crack them, and plant immediately the meats or pits. In a week or ten days they will all be up, without fail, just as certain as so many peas or kernels of corn."—*Alb. Cult.*

A Hint.—The weather destroys more tools than hard work, with some farmers; and more valuable time is lost hunting up and repairing lost implements than their original cost.—*Alb. Cult.*

THE ALPACA.

Its Naturalisation in the British Isles considered as a National Benefit, and as an Object of immediate Utility to the Farmer and Manufacturer.

By William Walton. Blackwood & Sons, Edinburgh.

For most of our cultivated plants, and indeed for many of our domestic animals also, we are indebted to other countries. With regard to the former, the history of their introduction is in many cases well established in detail; but it is so long since the latest of them, the Potato, the Turnip, or the Mangold Wurzel, or Carrot for instance, was first cultivated in our country, that farmers have fairly settled down into the belief that they must make the best of the subjects they have on hand, for that Nature has nothing further in her stores suited, in our climate, for the wants of man or beast. And with regard to the latter the introduction of the very latest dates so much farther back, that we must estimate the prejudice as stronger still which scouts at the idea of any further addition being made to our stock of domestic animals from the lists of other countries. Of course, in speaking of this universal prejudice, we allude simply to the generality of those who at present occupy and cultivate our soil, and who form their opinion probably without very well knowing the grounds upon which it rests.

There is every probability, notwithstanding the general notion to the contrary, that a useful addition will shortly be made to our stock of domestic animals. The Alpaca, from the experience of it which has been compiled from various quarters in this country by Mr Walton, really seems likely hereafter to play an important part in the stock-farming of the hilly districts of the kingdom. This animal is indigenous in the mountainous regions of Peru where two domesticated species of it occur. The one receiving the name of Llama is used as a beast of burden; the other—the Alpaca—to which we at present allude, is a wool-bearing animal, and of it large flocks were formerly possessed by the Incas, sovereigns in former days of that country, and by other wealthy inhabitants of it. The climate of the districts in which this animal flourishes is described by Mr Walton as follows—

"The woolly natives possess a hardness of constitution, and a peculiarity of structure, admirably well adapted to the nature of their birth-place—There, during half the year, snow and hail fall incessantly, whilst in the higher regions, as before noticed, nearly every night the thermometer falls below the freezing point, and the peaks, consequently, are constantly covered with an accumulation of ice. The wet season succeeds" &c.

On the applicability of the Alpaca to our soil and circumstances, we quote the following remarks:—

"The hardy nature and contented disposition of the Alpaca, cause it to adapt itself to almost any soil or situation, provided the heat is not oppressive, and the air pure. The best proof of its hardness is its power to endure cold, damp, hunger, and thirst, vicissitudes to which it is constantly exposed on its native mountains: while its gentle and docile qualities are evinced in its general habits of affection towards its keeper. No animal in the creation is less affected by the changes of climate and food, nor is there any one to be found more easily domesticated than this. It fares well while feeding below the snowy mantle which envelops the summits, and for several months in the year clothes the sides of the Andes. It ascends the rugged and rarely trodden mountain path with perfect safety, sometimes climbing the slippery crag in search of food, and at others instinctively seeking it on the heath, or in rocky dells sheltered by the wintry storm, at the same time that, when descending, it habituates itself to the wet and dreary ranges on the lowlands, so long as it is not exposed to the intense rays of the sun.

"Many of our northern hills would try the constitution of any sheep, and yet there the weather is never so inclement or so variable as on the Cordilleras of Peru. With so many advantages, why then shall not the Alpaca have an opportunity of competing with the black-faced sheep, the only breed that can exist in those wild and inhospitable lands? Of the two, the stranger would fare best on scanty and scattered food, at the same time affording to the owner a far better remuneration."

The Alpaca wool is at present used largely in British manufactures. Mr Walton estimates the quantity hitherto consumed since its introduction in 1852 at 12,000,000 lbs. The price of it varies from 1s 8d to 2s 6d, per lb, and the average weight of the fleece may be put at 10 lbs. Were the animal fairly naturalised on some of our bleakest hill districts, such land would soon increase in value from the increased worth of its annual produce in Alpaca wool. And it appears from the experience of several gentlemen who have small flocks, that, when its habits shall be thoroughly understood, little difficulty will be experienced in doing so. The following is a statement by Mr Stirling, of Craigbarnet Place, Lennoxtown, Glasgow—a gentleman better qualified to speak on the subject than any one we could name—

"I can have no doubt that, when the subject is better understood, the animal itself better known, and a more expeditious method contrived to bring them to Britain, we shall have thousands of them. When known, their docility, their temperate habits, their hardness, and, I may add, their easy keep, will ere long bring them into general notice. I can answer without the fear of being contradicted, that they will thrive and breed in Scotland, equal, if not superior to our native black-faced sheep."

To those who would laugh at the idea of bringing over here, and domesticating on our hills, a Peruvian camel or sheep—for the Alpaca has properties in common with both—we would point to Australia, a country which not many years ago possessed no quadruped but the kangaroo, and yet, notwithstanding its many peculiarities of climate, is now thickly peopled with our sheep and oxen. But the question must not be left to generalities of this kind—the experience of a few short years on the larger scale, which expected importations will enable, will determine it satisfactorily; and if, as in all probability will be the case, the Alpaca should become one of our domestic animals, the best thanks of the country will be due to Mr Walton for the persevering energy with which he has pressed the subject on public attention. His book is an exceedingly interesting and neatly got up little volume, and will, we doubt not, prove a useful publication.

THE ALPACA.—We recommend the foregoing remarks upon the Alpaca or Peruvian sheep, to the careful attention of our readers. It appears that the Alpaca does best in high lands and a cold climate, and it would doubtless do well in some portions of this country. The wool from this animal is highly prized for manufacturing purposes, and is extensively used in Britain. We therefore think it a subject worthy the attention of the Canadian farmer, and trust that some one of enterprise will take the necessary steps to introduce them. Would it not be a wise expenditure of money, for our agricultural societies, to give sufficient encouragement to this business to have it fairly tested?

From the American Farmer.

MANURES.

A Prize Essay, by S. L. Dana,—Concluded.

SECTION THIRTEENTH.

Manures composed chiefly of Mould.

These are of vegetable or animal origin. And first, of animal mould. Here we shall find, that we come, perhaps, better prepared to understand this part of our subject, than either of the preceding classes. We have explained the principles which enable us to understand why it is that animal and vegetable substances produce, by decay, identical matters. The only difference consists in the quantity of these matters. Let me here, reader, call to your remembrance the facts we stated respecting the two classes of food, and the two classes of substances formed from that food by animals. A certain portion of that food contains none of that principle which forms ammonia. This portion of food makes fat. Another portion of food contains the substance which forms ammonia. This part of the food forms flesh and blood, and the other parts of the body, skin, hair, feathers, bristles, wool, horns, hoofs, nails and claws, tendons and sinews. Now, when a body dies and decays, the mould which it forms will be rich manure, or poor manure, just in proportion as it contains more or less of the substances formed out of that portion of food which furnishes flesh and blood. The fat, therefore, in animal mould, plays a very inferior part to that acted by the flesh and blood. In a word, as I wish to dismiss the fatty matters from our present consideration, I may do this, reader, by stating to you, all that you need know, that in decay, fat forms chiefly carbonic acid. If, therefore, you call to mind what we have said about the action of that, you will see how fat acts in manure. But the flesh and blood, and the substances formed from it, give precisely the same things as vegetables do when they decay, that is, water, mould, and salts. The great difference between the decay of animal and vegetable matters, is thus, that as the animal bodies are far richer in the substance, which forms ammonia, so they afford a richer source of manure. The animal body contains that element, in quantity enough, not only to fill the pores of its own mould, but also enough to impregnate a large quantity of mould from other sources. The vegetable body, on the contrary, contains scarcely enough ammonia to fill its own mould. Vegetables differ in the quantities of the elements of food, which can furnish flesh and blood, and hence these vegetables are best for manure, which furnish most ammonia. We have already remarked on the difference, in this respect, between straws, grasses, and clover. But without going further into this comparison, which can have no other practical bearing, than to show you the immense difference in value, in animal and vegetable bodies, in forming manure, we may here resolve the subject into one great principle. The substance which forms flesh and blood, whether derived from plants or animals, alone forms ammonia during their decay, and the mould thence arising, is rich or poor manure, just in proportion as it contains the substance, fit to form flesh and blood. Starting from this principle, we find that animal substances, as flesh, fish, fowl, the body generally, including its various forms of covering, hair, wool, feathers, nails, hoofs, horns, claws, &c. afford, in the process of decay, about ten times more ammonia, than the straws and grasses usually entering into the compost heap. The animal bodies give more volatile alkali, than their mould can contain.

It is given off in such quantity that decay is rapidly hastened. All the signs of putrefaction, therefore, rapidly take place. The quantity of mould being small, nothing holds the volatile parts, they escape and are lost. Now common sense and practical foresight have stepped in here, from time immemorial, and taught mankind the necessity and the utility of preventing the waste of the volatile and most valuable parts of the decay-

ing animal substances, by covering them in with earth, soil, &c. These imbibe the escaping virtue or strength, and become rich and fertilizing. It remains to state, that every pound of animal carcass can impregnate ten pounds of vegetable mould; or, taking our arable soils as they usually occur, one pound of flesh, fish, blood, wool, horn, &c., can fertilize three hundred pounds of common loam. You will see, therefore, reader, how little you have now to learn of the necessity of saving everything in the shape of animal matters, and converting them to manure, by turning them into your compost heap. It is to be remarked, that the dry forms of animal substances undergo the process of decay when left to their own action very slowly. Wool, hair, flocks, horn-shavings, &c., or even leather chips and curriers' shavings, bear long exposure, and seem quite indestructible. They yet are rich in all the true virtue of manure. They want something to bring this out, to get them working, to bring on fermentation. Well, on this head we may lay down two rules: the first is, that if buried among a heap of fermenting matter, that communicates a similar change to these dry, animal substances. This is slow work. The second rule is, that if these dry matters are buried in the soil among the roots of growing plants, then these act more powerfully than fermentation, and the dry substances are converted to manure, a speed which may be called quick, compared to the fermenting process. The practical lesson to be drawn from these differences of action between the fleshy and horny parts of animals is, that when you want a quick and short action of manure, to use the fleshy and fluid parts. Where you want a mere slow and permanent action, to commence and long last after the first is over, to use the dryer and harder parts. If now we turn to the other division of mould, that from vegetables, we find it lacking in the very thing which was superabundant in animal mould. That thing is volatile alkali. The great mass of vegetable mould is always impregnated, but always slightly charged with volatile alkali. There is not enough of the flesh and blood forming element in vegetables to hasten the decay into rich manure. Now here again not science, but practical common sense steps in, and did step in long ago, and as she taught mankind the necessity of adding soil or mould to the decaying animal matter, so here, to enrich vegetable mould, she teaches that animal matter, or that which is its representative, *alkaline salts*, must be added to vegetable mould, to make it active. It is not the mould alone which plants want. We have seen all along how nature provides a certain amount of salts in her virgin mould; we by cropping exhaust these faster, than the mould. We have tons of that, yet our fields are barren. They want, as has been explained, salts. And now, reader, having been brought by this course of reasoning to what mould wants, consider what tons and tons of useless mould you have in your swamp muck and peat bogs, your hassocks, and your turf meadows. All these, foot upon foot in depth as they lie, are truly vegetable mould, in a greater or less degree of decay. If you dig this up, and expose it to the air, that itself sets it to work, decay is hastened, volatile matters escape, yes, ammonia, the master spirit among manures, is secretly forming and at work, warming and sweetening the cold and sour muck. Without further preparation, practice confirms what theory teaches, that this process alone furnishes from these beds of vegetable mould, and a very good manure. It is already highly charged with all the salts which a plant wants. But experience, doubtless led by the light of the good result, of mixing mould with animal matter, to preserve its strength, has also reserved the practice, and taught the utility of adding to vegetable mould quickening salts: that is, either the volatile alkali, by composting the mould with stable manure, or alkali in the shape of ashes, or potash, or soda ash, or lime, or a mixture of these. In fact, whatever substance can by putrefaction give off volatile alkali, will and must, and does convert vegetable mould, of itself dead and inactive, into a quick and fertilizing manure.

If then, reader, you pause here a moment upon this fact, and then cast your view backward over

the principles we have endeavoured to impress on your memory, you will perceive that there is not, among all the classes and kinds of manure which we have shown you, one which may not be added, or, as is the phrase, composted with peat, meadow-mud, swamp-muck, or by whatever other name these great storehouses of vegetable matter are called. These are the true sources of abundant manure, to all whose stock of cattle, &c., is too small to give manure enough for the farmer's use. It is the farmer's business to make a choice, if he has any but Hobson's, of what substance, or mixture of substances he will use. We have shown him how small a portion of animal matter, one to ten, of pure mould, will impregnate that substance. Taking then a cord of swamp-muck, we shall find it contains in round numbers, about one thousand pounds of real dry vegetable mould. So that the carcass of an animal weighing one hundred pounds evenly and well mixed up with a cord of fresh-dug muck, will make a cord of manure, containing all the elements, and their amount too, of a cord of dung. But it is not from the carcasses of animals that the farmer expects to derive the quickening salts for his muck. This can be the source of that power only to the butchers, (what fat lands they all have!) or to the dwellers near the sea, where fish is plenty. A barrel of alewives, it is said, fertilizes a wagon-load of loam. The carcass of a horse converts and fertilizes five or six cords of swamp-muck. A cord of clear stable dung changes two cords of this same muck into a manure as rich and durable as stable manure itself. These are all the results, reader, of actual practice. The explanation of the principle has only come in since the practice, and showed the how and the why of this action. But the merit of explaining this action, would be, as nothing, if it had not conducted one step further. The explanation of the principle of action of animal matters, animal manures of all kinds, whether solid or liquid, on muck or peat, has led chemistry to propose, where these cheap and common forms of quickening power are not to be had, to mix ashes, or potash, or soda ash with swamp-muck. Now, reader, this is not an idle, visionary, book-farming scheme. It is perhaps one of the few successful, direct applications of chemistry to farming, which speaks out in defence of such book-farming, in tones and terms which bespeak your favorable consideration for the attempts which science is making to lend you, reader, a helping hand. This proposal, the offspring of science, has been carried out successfully by practical men in our own country, and has made its way abroad. Though this is not the place to give you the details of their results, you may rely upon the fact, that alkali and swamp-muck do form a manure cord for cord, in all soils, equal to stable dung. Well now, after your patience in going over these pages, I hope you will find your reward in this statement. To be sure it might have been said at once, and so have done with it, but I hoped, reader, and I am sure I have not been disappointed, that you like to dive a little into the reason of things, and felt that you had farmed too long by the rule of thumb, to be satisfied that it was the road either to improvement or profit. And so among your first attempts at improving your worn-out lands, always supposing you have not a barn-cellar, hogs, and swamp-muck, so aptly called by one of your self-made practical men, the "farmer's locomotive," I presume you may like to know the proportions in which you may mix swamp-muck and alkali. You can hardly go wrong here by using too much; the great danger is, you will use too little alkali. But calculating on the proportion of mould in fresh-dug swamp-muck, or peat, it may be stated as a rule, grounded on the quantity of quickening power in a cord of stable manure, that every cord of swamp-muck requires eight bushels of common ashes, or thirty pounds of common potash, or twenty pounds of white or soda ash, to convert it into manure equal cord for cord, to that from your stable. Dig up your peat in the fall, let it lay over winter to fall to powder, calculate your quantity when fresh dug, and allow nothing for shrinking in the spring; when your alkali is to be well mixed in with the mould, and, after shovelling over for a few weeks,

use it as you would stable manure.

These quantities of ash, sand and alkali are the lowest which may be advised. Three or four times this amount may be used with advantage, but both the quantity of alkali and the number of loads per acre, must and can be determined by each for himself. It is a question of ways and means, rather than of practice. But supposing the smallest quantity of ashes or of alkali to be used which we have advised, then at least five cords of the compost should be used per acre. This may be applied to any soil, light or heavy. But there is another form of this same swamp-muck and alkali, which should be used only on light, loamy, sandy soils, to produce its greatest benefit, though even on heavy soils, if not very wet, it may be used with great advantage. This is a compost of one cord of spent ashes to three cords of swamp-muck. This is decidedly the best mixture which has yet been tried. We have in this all that mixture of various salts and mould which plants want, and both by the action of the mould and by that of the air, the alkali of the spent ashes, which no leaching would extract, is soon let loose, and produces all the effects of so much clear potash or soda.

I have thus, reader, given you a few of the ways by which you may convert your peat bogs and swamps into manure, when you have neither cattle nor hogs. I have not thought it worth while to go into this subject further and give you directions for lime and salt, or other matters which may be used. I have given you the most common, and those well known and at hand. All you want, then, to apply these principles of forming composts, is to give them that little attention which will enable you to understand them. And the rest must be left to your practical common sense, without some share of which, farming, like everything else, would be vanity and vexation of spirit.

I would here, reader, take my leave of you, and in the hope that we may again meet to have another talk. There are a great many other points relating to manure, which can be understood only after we have made ourselves somewhat acquainted with the chemistry of the soil. Then, having explained that, before the full action of manure can be understood, we must proceed a step further, and consider what changes take place in growing crops, and the effects of these growing crops upon soil and manure. The quantity and kind of salts they extract, and how soil is exhausted. This would lead to the consideration of the quantity and kind of manure to be applied to different soils, and the value of different manures. But there is one other important matter belonging to our subject. Crops exhaust land, but fatten animals. Now this last properly belongs to that part of our subject relating to the changes occurring in vegetables, and their power of exhausting the soil. It will be seen, therefore, that the whole covers the ground called Agricultural Chemistry. This Essay is only its first part. If it meets your acceptance, I trust it may encourage its author to draw up its second part on soils, and its third part on the effect of crops on soil, and their value as food for animals.

Remedy for the Bots.—Having seen many horses die with bots, and many remedies given without effect, I was induced by a merchant in Cambridge to try the following for a horse of my own, after I had tried most of the remedies in common use without effect, and had given him up for lost:—Half pint vinegar, half pint soft soap, half pint gin, and half pint molasses, well shaken together, and poured down while foaming. To my great surprise, the horse was in five minutes wholly free from pain, and ate freely,—the next morning I was upon my journey. I have since recommended and given the same in perhaps fifty cases, with the same good effect; not in one instance has it failed to effect a perfect cure.—*Alb. Cult.*

Continued from the November No.

EVERY MAN HIS OWN CATTLE DOCTOR

CHAPTER XII.

Diarrhœa, or Purging.

Purging is produced by various causes; by change of food, from dry to green meat, or from short to luxuriant pasture; by poisonous plants, bad water, or unknown atmospheric agency.

It is not always to be regarded as a disease, nor should the farmer be always anxious to stop it. It may be an effort of nature to discharge something that is injurious; it may exist while the beast enjoys most perfect health, and is even thriving.

The farmer will not regard an occasional fit of purging; he will only attack it if it is violent, or if it continues too long. In the first case it indicates some disordered state of the bowels, or the presence of some offending matter in them, and he will endeavor to remedy this; not, as is too often done, by attempting to rest the discharge as speedily as he can—not by the exhibition of astringent medicine—but by giving a mild dose of physic, in order to assist nature in her effort to get rid of some evil. Nothing so much distinguishes the man of good sense from the mere blunderer as the treatment of purging.

From half to three-quarters of a pound of Epsom salts should be given with the usual quantity of ginger. The next day he may probably administer a little astringent medicine. The following will be effectual, and not too powerful.—

Recipe No. 17.

Astringent Drink.—Take prepared chalk, two ounces; oak bark, powdered, one ounce, catechu powdered, half an ounce; opium, powdered, two scruples; ginger, powdered, two drachms. Mix, and give in a quart of warm gruel.

In the second case also, when purging has long continued, and the animal is beginning to become thin and weak, the practitioner must begin with physic. There is probably some lurking cause of intestinal irritation. He should give the quantity of Epsom salts just recommended—or perhaps he will more prudently give from half a pint to a pint of castor oil. It will usually be a good practice to give a rather smaller dose on the following day; and, after that, he may safely have recourse to the astringents; the animal should be brought into a cow-house or enclosed yard, where it can be sheltered from the weather, and kept partly or altogether on dry meat.

It is of great consequence that diarrhœa or simple purging should be distinguished from another disease with which it is too often confounded.—They are both characterised by purging. That which has been just considered is the discharge of dung in two great quantity, and in too fluid a form; but that which will form the subject of the next chapter, dysentery, is the evacuation of the dung, mingled with mucus, or mucus and blood. In diarrhœa the dung is voided in large quantities, and in full stream, it has sometimes an offensive smell, and is occasionally bloody, but dysentery is often accompanied by a peculiar straining; the dung is not so great in quantity, and it is more offensive, and more highly charged with blood.

The one is an accidental thing—not always to be considered as a disease—and often ceasing of itself when the purpose for which nature set it up.—the expulsion of some acid or injurious matter from the alimentary canal—has been accomplished; the other is an indication of an inflammatory affection of the larger intestines, difficult to be controlled, often bidding defiance to all means, and speedily destroying the animal. Diarrhœa occurs at all times of the year, and particularly after a sudden and great change of pasture, dysentery is a disease almost peculiar to the spring and autumn alone. It must be confessed, however, that diarrhœa is sometimes the precursor of dysentery in its worst form.

CHAPTER XIII.

Dysentery, Slimy Flux, or Scouring Rot.

It has been just observed that this disease is most prevalent in spring and autumn, particularly in low, wet, and swampy situations. It is one of the most fatal diseases to which oxen, and dairy cows in particular, are subject, and it destroys more than any other malady.

It begins with frequent and painful efforts to expel the dung, which is thin, slimy, stinking and olive-colored. The animal, as appears from his restless state, suffers much pain, frequently lying down and soon rising again. There is also a frequent rumbling noise in the intestines. If the disease is neglected, or improperly treated, the beast gradually gets thin, although for a while he retains his appetite, and continues to ruminate; at length he evidently begins to get weak, rumination is imperfectly performed, and the food passes from him half digested. As this disease is often the consequence of a previous affection of the liver, considerable tenderness will be discovered on the spine, a little beyond the shoulders.—This is one of the methods, and a very good one, by which the farmer endeavors to ascertain whether a beast which he is thinking of purchasing, has the scouring rot. As the disease proceeds, the dewlap hangs down and has a flabby appearance; the dung runs off with a putrid and offensive smell, and, as it falls upon the ground, rises up in bubbles, and a membranous or skin-like substance is often seen upon it; this is occasioned by the natural mucus, which was given to defend the bowels, being discharged. In proportion to the quantity of mucus that mingles with the faeces, the whole is rendered more adhesive, and the bubbles are larger and remain longer on the dung. When this is the case the disease is always obstinate, and generally fatal. The hair all over the body soon appears pen-feathered or staring. Feverish symptoms also accompany the complaint; the eyes become dull and inflamed, there is much working of the flanks, and the pulse is quick.

The causes of this dreadful malady are—taking cold at the time of calving, long journeys, exposure to sudden vicissitudes of the weather, and, after being over-heated in traveling, being turned into damp pastures, &c. Poor keep is a very frequent cause, and especially when connected with exhaustion from constant milking, and it is more especially the consequence of the cows being badly fed in the winter. Some cold wet lands are particularly liable to give the rot; yet where the land and treatment are similar, it prevails more in some dairies than others, depending much on the breed of the cattle. Old cows that are fed on sanded pastures are very subject to this complaint.

In all cases the animals should be taken from grass, and put into a large cow-house or an open yard, where they can be sheltered from the weather, and kept on dry food, such as good hay, ground oats, barley, and beans. An equal proportion of each of the three last articles, and of linseed cake, will make an excellent food for cattle laboring under dysentery. A quantity proportionate to the size and appetite of the patients should be given two or three times a day, or if they are reduced, and their appetite is quite gone, a thick gruel should be made of these ingredients and administered three or four times a day.

This disease consists in inflammation of the lining membrane of the large intestines. It will then be evident that bleeding, proportioned to the suddenness and violence of the attack, and the apparent degree of fever, should be first resorted to.

If the eyes are inflamed, with heaving of the flanks, and painful twitchings of the belly, accompanied by severe straining and apparent grippings in the expulsion of the excrement, the abstraction of blood is indispensable.

The purgative drink (No. 2, p. 47) should precede the use of every other medicine, in whatever state the bowels may be. It will prepare for the

safe use of astringents. In almost every case there will be something in the bowels, which, if it did not cause the disease, contributes to keep it up. The proprietor of cattle, and he who professes to treat their diseases, should know that there can be nothing more dangerous than to attempt suddenly to stop a violent purging, especially one that assumes the character of dysentery. Let that which offers in the bowels be first got rid of, and the disease will sometimes cease of itself, or, if it does not, astringents may then be administered with safety.

The safest and the most effectual astringent mixture for the scouring rot is that which was recommended in page 61. It may be given once or twice in the day, according to the violence of the complaint.

Alc should never be given in these cases. The astringents may be commenced twenty-four hours after the purgative has been administered.

If the disease does not speedily yield to this treatment, it will not be prudent to continue the use of such large quantities of astringent medicines for any considerable time. The following drink may then be given, and continued morning and night for five or six days:—

Recipe No. 18.

Astringent Drink with Mutton Suet.—Take mutton suet, one pound, new milk, two quarts, boil them together until the suet is dissolved, then add opium, powdered, half a drachm, and ginger one drachm, having previously well mixed them with a spoonful or two of fluid.

When the dysentery is stopped, the beast should very slowly and cautiously be permitted to return to his former green food. Either during the night or the day, according to the season of the year, he should be confined in the cow-house, and turned out twelve hours only out of the twenty-four. Water should be placed within reach of the animal, in the cow-house, and, if possible, in the field; for there are few things more likely to bring on this disease, or more certain to aggravate it, than the drinking of an inordinate quantity of water after long-continued thirst.

These precautionary measures should be continued for a considerable time; for there is something very treacherous in this malady, and it will often suddenly return several weeks after it has been apparently subdued.

In those cases, and they are much too numerous, which totally resist the influence of the medicines already recommended, other means should be tried. The alum whey has sometimes succeeded, and is thus prepared:—

Recipe No. 19.

Alum Whey.—Take alum, half an ounce; milk, two quarts. Boil them together for ten minutes, and strain.

This may be administered twice every day.

The disease may not yield even to this. It will then be evident that it is the consequence of some other disease, and, probably of the liver, vitiated bile secreted by which is keeping up the purging. It is almost a forlorn hope to attack such a case; but the beast may be valuable, and, at all events, we cannot be worse off. The only medicine that can have power here is mercury, for it seems to exert its chief influence on the liver, and the discharge of bile. The mildest, and at the same time the most effectual form in which it can be administered, is that of the blue pill, half a scruple of which may be given morning and night, rubbed down with a little thick gruel. There is very little danger of salivation: yet it may be prudent to give half a pound of Epsom salts every fifth or sixth day; and most certainly to give them every second day, and discontinue the blue pill, if the mouth should become sore, or the breath stinking, or there should be a more than usual discharge of saliva from the mouth.

In many cases there is found a schirrous state of the third and fourth stomachs in cattle that have died of, or been destroyed for, this disease.

CHAPTER XIV.

Red-Water.

The nature of this disease has been very much misunderstood. It consists of a discharge of high-coloured urine, and therefore has been attributed to an inflammatory affection of the kidneys. It will generally be found to begin in another organ, the liver, and to be connected, in the first stage at least, far more with disease of that gland than of the kidney.

There are evidently two distinct species of red-water.

One, but which occurs most seldom, begins with decided symptoms of fever. There is shivering, succeeded by increased heat of the body; the muzzle dry; working of the flanks; urine of a red colour, evidently tinged with blood, and occasionally consisting almost entirely of blood, discharged in small quantities, and frequently with considerable pain; loss of appetite. As the disease proceeds, the animal loses strength; the bowels become constipated or very loose; and the urine of a dark colour, approaching to black.

Very early in the complaint the loins become exceedingly tender, and the animal shrinks when pressed upon; some heat is likewise felt there, showing evidently the seat and nature of the disease. It sometimes proceeds from cold, particularly when beasts are turned into low pasture grounds at the spring of the year. It also frequently seizes young cattle that are feeding, or in good condition; for a fulness of blood in the system renders them more liable to the complaint.

Sometimes inflammation of the kidneys proceeds from external injuries; such as a violent bruise across the loins, in consequence of other beasts ramping on them, or a severe blow in the region of the kidneys.

The discharge of bloody urine may either proceed from inflammation of the kidneys or a rupture of some of the blood-vessels, and in either case blood is discharged with the urine, and may be often detected in clots; whilst in the other kind of red-water, although the urine is dark in colour, it does not contain blood. The former disease is more frequent with bulls and oxen, and the latter with milch cows.

When the kidneys are inflamed, and the animal evinces tenderness on pressing the loins, the treatment should consist of blood-letting, purging, and the application of sheep-skins and stimulants to the loins. But in some cases where blood is discharged with the urine without any inflammatory appearances, the exhibition of astringents and stimulants, such as the following, have effected a cure:—

Recipe No. 20.

Take oil of juniper, two to four drachms; tincture of opium, one ounce; oil of turpentine, one ounce. Mix, and give it in a pint of linseed tea, once or twice a day.

True red-water is a disease of the digestive organs, principally of the liver: and the dark colour of the urine is owing to the presence of vitiated bile, probably loaded with carbon, and not to blood, as used to be supposed.

The more frequent causes are connected with the nature of the pasture. There are some farms, or particular parts of the farm, where red-water is almost sure to follow when cattle are turned upon them. Low marshy grounds are apt to produce it, and also pastures with much woodland, and especially in the latter part of autumn, when the leaves are falling. Some have said that elm-leaves are apt to cause red-water; others attribute the disease to the oak; and many more to some of the numerous species of ranunculuses that abound in our marshy and woodland pastures. The truth of the matter, however, is, that no one knows what plant is most concerned in the affair; and all that the farmer can do is to observe what pastures most frequently produce red-water, and at what season of the year, and to use them as much as he can for other stock in the dangerous seasons.

A removal from a poor to luxuriant pasture, or from a low marshy situation to a dry and lofty lo-

cality, are frequent causes of red-water; and it often occurs after a long succession of dry weather.

Cows that are dried of their milk are often attacked by it, when put into luxuriant pasture, while, perhaps, it does not affect those that are still milked. The reason of this plan is plain enough:—superfluous nutriment not being carried off by the udder in the form of milk, the digestive organs are deranged, and the secretions of the liver become vitiated.

Some breeds of cows are more disposed to red-water than others, and especially if they are brought from a distance, and the quality of their pasture changed, whether from good to bad, or from bad to good. A cow that has once had an attack of red-water is very liable to a repetition of the complaint. The farmer is obliged to take a great deal of care properly to manage the change of pasture with her, and, notwithstanding all his care, she will probably have two or three attacks of the disease every year. It will behave him to consider how far it is prudent to keep such an animal. No beast that is subject to periodical complaints of any kind should be kept, for it may easily be prepared for the butcher, and disposed of with little or no loss to the farmer.

The symptoms of red-water are at first purging, which is usually followed by constipation; the appetite is impaired; the pulse and breathing quickened; and the former, though bounding at the heart, is often weak. The membranes of the nostrils and eyelids are pale, and the legs cold; the milk is diminished, and rumination ceases. The urine, from being brown, often becomes black, and the disease is, in this state, often denominated black-water.

The red and the black-water are diseases that require prompt and careful treatment, for although, in some slight cases, the beast does not seem to be much affected by either, and works or yields her milk as well as ever, yet ere long it preys upon the constitution, and the animal gradually wastes away.

It is folly to wait in order to see whether nature will effect a cure. Except in beasts suddenly put upon more than usually rich pasture, it never is or can be a salutary discharge. It must be preying upon the system and wasting the strength, and the sooner it is got rid of the better. It attacks milch cows oftener than others, and it is more injurious to them than to others. While it lasts, it often materially lessens the quantity of milk, and, even after it is removed, the animal is slow in returning to her former strength.

The first thing to be done is to remove the cause of the disease. The pasture should be changed. A more open and a drier situation should be found, and where the grass, although succulent and nutritious, is not very plentiful. If there is considerable fever, or the animal should appear to be really ill from the discharge, she should be taken under shelter, and fed on mashes, with a very little hay; or a few turnips or carrots may be allowed her if they are in season.

Bleeding is often necessary at the onset of this disease, but it should always be practiced with moderation, and in many cases abstained from altogether. About two hours after bleeding, the following drink should be administered:—

Recipe No. 21.

Take, Epsom, or glauber salts, one pound; ginger, half an ounce; carbonate of ammonia, half an ounce. Pour one quart of boiling water upon the ingredients, stir them well, and give when new-milk warm.

A quarter part of this drink may be given every six hours, until the bowels are freely opened, and the medicine may be assisted by clysters. The successful treatment of the disease very much, or altogether, depends on early and thoroughly opening the bowels. If this is early accomplished, the animal will almost certainly recover. If it is neglected, or the constipation cannot be overcome, within the first two or three days, the termination will probably be fatal.

When the bowels are properly acted on, mild stimulants may be exhibited, such as—

Recipe No. 22.

Take ginger, one drachm; gentian, one drachm; and spirit of nitrous ether, one ounce. Mix, and give in a pint of gruel.

If, with the amendment of the symptoms, the urine should appear black, a diuretic, such as one ounce of nitre, may be given with the above drink, or even the more powerful stimulant, spirit of turpentine, in doses of one or two ounces.

If, after the bowels have been well opened, and the fever is somewhat abated, the discharge of blood still continues, and in as great a quantity as before, it will be right to have recourse to astringents, yet such as will not irritate and stimulate the kidneys; and even these should be administered cautiously. Constipation attended the early and most violent stage of the disease—some remission, at least in the fever and the pain, if not much diminution of discharge, attended the removal of the constipation; it must, therefore, be dangerous to confine the bowels again. The following prescription will be as efficacious as any:—

Recipe No. 23.

Take, oak bark, powdered, half an ounce; powdered catechu, two drachms. and opium, powdered, half a scruple; mix together in a pint of gruel or warm water.

This may be given morning and night, for a week, cautiously watching the state of the bowels, and suspending the astringent, and even having recourse to physic, if the bowels should again be confined.

The recovery of the animal is denoted by the restoration of the pulse and breathing to the natural standard, and the return of the appetite, together with the healthy appearance of the urine. It is essential, however, to exercise the greatest caution with regard to the food for some little time, bearing in mind that the digestive organs have been greatly impaired.

* [Red Water.—Charles, Waistell in the London Farmer's Journal, says: For a full grown cow dissolve two pounds Epsom salts in two or three pints of boiling water, and give it when new milk warm: then keep her six or eight hours without food. If then the salts should not have operated, give four or five quarts warm water, and drive her about gently; in a quarter of an hour it will operate; then give her as much warm water as she will drink, and turn her out to graze, if the weather be dry. "My brother, J. Waistell, of West Park, has used the above remedy for upwards of thirty years, and has not in all that time lost one beast by the red water. Before he commenced using it he almost invariably lost cattle annually by that disease. His cattle were less frequently afflicted than formerly, which he attributes to his having underdrained a great part of his farm, which was wet and boggy. The remedy was communicated to him by a relation, Mr. Kendall, a cow-keeper, who for many years kept many cows, and occupied part of Mary-le-bone Park, at London." S.J.]

Cows.—Cows should have warm water for a few days after calving, otherwise they are very liable to colds, inflammation of the udder, &c. It is a good method as practised by many, to prepare the first drink by putting a shovelful of hot coals into a pailful of cold water, and after a few minutes take off the swimming coals, and then give the water to the cow, which must have become sufficiently warmed, and it will have acquired an alkaline quality which is considered beneficial.—Boston Cultivator.

Manure for Melons.—The best is pigeon dung, and from the use of this, it is said the Persian fruit derives its superiority. Hen dung is probably next in value, and after this guano, which is the manure of sea fowls.

REMARKS ON TRANSPLANTING TREES

It is frequently the case, that a tree which has received all the care and attention which can be bestowed upon it by the most experienced nurseryman, is transplanted to a soil of very inferior character, and being thus stunted in its growth, is the frequent cause of dissatisfaction to the purchaser. The planter should therefore bear in mind, that it is impossible for the soil in which a tree is planted, to be too rich, and that the rapidity of its growth, and its subsequent productiveness, are very much influenced by the promotion of fertilizing matter contained in the soil.

For planting an orchard, the ground should be well cultivated before and after the trees are planted, and as highly manured as the means of the cultivator will admit. It is impossible for a tree to flourish, as it should, when the roots are surrounded and covered with a thick sod. When the tree is isolated, as in a garden or lawn, a rich compost of earth and manure should be dug in around the tree, care being taken that no pure manure be allowed to come immediately in contact with the roots. The ground about these, also, for the space of two or three feet, should be kept mellow until the tree is of large size, and it would also be well to dig in a portion of manure about the roots every Spring.

Many of the most experienced cultivators regard the Fall, immediately after the first hard frost has arrested the growth, as the best season for transplanting every variety of trees but evergreens, which should be planted during the last days of Spring, or the first of summer. Where, however, it is not convenient for the cultivator to give them attention in the Fall, deciduous trees may be deferred until Spring.

The reason of this preference for the Autumn is obvious; when trees are transplanted at that season, the earth becomes, during the winter, properly settled about the roots, and they are ready to throw out fibres in the spring. The Spring is preferred for evergreens, for the reason that their period of hibernation differs from that of deciduous trees, and experience has shown that they succeed best when thus planted. When a tree is removed, great care should be taken to preserve the roots uninjured and entire; if this precaution has not been observed, the tops should be lessened in proportion to the loss sustained by the roots.

When the tree has been some time out of the ground, it is well to immerse the bodies and roots in water for about twenty-four hours; this will much benefit the tree, and advance its vegetation. The holes for receiving them should be sufficiently large to admit the roots without crowding or bending—from three to six in diameter, and from one to two feet deep, according to the size of the trees. The subsoil should be entirely removed to fix

depth, and its place filled with rich mould, well combined with compost or manure fully fermented. All bruised or broken roots should be shortened and smoothly pared with a knife. Let a person hold the tree upright, while the operator pulverizes the earth, and scatters it among the roots. Let the tree be shaken gently while this is being done, and let the earth be carefully filled in around every root, even the smallest fibres; it is all important that the soil should come in contact with every other portion of the root.—When the hole is three quarters filled, pour in three or four gallons of water, and after it has settled away, fill up the hole, pressing the earth around the tree with the foot. Earth watered in this way will retain its humidity a long time, while water poured on the surface, after the hole is filled is very injurious, causing the top of the soil to bake to such a degree as to prevent the access of air and light, both of which are highly essential to the prosperity of the tree. One of the most universal and fatal errors in planting trees, is placing them too deep; we have known many fine and thrifty trees die from this cause alone; they should not be planted more than an inch deeper than what they stood in the nursery, and if the frost is likely to have them the first winter, a small mound can be heaped about the stem, to be removed again in the spring.

By attending the preceding suggestion, we feel assured that the cultivator will be amply repaid for any extra trouble or expense, by the consequent increased growth, beauty, or productiveness of the tree.

PARSONS & Co. N. Y.

COMFREY.

PRICKLY COMFREY.—[*Symphytum officinale*.]—If all is true that has of late been published respecting this plant, it promises to become a very important acquisition to our agricultural products, not only as food for cattle, but for man. It was first noticed as an agricultural plant in London's Gardener's Magazine, in 1830, by D. Grant, of Lewisham; where it was tried by a number of cultivators. Cattle of every kind are said to be fond of it; and Mr. Grant thinks an acre might be made to produce thirty tons of green fodder in one year. The plant is of easy propagation by seeds or roots; it is also of great durability, and if once established would probably continue to produce crops for many years; and in that point of view, it would seem to be a valuable point for the cottager who keeps a cow. In the spring of last year, there appeared in the Keene Sentinel a letter from the Rev. E. Rich, of Troy, New Hampshire, recommending the cultivation of comfrey for its foliage as fodder for stock, and for its roots as an article of diet for man. He observes, "it will probably yet prove one of the best and cheapest articles of

healthful diet now known; not outdone by the potatoe or Indian corn!" He then details some experiment in the preparation and use of the roots as food, by drying and grinding, then boiling as porridge, &c.; and says he found it very beneficial for colds and other diseases of the lungs and bowels. He advises mixing one-third of comfrey meal with wheat or Indian, for porridge, puddings, griddle-cakes, &c. Should the taste, at first, be in any degree unpleasant as is often the case with new things, any agreeable condiments can be added. The letter further states, that the roots are to be dug once in two years, and that they will yield at the rate of more than two thousand bushels per acre; (!) and the two cuttings of the tops in one season, gave at the rate of six tons of hay per acre.

In an article on this subject in the *Portsmouth Journal*, last November, the editor, after alluding to the letter of Mr. Rich, states that Mr. A. Robinson, of that town, planted a bed of comfrey in his garden last spring, half a rod square, the plants set in rows fifteen inches distant. They scarcely started till July, and the season was very dry; but on cutting the plants in September, the product, when dried, was 22½ pounds. He has no doubt but that next season, when the roots become well set, the bed will yield, at least, two cuttings of twenty-five pounds each; or at the rate of about 8 tons per acre. Mr. Robinson says his stock of all descriptions eat it freely; and he thinks this plant will prove a valuable acquisition to our agriculture.

Comfrey is called a native of Siberia, but may be regarded as indigenous to this country. It belongs to the order *Boraginæ*, which consists of plants not remarkable for useful or nutritious qualities.

The plants can be found in almost every neighbourhood, and it will be an easy matter to try experiments with it.—*New Genesee Farmer*.

German Method of Making Flowers Grow in the Winter.—We saw off such a branch of any shrub as will answer our purpose, and then lay it for an hour or two in a running stream, if we can find one. The object of this is to get the ice from the bark, and soften the buds. It is afterwards carried in our warm rooms, and fixed upright in a wooden box or tub containing water. Fresh burnt lime is then added to the water, and allowed to remain in it about twelve hours, when it is removed, and water added, with which a small quantity of vitriol is mixed to prevent its putrifying. In the course of some hours the blossoms begin to make their appearance, and afterwards the leaves. If more lime be added, the process is quickened, while if it be not used at all, the process is retarded, and the leaves appear before the blossoms.—*Western Far. and Gaz.*

MANURE COMPOST.

Manure is virtually the farmer's capital, the bank, if we may be indulged in the expression, upon which he can alone draw for these important and essential accommodations, without which his industry and economy in other matters will be of little or no avail. There is not a farmer almost anywhere whose resources in this particular are not amply abundant, and whose farm might not, in a short time, be brought to almost any degree of productiveness the owner could reasonably desire. Nature has provided, by a wise economy, that nothing which has once been inspired with the energizing, identifying principles of life, shall be worthless in the great work of perpetuating and nourishing its kind. But it is not simply to the animal and vegetable kingdoms, that the farmer is to look for the means of enriching his soil. The various mineral substances embedded in, and constituting to a certain extent, the surface of the soil upon which we tread, are endued with certain distinctive and emendatory properties which render them efficient assistants in the labour of improving and enriching our fields. Even the hard and compact substance of flint, is capable of yielding, upon decomposition, a principle essential to the growth and nutriment of plants; while the various mineral substances of our common fields and gardens, are capable, when combined in proper relative actions, either of weight or measure, of evolving principles not only highly beneficial to the health of plants, but indispensably necessary to their successful development and growth. In the formation of compost manure, one thing, however, is indispensable, and this is, that we attend strictly to the nature and constitutional character of the soil to which it is to be applied. If it be of a clayey or argillaceous texture, the basis of the compost intended for its amelioration, should consist principally of sand. But if, on the contrary, it be of a sandy or cillious character, the compost should be mostly of clay. Soils that are naturally humid, should have such alterants applied, and in such quantities, as will bring them to a proper consistency; while those that are arid and liable to injury from a too rapid descent or evaporation of water, must be modified by the application of such remedial agents, as will tend to confer unctuousity, and prevent the possibility of injury from such a cause.

The most tenacious clays, and the most barren sands, may, by the application of such materials as tend to modify their obvious defects, be made wonderfully productive.—*Maine Cultivator.*

"How seldom it happens," said one friend to another, "that we find editors who are bred to the business." "Very," replied the other, "and have you not remarked how seldom the business is bread to editors."

ON MINERAL AND INORGANIC MANURES.

By PROFESSOR CHARLES SPRENGEL.

Ashes of Soap-boilers.—Formerly all ashes of soap-boilers consisted of extracted wood-ashes and lime, the latter either caustic or combined with carbonic acid. They were, therefore, a superior manure, as they improved vegetation by the phosphate of lime, magnesia, and gypsum, as well as the lime admixed. Since, however, many soap-boilers used soda instead of wood-ashes or common salt, ashes are turned out which consist merely of caustic lime or its carbonate, which have, therefore, not so much value as mere burnt lime. Whoever, therefore, purchases ashes from soap-boilers has to attend to that.

If the ashes of soap-boilers consist of extracted wood-ashes and lime, they are amongst the best mineral manures, still a good marl is always preferable, as any one can see by comparing the chemical constituents of both.

How they act on the ingredients of the soil, does not require to be again referred to in detail. It is also superfluous to speak on the matter in which they nourish plants, as everything just said of extracted ashes applies equally to these. It is the general opinion, that the ashes of soap-boilers act especially by the potash contained in them; but this is a mistake, because, although I have several times subjected them to the chemical analysis, I have always found but small quantities of that substance. 100,000 parts of a sort of soap-boiler's ashes, which experience had proved to be a superior manure, consisted of

35,000	parts of silica.
35,010	" lime, mostly in a caustic state.
2,530	" manganese.
1,500	" alumina.
1,707	" oxide of iron.
1,840	" oxide of manganese.
0,500	" potash, combined with silica into a silicate.
0,180	" soda, ditto,
0,190	" sulphuric acid, combined with lime into gypsum.
3,500	" phosphoric acid combined with lime.
0,090	" common salt.
18,160	" carbonic acid, combined with lime and magnesia.
100,000	parts.

Of soap-boiler's ashes, 2000 to 3000 lbs. (in a dry state) are generally used on one acre of land. By 3000 lbs. the soil will obtain about 920 lbs. lime, 70 lbs. magnesia, 15 lbs. potash, 5 lbs. soda, 12 lbs. gypsum, 230 lbs. phosphate of lime, and 3 lbs. common salt, by which it is to be seen, that they owe their manuring properties mostly to caustic and the carbonate of lime, to magnesia and phosphate of lime; as their 15 lbs. potash, 12 lbs. gypsum, &c., may produce a very inconsiderable effect, the more so, as the

potash is also combined with the silica into a substance not soluble in water.

After manuring with soap-boiler's ashes, plants of the Clover tribe will grow best, but all other crops will be benefited; and the fresher they are, the more effective, as they then contain much of caustic lime, by which, especially, the carbonic humus, or the organic matter in the soil are affected, and changed into humic acid. Soils which contain very little lime, will be always best improved by them, and in this case they will be very useful, whether employed on fields or meadows. According to the amount used, this effect will last from six to nine years; which, however, will be only the case when the soil is not deficient in humus, and such other substances of which the ashes contain but a small quantity.

Soap-boiler's ashes are strewn (like wood-ashes) either over the crops already growing, for instance Clovers, Lucerne, Grasses, &c., or they are harrowed in with the seed of the winter or summer crops, and they act partly like extracted ashes, and partly like caustic lime; they can be also used to great advantage on new marshes.—*Eng. Ag. Gaz.*

Break your Horses to work without Blinders.—We have always thought the "blind-ers" or "eye-winkers" on our harnesses which we work our horses in, were not a useless appendage, but oftentimes injurious. We consider them useless, because we cannot think or see any good they do. We never heard but one reason for using them, and that was given by a stage driver, and that was the following: "That off thill horse, you see, is a lazy dog, and needs the string pretty often. His mate is more free—now if he could see me when I go to strike his mate, he would spring and take the whole load, and the off one would shirk out just the same." There is some reason in that, to be sure. We can't always have horses matched equally in teams, either as it regards temper or strength, and, of course, once in awhile, it may work well to hide a free horse's eyes from the evil that is descending in the form of an angry driver's lash; but, as an offset to this, the lazy horse will also see the blow coming, and probably will spring out of the way too, as well as the other, so that the power will be as equally applied by them both. We think that many horses are disposed to shy more, as it is called, when their eyes are partially covered with blinders than when not. Horses may be trained to work without them, and colts should, by all means, be taught to do it. We think horses appear much better without than with them, especially if they have a good eye naturally.—*Maine Farmer.*

Agriculture is the art of raising crops; husbandry, the art of preserving and expending them.

STRAWBERRIES.

Messrs. Editors.—The inquiry is made every day, Why can I not succeed in growing strawberries? A lady said to me a few days since, that she had tried for the last ten years to raise strawberries, and had never succeeded. She remarked, that every spring her plants blossomed very full and promised a fair crop; but they always deceived her. Thousands have had the same sad experience—have given up in despair, supposing the cultivation of strawberries to be involved in secrecy.

Now permit me, through the medium of your valuable paper, for the benefit of those who wish to cultivate this delicious fruit, to develop the secret. And I would say, that if there is a secret about the matter, there are three secrets.

The first consists in obtaining the right kind of plants: this is the great secret.

The second consists in putting them into the right kind of ground; and,

The third secret consists in transplanting and keeping them right.

Any person may grow as many strawberries as he pleases, by understanding the secrets above named, and by acting in accordance with that knowledge: and, without which, he may plant strawberry vines as long as he lives, and never obtain fruit,—indeed never ought to.

First, then, what are the right kind of plants? I shall answer this question by first telling what are not the right kind of plants.

Those plants that have stood several years without producing fruit, are not the right kind; those plants that have so far deteriorated as to be worthless, and have been rooted up and thrown away by your neighbours, are not the right kind, although you can get them for nothing. I know many who have tried such plants for several years; they cost them nothing, and they produce them nothing. The labour of cultivating, I suppose, must be put down to the account of nothing, and all amounts to nothing.

First, the right kind of plants are young plants, those of one year's growth only,—say those which have grown from the parent plant since the fruiting season, this year. It should be recollected, that the summer, and early in the autumn, are by far the best seasons for transplanting, for then there is no liability of mistaking the younger kind of plants.

As to the variety, there are several which are very fine: those I would recommend are, the Pine Apple, which are of good size and very productive, rather too soft for marketing,—the Hudson, well known in this country,—the Keene Seedling, a large and splendid fruit, but rather unproductive,—and Hovey's Seedling, which is very large, splendid, superb, very productive, of a rich deep colour, fine flavour, meat solid, and consequently well adapted for marketing, and is in all respects by far the best variety of strawberry within my knowledge. They sold for twenty-five cents per quart in Cincinnati market, this season, when the Hudson sold for six and a fourth cents.

Every lover and cultivator of strawberries should give this variety a place in his garden. Ladies in cities could cultivate them among their flowers. They make very fine borders—the foliage is neat, and remains green most of the year; the flowers are pretty, and the fruit is truly sublime.

Second, the right kind of ground. The strawberry will succeed upon most kinds of soil, but the secret consists in not having the ground too rich; when this is the case, the vines grow so luxuriantly that but little fruit is produced; they do best on poor ground. The soil should be kept light by being frequently stirred.

Third, in transplanting, care should be had in obtaining both sexes of plants, in the proportion of about one male to five females. The plants should be put into beds, say four feet wide, in rows six feet apart, (i. e. two rows in a bed, leaving a margin of one foot on each side of the bed,) and one foot apart in the rows: The best season for transplanting, as I have before said, is in July and August. Plants put out as above described at this season, will make a fine growth the same season,

and the next produce a good crop; whereas, if they are transplanted late in the season, they make but little growth, if any, and are quite liable to be winter killed.

I have now communicated all that is necessary to be known for the successful cultivation of this delicious species of fruit; but will just add, for the convenience of those who may be disposed to test the principles above stated, that genuine plants of the Hudson, the Keene, and Hovey's Seedling, can be obtained at the Botanic Garden, on Walnut Hill, near the Post-office, or of Mr. Huxley, Seedsman and Florist, next to the Dennison House, on Fifth-street, Cincinnati, and I presume from the gardens of most of the cultivators in the vicinity of the city.

Very respectfully, yours,

J. BROWN.

Botanic Garden, Walnut Hill, July 15.

—Cincinnati Enquirer and Message.

COMMON SCHOOLS.

Common school instruction is of incalculable worth and general interest to all the community. Unlike many other institutions, it seeks not the benefit of the few, but of all: and whatever is done to promote the advancement of this cause is designed for the good of all.—There should be, then, a more general interest felt throughout the community and throughout the State in behalf of common school instruction. When we consider the importance of our primary Schools—reflect upon their beneficial influence on the public interest, that they are not only useful but indispensable to the honour and prosperity of our country, and then consider the moral influence exerted by the general diffusion of useful knowledge, it seems as though too much could not be done to improve our common schools and awaken the community to a sense of their vital importance. It is a well known fact, that in proportion to the advancement of useful knowledge, crime becomes less common; our schools therefore, are, or should be, bulwarks of morality against ignorance, mental dissipation and crime. In view of the great influence which is constantly exerted on the minds and character of the rising generation—the children to whom we look as soon to take our places, is it not surprising that parents can manifest so much apathy as prevails in society, as to the character of the teachers whom they employ? Cannot something be done to make parents feel more their accountability in this respect? It is not enough that teachers be provided competent to instruct in the literary departments, although this is of great importance. The teacher's influence is ordinarily next to the parent's; we delegate to him our authority nearly half of the time; should we not feel an urgent solicitude that the character of the individual thus delegated should be such as we can approve? Yet how many are permitted to assume the charge of our schools who are in want of better and more profitable business for the time being, who know no more of the duties incumbent on their station than the children they instruct; and notwithstanding the station is one of great importance, our teachers are often hired from mercenary motives. This is wrong. There is something "worth living for besides the simple accumulation of property;" a single day or hour may dissipate all the possessions to which we cling with childish or miserly fondness, while nothing but the deprivation of reason can deprive our children of the rich treasures of mental acquisitions. Until parents feel a more general interest in this subject, it is to be feared all other means will be found insufficient. The teacher needs the co-operation of the parent; this, many seem to consider too great a burden, but the trouble would be slight indeed compared with the beneficial consequences. They seem to forget that their children are receiving impressions for weal or for woe, that are to last their life time; it is enough for them that their children are sent to school, if they do not learn, it is the teacher's

fault, not theirs. If parents would take the same interest in the school to which they send their children, that they usually manifest in their other business, our faithful teachers would be encouraged in their labors far more than we are apt to suppose, and the number of such teachers would be greatly increased, and the progress of our children would be twice as rapid as it now is. If parents could be made to feel how much the usefulness of our schools would be increased by manifesting a greater interest in them, it would do more than all would cheerfully contribute their influence for the promotion of this cause.—The Farmer.

STUDY ON THE FARM.

Messrs. Editors.—More exercises of the mind, in observing and reflecting upon the course of nature and the processes of cultivation, would be of vast benefit to most farmers and to their sons. Some few among them do pass over their grounds and along the roads with their eyes open. They notice the adaptation of different crops to the different soils; they observe the effects of the different processes of cultivation. Such farmers find work for the mind as well as the body; they thus keep themselves bright and contented. The tediousness of hard labour is lessened by the activity of the mind. Nor is the good result confined to themselves alone. Their sons and their labourers catch the same spirit of observation and reflection, and thus they become intelligent and more efficient labourers. The sons are more contented with home and the farm. Where the various crops in the field are made matters of study, they possess an interest and a value distinct from the amount of money they may bring in. They become one's teachers; they give him lessons to be treasured up, and to be used. And it is those only who seek to learn and to profit by those lessons, which are furnished by the growing corn and fruits of various kinds, who are intelligent and exemplary farmers. A few, by dint of unwearied toil from year to year, and by soul pinching parsimony, may get money, and this too, without observing any lessons, excepting a few brief ones, which were inculcated by others while they were young. But those who stick to the old way in every thing through thick and thin, and for no other reason than because it is the old way, are not good farmers; they are little more than brute labourers; who by dint of perseverance get some money, but get little else that is worth having. I am not ridiculing old ways, but only say they should be compared with new ones, before one can with any propriety maintain that they certainly must be the best.—That the old are, in very many cases, the best, is undoubtedly true—that new ways are sometimes better than old, is also as undoubtedly true. And it is only by comparison that we can satisfy ourselves fairly and properly, which path will lead us most directly to the desired object. The matters upon which farmers, and good farmers, differ, are so numerous that no one expect to settle them all for him-