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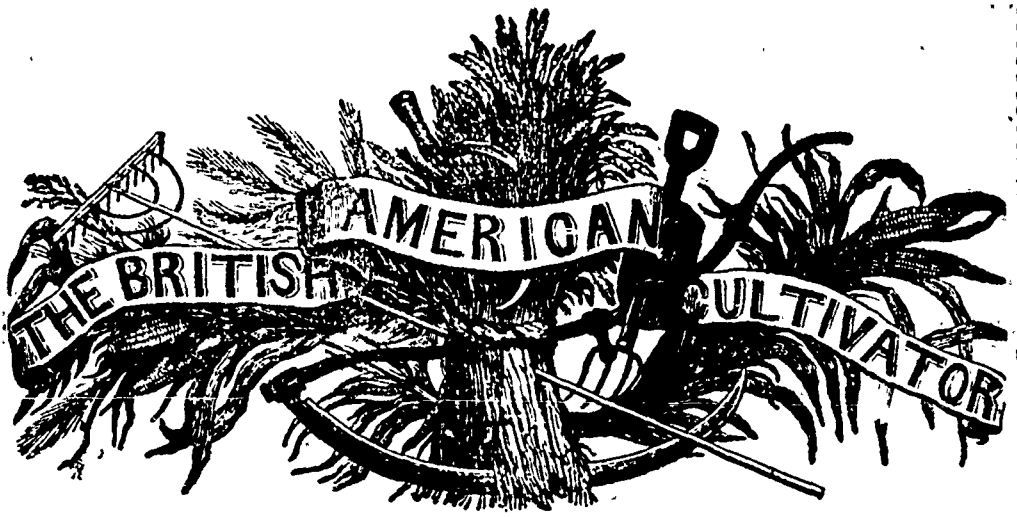


"Agriculture not only gives Riches to a Nation, but the only Riches she can call her own."

New Series. TORONTO, AUGUST, 1847. Vol. III. No. 8.

Management of Land for the Winter Wheat Crop.

Every cultivator of the soil should bear in mind, that a system of cultivation and farm management that would be adapted to a certain description of soils, might possibly prove the worst possible system on soils of a different quality; therefore, in giving directions relating to any branch of agricultural operations, it must not be supposed that will apply in all cases with equal force. Consequently, a writer on agriculture, to make himself distinctly understood and useful, must either confine his directions and observations under distinct heads, or else deal in vague technicalities and generalities, which, to say the least of such a style, is only calculated to disgust a zealous enquirer after agricultural knowledge. In treating upon so important a subject as the one we have chosen for our present leader, we are at a loss to know what course to pursue. If we were to devote that time and space to it as its importance justly merits, we should be under the necessity of appropriating nearly the entire number to the discussion and elucidation of this one subject alone. As such a course would doubtless prove unpopular to such of our readers as have no interest in the cultivation of winter wheat, we shall be obliged to be brief, and as practical in our remarks as possible.

In those portions of the province where the winter wheat crops have sustained much damage from the ravages of the Hessian fly, it would be well to delay sowing until as late a period as the first week of October. When wheat is sown as late as the period mentioned, it is liable to receive more or less damage from the operations of winter frost. To obviate this evil in some measure, a short period before the winter sets in, all the half-rotted barn-yard manure that can be collected, should be scattered broadcast over the young wheat plants; and by this means, the action of the frosts will not be felt so severely by the crop. Late sowing is only advisable in such cases where the Hessian fly abounds in great numbers,—and it is a system that we should object to under almost any other circumstances.

The propriety of making naked summer-fallows is daily becoming more questionable among the most experienced and scientific farmers, and very many of the most thriving cultivators in Canada have resolved upon managing their lands upon such sound principles of economy, that a large and profita-

ble return may be harvested each year, without detracting from its productiveness and value. There are comparatively few farmers whose capital and other circumstances would admit of such a system of management; and indeed there are few who sufficiently understand the principles which govern vegetation, and who are prepared to practice such an improved system as would be productive of full average crops of grain, grasses, and roots, without giving the land periodically what is generally termed a naked summer fallowing. In all cases where such a system can be practised with nearly a certainty of success, it would certainly be wise to do so; and if capital to be employed in agriculture, could be had, and a regular and full supply of good, and in every respect skilful farm laborers could be procured at reasonable wages, we should certainly advocate nearly a total abolition of the old, and in many respects useless, and certainly very expensive system of making naked summer fallows. The best, and probably the most easily managed preparative crops for winter wheat, are peas, and a clean clover sward. Where winter wheat is sown after peas, the land, by right, should have been liberally manured with barn-yard manure for the pea-crop; and where this has not been done, in most cases a light dressing of well fermented barn-yard manure might be ploughed in with the first furrow. If the subsoil be of a good strong clay, and the surface soil light and porous, the first furrow should be ploughed from seven to nine inches deep, or a sufficient amount of the subsoil should be brought to the surface, as to give a consistency or stiffness to the upper soil. The winter wheat plant delights in a stiff soil; and it would be well for those who have a light soil, to make an experiment in deep ploughing, with a view of ascertaining the actual benefit that would accrue to the wheat crop, by mixing the under with the upper soil. In nine cases out of ten, such a system would add from 30 to 40 per cent. to the average product. The deeper a good soil is ploughed the greater quantity of manure will the land bear, and the larger will be the yield. These are facts that should be understood by every practical cultivator; and the best and most efficient means of appreciating those truths, is to put the system to a practical test, either on a small or large scale, as may suit the convenience of the experimenter. When the experiment of deep ploughing has been fairly made by the farmers whose soils are adapted to such a system, the results, in our opinion, will prove so flattering, that the practice will become general among all to whose soil it would be applicable.

In ploughing the first furrow of a pea fallow, on most soils a deep furrow is not only requisite to secure a full average crop, but it is also necessary to lay up the land in narrow ridges. The width of the ridges will greatly depend upon the character of the subsoil. If it be porous, and not calculated to hold water, and retain it near the surface during the seasons when heavy falls of rain prevail, then the ridges may with much propriety be made from eight to ten yards wide; but if the subsoil be retentive, and not suited for natural drainage, then it is obvious, that from four to five yard ridges, with deep furrows, are requisite. As soon as the land is ploughed in the manner described, it should be carefully harrowed lengthwise, without defacing the shape of the ridges; and if the land be clean, the only after-preparation that will be required is, the ploughing of the seed furrow. Of the various methods of depositing winter wheat in the soil practised by our best cultivators, none have proved equal to the system of ribbing, which we believe has now been put to the trial in almost every township in Western Canada. The ribbing plough is simply a one-horse plough, with a narrow mould-board, constructed in such a manner, that a three by six inch furrow could, if required, be ploughed with it, with as much neatness as a six by nine inch furrow could be turned with an ordinary Scotch plough. The operation of ribbing, consists of ploughing the furrows from eight to ten inches wide, in

such a manner, that one furrow is not allowed to rest or lap upon another, or in other words, the process is very similar to that of forming drills for turnips, with the difference, that the former is only one-third as wide as the latter. As soon as the seed furrow or ribs are completed, the next process is to sow the seed broad-cast at the rate of about six pecks per acre. One good harrowing is sufficient to cover the seed, which should be done lengthwise of the furrows, as carefully and as straight as the land was previously ploughed. The harrows will draw the seed to the bottom of the drills, and the plants will come up as regularly as if the seed had been deposited with a drilling machine, and be much more beneficial to the crop than if the latter machine had been employed in the process. The advantages that this plan have over all others, are the complete security that is given the plants from injury from frosts, and the greater depth and regularity that the seed is deposited in the soil, than can be secured with the ordinary modes of ploughing the seed furrow. A careful ploughman may plough the seed-furrow in the manner described, very creditably, with a common wooden Scotch or English plough; and such farmers as have not tested this mode of seeding the land, would find it to their advantage to do so. Scores of the very best Canadian farmers practised the plan of ribbing in their autumn wheat last season, and the result has been, that in every instance where justice was done, the experiment, the average yield has been from ten to fifteen bushels to the acre more than where the seed was sown broadcast in the ordinary manner.

It frequently happens, owing to the scarcity of good labourers and the shortness of the season, that wheat-growers find great difficulty in getting their land in a proper state of cultivation for fall wheat; and in all cases where results of this kind occur, and the land appears foul and full of wild grasses and weeds, it would be much more profitable in the end, to give it one or two extra ploughings, and a dressing of manure, if the condition of the soil requires it, in the autumn, with a view of sowing spring wheat the following spring. The condition of the soil, after the harvesting of the crop, should be a matter of careful consideration with a judicious husbandman; and there is no question but that very much of the land that is annually sown with winter wheat, would produce a much larger yield, and the soil be much improved in condition, if more pains had been taken in its cultivation, and had been sown with a good variety of spring, instead of winter wheat, upon badly cultivated land. Every farmer must decide for himself, whether naked or bastard fallows are the best and the most profitable; but in our judgment, before any one should fully decide in favor of either of the modes, it would be well to give the pea, flax, and clover-ley crops a fair trial, as a substitute for the naked fallow. Many are of opinion that they can grow more wheat,—and for one-half the cost that it can be grown after a naked fallow,—by substituting a bastard fallow.

Whether naked or bastard fallows be made, or the former or latter is most to be admired, is, after all, not the question. The main point is to have the land well cultivated, which can be done best by deep and clean ploughings, and by frequently employing the grubbers and harrows for the purpose of destroying every species of root and other noxious weeds. When this is done, the next point is to form the land into narrow and neatly formed ridges, so that the plants may not be destroyed by being inundated with water during fall and spring.

It is also essential that a good variety of seed be selected, and that it be free from every impurity. Almost every variety of wheat has its admirers, and doubtless all are not equally valuable if sown upon the same quality of soil. We have tried the Improved White Flint Wheat for four years in succession, along with other varieties considered very superior, and it has invariably proved to be more productive and less subject to rust, the attacks of the Hessian and wheat fly, and smut, than the other varieties sown.

THE DAIRY.

(Continued from last Number.)

CREAM.

If milk be immediatly set away in shallow vessels, after being taken from the cow, the cream rises to the surface, and carries with it most of the butter contained in the milk, and along with it much of its casein. Hence the great nutritive properties of butter-milk, which retains the casein in very large proportion, much of it being rejected by the butter in its separation from the cream. A temperature below 34 deg., will prevent the cream from raising in any considerable quantity, and preserve the milk unaltered for some weeks. Coagulating the milk for any cause will, equally prevent the separation of the cream. The elevation of temperature within certain limits, hastens the separation. Thus, at 50 deg., the cream will mostly have risen in 36 hours; at 55 deg, in 24, at 68 deg., in 18 or 20 and at 77 deg., in 10 or 12 hours. Heating the milk near the boiling point, and then setting it away and allowing it to remain undisturbed, will soon cause the cream to rise. In the celebrated Orange dairy near Baltimore Md., this system was secured for butter, but in consequence of its rapid separation, the skimmed milk was sent to market apparently fresh; and the scalding imparted to it in an agreeable flavor and apparent richness, which it did not realy posess. The celebrated clouted cream of Devonshire, England, and the butter made from it, contained an usual quantity of casein, the consequence of heating the milk. It is prepared by straining the warm milk into large shallow pans into which a little water has previously been put, allowing these to stand from 6 to 12 hours, and then carefully heating them over a slow fire, or on a hot plate, till the milk approaches the boiling point. The milk, however, must not actually boil, nor must the skin of the cream be broken. The dishes are now removed into the dairy, and allowed to cool. In summer the cream should be churned on the following day, in winter it may stand over two days. The quantity of cream obtained is said to be one fourth greater by this method, and the milk which is left is proportionably poor."—*(Johnston.)*

BUTTER.

Sour Cream.—Cream for the purpose of churning is usually allowed to become sour. It ought to be at least one day old, but may with advantage be kept several days in cool weather; if it be previously well freed from milk and frequently stirred to keep it from crudling. Thus sour cream is put into the churn and worked in the usual way till the butter separates. This is collected into lumps, well beat and squeezed free from the milk, and in some dairies is washed with pure cold water as long as the water is rendered milky. In other localities the butter is not washed, but, after being well beat, is carefully freed from the remaining milk by repeated squeezings and drying with a clean cloth. Both methods, no doubt, have their advantages. In the same circumstances the washed butter may be more easily preserved in the fresh state, while the unwashed butter will probably possess a higher flavour.

Sweet cream may be put into the churn and the butter be obtained, but in most cases it requires more labor and longer time, without in the opinion of good judges, affording in general a finer qnanty of butter. In all cases the cream becomes sour during the agitation and before the butter begins distinctly to form.

Clouted Cream.—The churning of the clouted cream of this and other countries forms an exception to the general rule just stated, that more times is required in the churning of sweet creams. Clouted cream may be churned in the morning after it is made, that is, within 24 hours of the time when the milk was taken from the cow; and such cream it is well keown that the butter separates, with very great ease. But in this case the heating of the cream has already disposed the oily matter to cohere an incipient running together of the globules has probably taken place before the cream is removed from the milk, and hence the comparative ease with which the churn ng is effected. There is something peculiar in butter prepared in this way, as it is known in other countries by the name of Boheman butter. It is said to be very agreeable in flavour but it must contain more cheesy matter than the the butter from ordinary cream.

Churning the Whole Milk is a much more laborious method, from the difficulty of keeping in motion such large quantities of fluid It has the advantage, however, of giving a large quantity of butter. At Rennes, in Brittany, the milk of the previous evening is poured *into the churn* along with the warm morning's milk, and the mixture is allowed to stand for some hours, when the whole is churned. In this way it is said that a larger quantity of butter is obtained, and of a more delicate flavor. in the neighborhood of Glasgow, according to Mr. Ayton, the milk is allowed to stand six, twelve or twenty four hours in the dairy, till the whole is cooled, and the cream has risen to the surface. Two or three milkings, still sweet, and then poured, together with their cream, into a large vessel, and are left undisturbed till the whole has become quite sour, and is completely coagulated. The proper sourness is indicated by the formation of a stiff *brat* upon the surface *which has become uneven.* Great care must be taken to keep the brat and curd unbroken until the milk is about to be churned, for if any of the whey be separated the air gains admission to it and to the curd, and fermentation is induced. By this fermentation the quality of the butter may or may not be effected, but that of the butter-milk is almost sure to be injured. In Holland the practice is a little different. The cream is not allowed to raise to the surface at all, but the milk is stirred two or three times a day, till it gets sour, and so thick that a wooden spoon will stand in it. It is then put into a churn, and

ing or the separation of the butter is assisted by the addition of a quantity of cold water. By churning the sour milk in one or other of these ways, the butter is said to be sound, and well-flavored.' If it be greater in quantity it is according to Sprengel, because the fatty matter carries with it from the milk a larger quantity of casein than it does in most cases from the cream alone.

Sourness of Cream.—For the production of the best butter it is necessary that the cream should be sufficiently sour before it is put into the churn. Butter made from sweet cream (not clouted,) is neither good in quality nor large in quantity, and longer time is required in churning. It is an unprofitable method.

Quickness in Churning.—The more quickly milk or cream is churned, the paler, the softer, and the less rich the butter. Cream, according to Mr. Ayton, may be safely churned in an hour and a half, while milk ought to obtain from two to three hours. The churning ought always to be regular, slower in warm weather that the butter may not be soft and white, and quicker in winter that the proper temperature may be be kept up. A barrel-churn, lately introduced into this country, being placed in a trough of water of the proper temperature, readily imparts the degree of heat required by the milk or cream without the necessity of adding warm water to the milk, *and churns the whole in ten or twelve minutes.* It is said also to give a larger weight of butter from the same quantity of milk. If the quantity be really as good by this quick churning, the alleged inferiority in the quality of butter churned quickly in the common churn can not be due to the mere rapidity of churning alone.

Over Churning.—When the process of churning is continued after the full separation of butter, it loses its fine yellowish, waxy appearance, and becomes soft and light colored. The weight of the butter, however, is considerably increased, and hence in Lancashire over-churning is frequently practised in the manufacture of fresh butter for immediate sale.

Temperature of the Milk or Cream.—Much also depends upon the temperature of the milk or cream when the churning is commenced. Cream when put into the churn should never be warmer than 55 deg. Farenheit. It rises during the churning from 4 deg. to 10 deg. F. above its original temperature. When the whole milk is churned, the temperature should be raised to 65 deg. F, which is best done by pouring in hot water into the churn *while the milk is kept in motion.* In winter, either of these temperatures may be easily attained. In cold weather it is often necessary to add hot water to the cream to raise it even to 55 deg. But in summer, and especially in hot weather, it is difficult, even in cool and well ordered dairies, (without the use of ice,) to keep the cream down to this comparatively low temperature. Hence if the cream be then churned, a second rate butter, at best, is all that can be obtained.

The alleged advantages of churning the entire milk may be thus stated. The proper temperature can be readily obtained both in winter and summer. A hundred gallons of entire milk will give in summer five per cent. more butter than the cream from the same quantity of milk will give. Butter of the best quality can be obtained without difficulty both in winter and summer.—No special attention to circumstances or change of method is at any time required. The churning in winter and summer is alike simple and easy. The butter is not only of the best quality while fresh, but is also best for long keeping, when properly cured or salted.

Cleanliness is peculiarly necessary to the manufacture of good butter. Cream is remarkable for the rapidity with which it absorbs and becomes tainted by any unpleasant odors. It is very necessary that the air of the dairy should be sweet, that it should be often renewed, and that it should be open in no direction from which bad odors can come." (*Johnston and other authorities.*)

The statement of J. T. Tansing, who received the first premium for butter from the New York State Agricultural Society, is as follows:

1. The number of cows kept is ten.

2. Keep them stabled through the inclement season; feed them from three to four times per day with good hay or green stalks; when near coming in, add some oats, barley, or corn cracked. In summer, good pasture, with living water accessible at all times, add plenty of salt.

3. *Treatment of milk and cream before churning;* Strain the milk in tin pans, place them in a cool cellar for the cream to rise. When sufficiently risen, separate the cream from the milk; put in stone jars, well prepared before churning.

The mode of churning in summer; Rinse the churn with cold water, then turn in the cream, and add to each jar of cream put in the churn, full one fourth of the same quantity of cold water. The churn used is a patent one, moved by hand with a crank, having paddles attached, and so constructed as to warm the milk, if too cold, with hot water, without mixing them together.—The milk and cream receive the same treatment in winter as in summer; and in churning, use hot instead of cold water if necessary.

5. The method of freeing the butter from the milk, is to wash the butter with cold water till it shows no color of the milk, by the use of a ladle.

6. *Salting the Butter.*—Use the best kind of Liverpool sack salt; the quantity varies according to the state in which the butter is taken from the churn; if soft, more, if hard, less, always taking the taste for the surest guide.

Add no saltpetre, nor other substances.

7. The best time for churning is the morning, in hot weather, and to keep the butter cool till put down.

8. The best mode of preserving butter in and through the summer and winter, is as follows:

The vessel is a stone jar, clean and sweet. The mode of putting it down is to put in a

churning of butter, and put on a stong brine, let it remain on until the next churning is ready to put down, and so on till the jar is filled: then cover it over with fine salt, the same to remain on till used.

Mr McWilliams of Orange county, the celebrity of whose butter is unsurpassed, thus details his method of butter-making:

"Our practice is not to churn the milk until it becomes thick or loppered, the milk and cream is then churned together. The temperature of the milk is about 50 deg. In warm weather about a quart of cold water is put in each pan before the milk is strained, so as to keep it sweet as long as possible. The cellar floor is brick. This, in warm weather, is duly cleansed with cold water. A drain from the cellar carries off the water thus applied. The churn is filled about half full with milk, with the addition of two pails of cold water before starting the churn. In cold weather the same quantity of warm water is applied. When the churning is finished, which usually occupies about two hours of time, there are then two more pails of cold water applied to raise the butter and cool it. The butter is then taken out of the churn and put in a large tray, this is immediately filled with cold water and the butter carefully washed; under which the water is thrown off. The butter now undergoes the process of salting, it is then placed in a cool situation where it stands about an hour, and worked carefully over. This finished, it is placed in the same situation as before, where it stands three or four hours, and is again worked over; again replaced for five or six hours, when it is worked over for the third time. It is now replaced, where it stands till the next morning and worked over for the fourth time. A small quantity of nitre is then put in the butter. Thus finished it is placed in a firkin holding about 85 lbs. Previous to packing, the firkin is scalded with hot water, rinsed and cooled with cold water, then rubbed all round with fine salt; this prevents the butter from adhering to the sides of the firkin. When the firkin is full, a linen cloth is placed over the top of the butter, on this cloth a covering of salt is put on one inch deep, and cold water enough added to it to form a brine. It then stands till it is to be sent to market when the cloth and salt are removed, the firkin turned down, the top of the butter in the keg washed with cold water the pickle drained off. The firkin is now neatly headed up and sent to market."

The salt added to the butter should be from 1-24th to 1 28th of its weight, or about 2-3ds of an ounce to a pound, and this must be of the best quality. All the butter-milk must be thoroughly extracted by repeated washings; and when completed the butter should be immediately packed and not a particle of air allowed to come in contact with it till opened for the table.

Distemper in Horses—Give a teaspoonful, three times a day, of finely powdered Gum Myrrh; and a speedy cure will be effected.—*Am Ag.*

The Crops.

The harvest is now nearly ended, and although the winter wheat crops have proved a partial failure in some sections of the province, still the average yield throughout the entire Western Division, is probably as great as has been the case for many years. Our Agent in the Gore District has written a very favorable account of the crops, and in one instance that come under his notice: a farmer thrashed twenty acres of wheat which yielded the large average of 50 bushels of marketable wheat per acre. From 40 to 50 bushels of both fall and spring wheat per acre, will frequently be the average on the best cultivated farms in Western Canada the present season. There are many Townships, the average yield of which will equal 25 bushels per acre, and it would be quite safe to average the entire wheat crop of Canada West at 18 bushels per acre. Where the Hessian Fly has committed its ravages, the average will not exceed twelve bushels per acre. Contrary to the expectations of every one, those crops that were badly winter killed, and damaged with the grub of the Hessian fly, have filled well, and the samples are bold and superior in every respect to the samples of former years. The crops west of Toronto, last year, received much injury from rust, and indeed there were many fields owing to this cause that were not harvested. The present year, the entire western portion of the province can boast of a fair average, and in many Townships where the average last year would fall short of 12 bushels, it will this year equal at least 25 bushels per acre. When this fact is taken into account, in connection with the great breadth of land that was sown with this crop, it may be pretty fairly inferred, that West Canada will have as large a quantity of wheat to export as was exported last year. The other crops, generally speaking, have come in well, and although in some sections of the province, oats, barley, and spring wheat have proved short owing to the drouth, still where the land has been well cultivated, and a liberal quantity of manure administered to the soil, the yield has proved unprecedently large, and these crops as a whole may be considered fully as productive as what has been the case in former years. The potato crop, at the present time gives evidence of a partial failure in most parts of the province. Whether the disease is caused by the work of an insect—a fungus—or atmospheric influences, is yet a

matter of difficulty to determine—at all events, it appears deeply rooted, and there is every probability that it will be nearly as prevalent this season as the past. There are many whose crops of potatoes look exceedingly well at present, who will, if we do not miscalculate, be grossly deceived when they come to harvest them. The next six weeks will determine whether these views are correct or not, and we would advise all whose potato tops appear *blighted*, or in any way diseased, to keep a sharp look out, and if possible ascertain the cause of the disease. There can be no two opinions about the disease being first communicated to the tops—and in our judgment, the proper course to pursue, to ward off the disease, is to pull up the tops as soon as they become seriously damaged, and thus cut off all communication between the tubers and the source from which the disease would emanate. The time for doing this must be regulated a good deal by circumstances, but so long as the tops appear healthy, it is obvious that there need be but little danger apprehended from any disease that may be communicated from the tops, and when the tops become very much damaged by insects or other causes, it is also obvious that the sooner they are pulled or cut off with a sharp sickle or scythe the better. By leaving the tubers in the ground until the proper period for digging, the outer skin will firmly adhere to them, and they will keep as readily as if the tops had not been pulled.

The following from the *Prairie Farmer* will serve to show the character of the harvest in the Western States:—

"Many of the farmers in this vicinity have commenced harvesting their wheat, and the crops exceed all former calculation. Many of the farmers with whom we have conversed, estimated their yield of winter wheat to average about 40 bushels per acre."

Of the States of Iowa, Missouri, Illinois, Indiana and Michigan, we have no occasion to change materially the opinion expressed last month. The winter wheat, though of different stages of forwardness in the same fields, owing to winter-killing, is described as remarkably fine in growth and quality. The heads are very long, and the berry plump.

There will not in all probability be more than a third of the usual crop of winter wheat in the States of Illinois and Indiana; but in the north of Illinois this deficiency will, so far as we can judge, be made up of spring wheat. In Middle and Southern Illinois the deficiency will be remedied by corn and other crops.

Accounts of crops in Ohio and Pennsylvania lead to the conclusion that there will, on the whole, be near an average of wheat, and of other crops the prospects were never better.

The Southern and middle States give very encouraging accounts, as do also the Eastern.

Looking over the whole ground, we are inclined to modify our former opinions somewhat; and we now incline to the belief that taking the whole Union together, there will be a crop of wheat fully equal to that of 1846.

In forming this opinion, it is not forgotten that the area sown is greater than ever before. It is also the case that in years of partial failure like this, the yield is always better than the estimate, while, when there is general expectation of a full crop, the yield is always below it.

Of crops other than wheat, the promise was never better for abundance.

The season throughout has been favorable to grass, and potatoes, and for a month back corn could have nothing to ask."

The Endless Chain Pump—I would recommend as an easy, cheap, and durable implement for drawing water, especially when the well is not over 12 or 15 feet deep, it draws very easy, but when the well is some 25 or 30 feet deep, it would draw some harder, they do not freeze up in the coldest of weather, and while drawing they keep the water in motion in the well, so as to keep it clear and good. all we have to do, is turn a crank, similar to a grinding stone and if delivers the water very fast and easy. If any of your subscribers wish to build one, and are not familiar with the construction of them, I would describe it to them, so that any mechanic could make one, as it is not a "patent right." I have one in my well, of my own construction, which works admirably, they are very handy for drawing water for horses and cattle, and are not liable to get out of order. —*Am. Ag.*

To Prevent Flies Teasing Horses.—Every merciful man who works a horse during the hot months, can promote its comfort by the use of the following simple, shield against the teasing of flies. Take two or three handsful of walnut leaves, upon which pour two or three quarts of cold water; let it infuse one night, and pour the whole, next morning, into a kettle, and boil for a quarter of an hour; when it is fit for use. Moisten a sponge with it, and before the horse goes out of the stable, let these parts which are most irritable be smeared over with the liquor. Try it.—*Am Ag.*

The Wire-Worm.

It is a very old remark, that the labours of the farmer, and the dangers which he has to encounter are never entirely terminated—for when he has secured a good plant of any crop, and fertilised the soil, still storms or disease may attack it, and insects destroy it. Thus, even at the very season we are making observations, one great pest, the wire-worm, is hard at work in all parts of England, hardly a soil, or any kind of crop, being entirely exempt from its fearful ravages. Recent researches have afforded considerable information as to the production and habits of this worm. Let us when examining the fruits of a few of these scientific labours, endeavour to derive om them some useful information, serviceable to the practical farmer, and if in conclusion, we find it impossible to destroy these insects by any extensively available means, let us next inquire if, by any mode of improving cultivation, we can retard or prevent their production in the soil. The subject has lately engaged the attention of Mr. J. Curtis, the eminent entomologist, and we are sure our readers will agree with him in his conclusion, (Jour. R. A. S., v. 5, p. 181), when he describes these powerful and widely dispersed insects as being the most fatal in their effects, and the most difficult to overcome, of all the insect enemies with which the farmer has to contend.—"The larvæ of many insects," he remarks, "are not unfrequently attached to one species of plants, or at least to one particular tribe or natural order. thus, the ravages of the fly are confined to the cruciferæ of the black caterpiller to the turnip, the Hessian fly to corn, &c., but in the wire-worm, we have an example of a larvæ which may almost be termed omnivorous, as far as regards the productions of the field and garden, for it will feed upon corn, turnips, mangold wurtzel, potatoes, grass and cabbages, as well as upon the roots and stems of the choicest flowers, as depredations therefore being so extensive, the mischief done by these formidable little animals must be incalculable." In the natural course of inquiry, let us first direct our attention to the origin or parents of these worms, which are produced, observes Mr. Curtis, from several species of beetles, called elaters. "These beetles have been called elaters, from a peculiar power they have of leaping up like a tumbler when placed on their back, and for this reason they have received the English appellation of spring beetles, or skippacks, from the noise the apparatus makes when they leap and they are also called snap or click-beetles, and likewise blacksmiths. After pairing, the female beetle lays her eggs, the eggs produce little larvæ called wire-worms, which grow, and change to pupæ or chrysalides, and from these again emerge the beetles. The little worms produced from these eggs must be almost invisible to the naked eye; they grow slowly, and eventually attain the length of about three-quarters of an inch; these are the true wire-worms, so named from their cylindrical form, smooth surface, and extreme toughness." In the state of wire-worms, it appears they live about five years, during which period they three times cast off their skins. When the wire-worm, according to the same authority, has arrived at maturity, it descends a considerable distance into the earth, forms an oval cell there, entirely composed of the surrounded particles of soil, and this is not lined with silk, as in the case of the turnip-saw fly; it then casts its skin again, and becomes pupæ, or chrysalis, generally, it seems, at the end of July or beginning of August. Of course, at this period the animal is at rest, being deprived of locomotion, and is, consequently, no longer injurious to the farmer. Bierkander says, "that in the month of July his wire-worm became pupæ, from which the elaters emerged in their perfect state about the 10th of August." It has also been elsewhere recorded, that they remain in their pupæ from two or three weeks, but many, no doubt, pass the winter buried and protected from casualties and the rigour of that inclement season, when, however, the appointed time comes, they burst from their shrouds and earthly tombs, and rising through the soil, arrive at the surface, changing to perfect beetles, of a whitish colour, soft, and extremely tender. exposed to the air and light, their bodies harden and their colour gradually changes, so that in a few hours they have attained their horny coat.

Such, then is the course run by the wire-worm. Let us next enquire of the crops in which it is found, and the plans which have been adopted for its destruction. It regularly attacks the oat, the barley, and the wheat, the turnips, the rye, and occasionally the potato, the cabbage, the hop and the beet-root. It delights in particular wild flowers, such as in those of the nettle, hemlock, and fool's parsley, of cultivated plants, the white clover, pink, and the carnation have been remarked as subject to its attacks. It feeds chiefly du-

ring the night. "Their most destructive operations (remarks M. Le Keux) are carried on beneath the surface of the earth, where they attack the root; in the very early state of the plant, after eating this through, the upper part of the plant is drawn down into the earth and devoured; so that the plants disappear without any perceptible cause, and without any trace of them being left. In the more advanced state of the plant their devastations appear to be confined to eating through the roots, and having thus killed one plant they proceed to another. If a turnip plant appear drooping, as if from the want of water, whilst those in its neighborhood are fresh and erect, a wire-worm (sometimes half-a-dozen) will be sure to be found at the root, if the earth around it be very carefully examined."

Of the practical mechanical means of preventing or retarding their ravages, there appears to be only one which has been commonly attended with any reasonable degree of success, viz., rolling the land with heavy rollers, or compressing it to an equal degree by the treading of sheep or other live stock; and that it is the thus increased closeness of the soil that checks their progress is shown, in some degree, by the fact, that the heavy and the rich soils have been less subject to the ravages of the wire-worm than the light, gravelly, open soils. They hence most probably require a certain supply of warmth and openness of soil to work in, for it is noted that on many lands they do not commit such ravages in wet as in warm dry seasons. Their attacks are the most material during the months of April, May, and June.

The wire-worm is so remarkably tenacious of life that hardly any practical chemical application is available that appears to have any sensible effect. To all the insect tribe, however, turpentine, ammonia, and common salt are very noxious, and the wire-worm is not an exception to the rule. Bierkander, a learned Swede, has made several valuable experiments on the subject; he put many of these worms into tea-cups filled with the following substances (Farmers' Almanac, v. 2, p. 19):—

	Days.	*Hrs.*	*Min.*
Garlic, amongst which they live,	9	0	0
The leaves of the spruce fir,.....	0	14	0
The leaves of the fir,.....	0	10	0
Ledum palustre (an Irish plant,)	0	9	0
Myrica gale or Dutch Myrtle,...	0	2	0
In water,.....	4	0	0
In alcohol,.....	0	0	5
In spirits of turpentine,.....	0	0	0

Of all the applications which have been recommended for the destruction of wire-worm, or to drive them from the young plants, a mixture of soot and salt seems to be the most available; this mixture is not only pernicious to them owing to the presence of common salt, but from the ammonia of the soot contains about 42 per cent of ammonical salts) (ibid, v. 3, p. 97). Salt and soot form also a powerful fertiliser, both when used as a top dressing in the spring, or when ploughed in. the salt may be used at the rate of, say not exceeding 12 bushels per acre, and mixed with the same measure of soot; but I think it most probable, that a much smaller proportion would operate very beneficially. Six bushels of salt and six of soot, per acre, from a powerful dressing for carrots and wheat (Essay on salt, pp. 45. 145). The evidence of Mr. Curtis (Jour. R. A. S., v. p. 205) is to the effect, that a mixture of lime and soot is also useful in this way. He observes, "It is positively affirmed that if lime and soot be applied to the soil before sowing any grain, it will kill the wire-worms. Salt, likewise, on light sandy soils, is highly efficacious in destroying them, of its effects upon these animals, it is in the power of every one to convince himself, and also of the strength required for their destruction, by dissolving a tea spoonful or more of salt, in a tea-cupful of water, with some wire-worms in another cup half full of pure water, when. by adding the salt water by degrees, the exact effect produced upon the life of the animals will be ascertained." The question (perhaps the most important portion of the inquiry) has never perhaps been very carefully examined, as to the effect produced, in the prevention or destruction of the wire-worm by a more lengthened rotation—that is by the more frequent introduction into a course of those crops upon which the worm cannot subsist. Of this class are the bean and the pea crops, and on "many soils" the potato is equally secure. It has been also found by the farmers of Lincolnshire that a broken up pasture sown with woad, is quite free from the wire-worm during the following crop of wheat; a crop of white mustard, appears to operate in a similar way. Mr. Tallent remarks (Journ. R. A. S., v. 5. p. 202)—"This fact I have demonstrated perfectly to my own conviction. I first tried the experiment on half an acre of a fallow field of 50 acres, which was much subject to the wire-worm. The whole field was fallowed and sown with wheat; the

half acre which was previously cropped with mustard was wholly exempt from the wire-worm the remainder of the field was much injured. Encouraged by these results, I sowed the next year a whole field of 42 acres, which had never repaid me for 19 years, in consequence of nearly every crop being destroyed by the wire-worm I am warranted in stating that not a single wire-worm could be found the following year. I am therefore, (he concludes) under a strong persuasion that the wire-worm may be successfully repelled and eradicated by carefully destroying all weeds and roots, and drilling white mustard seed, and keeping the ground clean by hoeing.

There are one or two popular opinions with regard to the prevalence of the wire-worm, and such general conclusions it is always well to examine. The German farmers, it seems believe that *mowing* corn, instead of *reaping* it, prevents the after visitation of these vermin. [Can the length of the reaped stubble produce any effect by preventing, as Mr. Curtis suggests, the approach of the birds which devour the wire-worm?] Those of Lincolnshire, perhaps correctly enough, believe that they increase with the extension of good, for they cannot exist in any soil saturated with water. This seems the opinion of Mr. Wingate, of Hareby, who remarks, (Jour. R. A. S., v. 2, p. 403), "I always find the corn much better, and much less infected with the wire worm, in the clay dykes, where the land has been turned over perhaps from three to four feet. We attempt very heavy rolling—tread the wheat land with men or women in the spring, but if we have cold weather, all we can do appears of little avail. There is a good deal of silt, or clay of a slaty nature, lying under the peat in many parts of the fen land, and the wire-worm appears to be there much more destructive if the lands are not very well manured, so that the plants, especially the spring crops, may grow right away without a check." We feel that we could hardly at this period of the year draw the farmer's attention to a more valuable inquiry than this. It may be true that the visitation of such a plague can hardly be expected to be entirely stayed; but we feel after a lengthened examination of the question, fully convinced that its extent may be easily reduced, and the severity of the attack very materially diminished, by the adoption of the precautions and remedies to which we have alluded.—*Bell's Weekly Messenger.*

Agricultural Education.

Among the various methods of improving the condition of Agriculture, suggested by the most enlightened modern agricultural writers, probably none is destined to perform so conspicuous and important a part as that denominated agricultural education. The public mind has only recently been strongly turned in favour of this movement, and there are now in many portions of this Province, in the United States, and in various parts of Europe, gentlemen to be found possessing the very highest order of intellect, who are strongly impressed with the necessity of establishing a higher grade of Educational Institutions than are generally to be met with, for the education of farmers' sons, or those young men who have a desire to become thoroughly acquainted with the science as well as the practice of agriculture. So far as the masses of mankind are concerned, the only opportunity that will be presented to them, for the education of their children, is the common school. These Institutions under efficient management, and with a liberal support from those to whom they are intended to benefit, will exert a powerful influence on the future destinies of the country. To make them effectual in bringing about the good so much to be desired in a country so exclusively agricultural as this, it will be necessary that the teachers should be thoroughly taught the principal rudiments of agricultural education. We are credibly informed that the Normal School which will shortly go into operation in this city, will combine with it an Agricultural Department, for the purposes above alluded to, and if this excellent arrangement should be carried out in practice, under the control of a practical and scientific farmer, it will ultimately have a very salutary influence in elevating the character of common school education in this colony.

As important as are the interests of common schools, and that of combining with those institutions, branches of studies, that from their nature would have a peculiar tendency in inspiring the agricultural youth of our land, with a taste and proper reverence for agricultural pursuits; still a higher order of agricultural instruction is quite as necessary to finish the education of a gentleman farmer, if we may be permitted to use the term—as Colleges and Universities are required to finish the education of young men, who aspire to the practice of the learned professions, Commerce,

Engineering, or any other of the higher branches of learning. The period has at last arrived in the history of Canada, when the agriculturists as a body, feel, and that too most keenly, that they have been neglected by those who ruled the destinies of this colony in former years They find, that little or no interest was taken in the education of the rising generation in the rural districts; and they find that as a body, they are unrepresented in the government of their country, and all who reflect upon the subject, also find that this state of things must continue to exist to a considerable extent, so long as the education of their sons is confined, as has been heretofore the case within the walls of common schools. We have at the present period a very large and respectable class of farmers in Western Canada, who are independent in their circumstances, and who are impressed with the necessity of liberally educating their sons and daughters, so that they may when they grow up, in point of education and refinement, be entitled to rank with the first families in our land. The farmer is the most useful, the most independent, and certainly should be the most liberally educated man in our country. All other interests are dependant on him, and it appears strange that so large and respectable a class, and one that performs such an important office in sustaining all the other interests, should feel satisfied in being looked upon,—even by themselves, as too ignorant a class, to share in the management of the Government of their country. The annual revenue of Canada, will this year exceed a half a million of pounds, currency, and four-fifths of this very large sum is positively paid either directly or indirectly by the rural population. Yes, the farmers are the class and the only class that are capable of sustaining the human family, and also in maintaining our commercial and national credit. As trifling as our exports may appear, still without them, we would become a nation of commercial bankrupts in less than twelve months. And what would signify the amount of revenue that would accrue to Government, if it were not for the large amount of foreign goods that are annually consumed by the agricultural classes? The amount collected from other classes, if they had not farmers to sustain them, would be comparatively insignificant, and would not be sufficient to maintain the national credit of the province a single month. Then the farmers above all other men should be educated, and as the routine of their operations on a farm are practical, and require a large amount of skill, and likewise science, to ward off the evils that so frequently prove disastrous to the crops, so the education which is imparted to the youth of our land, who aspire to this honorable profession, should be both practical and scientific, and especially of that character, that would in an eminent degree qualify them to perform the very important and responsible duties that they may be required to execute as farmers, and statesmen. Many of our agricultural youth, evince a very high order of intellect, and to completely develop the capacity of the mind of the young men of our rural districts, who are ambitious to become acquainted with all the practical sciences that would be of service to them in life, agricultural colleges in connection with experimental farms should be established in the colony. A Provincial Institution of this kind is first required, and when the country gets farther advanced, one such Institution in each district may ultimately be sustained.

We propose to publish a series of articles on the foregoing important subject, in the future numbers of our Journal.

MEMBERS OF THE PROVINCIAL AGRICULTURAL ASSOCIATION OF UPPER CANADA —The subscription to the above Association is only Five Shillings; and for the very trifling sum of *Two Pounds Ten Shillings*, any person may become a LIFE MEMBER As the Association has not succeeded in getting even a small grant of money from Government—and in fact is entirely dependant upon the patronage of the friends of the cause of Agricultural Improvement; we have been instructed to employ the most efficient means in our power, of bringing the claims of the Association in the strongest and most efficient manner, before the notice of all who would be likely to afford it any pecuniary assistance, we therefore thought it advisable to instruct the general agents of the *Cultivator* to procure for the Association, both ANNUAL and LIFE MEMBERS in their respective localities. Mr. Harris, our agent for the Gore and Wellington Districts, will canvass the City of Hamilton and surrounding country for members, and we trust, that the enterprising farmers and friends of the cause, will give him a hearty welcome in the very arduous duties in which he is engaged. Our other agents of course, will do the utmost in their power in their several localities.

Study the Soil.

There are many substances in all good soils which every farmer ought to study till he fully understands their nature and properties. First among these is the abundant mineral called *silica*, or pure flint sand. This earth has many interesting and important properties. It is usually from ten to fifteen times more abundant in all soils than any other mineral. After the organized matter is removed from a soil by burning it at a red heat, it is not uncommon to find nine-tenths of the earth that remains, nothing put pure silica; the other tenth alumina, iron, lime, magnesia, soda, potash, manganese, and carbonic, sulphuric, phosphoric acids. Pure siliceous sand is also an *acid*, having fifty-two parts of oxygen united to forty-eight of a metalic base called *silicum* or *silicon*. When ground down to an impalpable powder, (as some of it is in all soils,) silica is sparingly soluble in water. If the water be warm like a summer shower, and especially if it contain a little potash or soda, or both in solution, silica dissolves easier and more abundantly. The quantity of dissolved flint that finds its way through the roots of wheat, corn, timothy, and other plants, into their stems, is much larger than most grain and grass-growers are aware of. Wheat straw, usually contains about sixty-seven per cent. of this mineral in its ash.* The most interesting practical question in regard to silica flint sand is the fact that the alkalies potash or soda seem to be indispensable to convert it into an available food for the growth of plants.—These alkalies exist more or less in the ashes or earthy portions of all plants. Being extremely soluble in sandy, pervious soils, they are apt to be leached out by tillage, and the land is rendered sterile, unless often laid down to grass, and renovated by the application of *wood-ashes, salt*, gypsum, and lime, and their equivalents in stable manure.

Alumina is the next most abundant mineral usually found in all soils. Unlike silica, it has alkaline properties. Like potash, soda, lime, and magnesia, it is the *oxide* of a metal, i. e. a metal combined chemically with oxygen. The metal is called *aluminum*, of which there is about fifty-three parts to forty-seven oxygen in pure alumini. The earth combines chemically with the acid silica and forms the pure porcelain clay, from which translucent china-ware is manufactured Alum is a compound salt formed by the union of sulphuric acid (oil of vitriol) with alumina and potash. Alumina does not enter plants, and form a necessary constituent in their organization. Only traces of it have been found in their ashes It exercises an important office, however, in all fertile soils by increasing their capacity to absorb and retain moisture and nutritive gasses about the roots of vegetables. A soil that contained no alumina would be radically defective. It gives adhesiveness and plasticity to all clays Without it, the valuable salts or potash, soda, lime, iron, &c., would remain but a short time in the surface soil, and within the reach of plants. Phosphoric acid is often combined with alumina. Throwing the organic matter out of the account, and the eighty or ninety specimens of soil analysed in the laboratory of the writer within the last year, have contained on an aveage from four to five per cent of this mineral.

The next most abundant substance in the soils of Western New York after silica and alumina, is *iron*. Like those just named, this metal is combined with oxygen forming the red rust of iron —This is called in the language of chemists the *per*-oxid of iron The difference between these black scales and the rust of iron is that the latter contains about a third more oxygen than the former When the oxide of iron unites with the oil of vitriol, it forms the well known salt called *copperas, (sulphate of iron)*

Iron is found among the incombustible elements of all, or nearly all plants and animals. Thus iron is found in the blood of all red-blooded animals, and of course must exist in their food This metal exerts a powerful, but not very well understood function in the economy of vegetable and animal life. It is believed by Mr Downing of the Horticulturist, to be a specific against the "yellows" in fruit trees. Copperas water has been thrown with a syringe over the leaves of pear and peach trees thus affected, and it is said with entire success. The application of old iron about pear and other fruit trees, is strongly recommended. We have found from two to six per cent. of the oxide of iron in the soils that we have analysed. In low land, there is apt to be an excess of copperas, and other salts of iron.

*It is owing to the great quantity of siliceous matter contained in the soil, that gives to the straw raised in the neighborhood of Dunstable, England, that peculiar brightness, and which causes it to be in such demand for the manufacture of bonnets.

Thorough drainings is the remedy for this. In dry uplands, it is possble that old and long cultivated fields may lack salts of iron. Very few experiments have been made to test the value of this mineral as a fertilizer for grain crops.

Lime is the next most abundant ingredient in the soils of this region. It is very seldom that we find more than 2½ per cent. of this alkaline earth in any soil. There are exceptions, however, where the proportions of lime increases till it amounts to a calcareous marl.

In 100 lbs. of pure common lime-stone, irrespective of water, there are within a small fraction, 56 lbs. caustic lime united to 44 lbs of carbonic acid.—This acid is expelled in burning lime in kilns. On long exposure to the air, quick lime absorbs both moisture and carbonic acid, and becomes a mild carbonic, such as is found in soils.

It is an interesting fact, that soils which overlie a lime-stone rock, and that pretty near the surface, are often greatly benefitted for producing wheat by a top-dressing of burnt lime of 50 bushels per acre. Judge Porter, of Niagara Falls, has tried this practice on a large scale, where the lime rock was within two feet of the top of the ground. It was followed by a marked improvement in his wheat crop. On Gen. Harmon's farm, the application of lime seems to do little or no good. If our memory serves us rightly, it contains on an average, less than two per cent. of lime in its surface soil. Gypsum, however, (which is formed by the union of lime with oil of vitriol,) is of essential service. Pure quick-lime is formed by the union of 20½ parts of a metal called *calcium*, with 8 parts of oxygen. The most valuable compounds of lime, are gypsum and apatite, (bone earth.) The former is a compound of *sulphur* and lime, and the latter of *phosphorus*. Both of these simple elementary bodies, are of vital importance in the growth of cultivated plants, and the organization of all animals. Combined with oxygen they form strong mineral acids, which are neutralized by readily uniting with iron, alumina, lime, potash, soda, and magnesia, in soils. Practical farmers have too long neglected to study the economic value of the various compounds of sulphur and phosphorus. Gypsum is the only mineral, the importance of which is at all appreciated. Its superiority over lime consists in the fact that it furnishes clover, peas, wheat, and all other plants, sulphur as well as lime. A moment's reflection is sufficient to convince any farmer that no animal can form its bones without lime. And if his soil wholly lacks this mineral, his crops cannot possibly create it out of nothing. Nor could an ox or horse have a particle of bone in its system, if its food contained no lime. But lime *alone* is not capable of forming bone. *Phosphoric* acid is indispensable for that purpose, associated with lime. Nearly all that is taken from the soil in the kernels of grain, is removed *never* to return. A great deal of the phosphorus that escapes from the bodies of animals in their liquid and solid excretions, is lost to the fields that yield the daily food of these animals. And yet pure phosphorus is so precious, that a pound of it is worth to-day three dollars in the city of Rochester.—*Gen. Far.*

Rotation of Crops,

A judicious rotation will, of course, have reference to the particular article of produce of the greatest value in each district; as a general rule, in all wheat lands, this will be wheat.

Some years ago, on an agricultural tour in the interior, about fifty miles, I heard of a German, who had introduced an improved system of cultivation, then generally adopted in that region. On visiting this man, Jacob Sheimer, of Northampton county, Pa., I found him a plain, practical old farmer, who in about thirty-five years, on a farm of about 100 acres, with two hands, had realized about four times its value of $50 per acre, besides raising and educating a family.

His process was as follows.—his great object being wheat—having originally divided his farm into fields, of about twelve and a half acres each.

1st. Manure and lime; plough in May, June and August; harrow and seed one and three-quarter bushels of wheat to the acre, which put in with a plough.

2nd. Clover seed sown on wheat in the spring, six quarts to the acre, and pasture after harvest.

3d. Plaster the clover in the spring; one bushel to the acre; cut clover in June; plough down second crop, and seed again with wheat.

4th. Wheat—Same treatment as No 2.

5th. Pasture early in the season. Plough in August, and sow wheat.

6th. Wheat again. 7th. Plough stubble, sow rye, one and a quarter bushel to the acre: sow clover in the spring on rye.

8th. Plough clover sod and plant corn, and next season recommence the system on the fallow ground.

By this system, it will be observed that there were always three fields in with wheat, one in with rye, one with corn, two with grass and one fallow. His crop averaged about 1,400 bushels of wheat, 600 bushels of corn, 300 bushels of rye, and his land, when I saw it, appeared in excellent condition.—*Longstreth's Address.*

Provincial Agricultural Association.

We again beg to remind the readers of this Magazine, the next Provincial Exhibition for the encouragement of Agriculture, Manufactures, Arts, &c., will be held in the City of Hamilton, on the 6th and 7th days of October next.

The Committee of arrangement, at a late meeting, determined upon adopting the very admirable plan that is practiced by the Royal and Highland Society of Great Britain, and which will in future be practiced by the N. Y. State Agricultural Society, viz: That of devoting the whole of the first day in judging the stock, implements, &c., and during that day none but the judges and owners of the articles competed for, will be admitted on the Ground. The morning of the second day, strangers and visitors will be admitted.

The Show will be held on the Race Course, about one mile out of Town, and every necessary arrangement will be made to make the Grounds and Buildings comfortable for those who may honor it with their attendance. Arrangements will also be made with the Hotel-keepers to make provision for the thousands who will visit the Exhibition; and in fact the Committee are determined to employ every proper means to establish for the Association, a character which will in point of comparison, will be equal to any display of the kind that has yet taken place on this continent.

The Rules and Regulations will be published in full in a few days, accompanied with the Prize List.

Owing to circumstances of a very urgent nature, we are under the necessity of making a journey to the country, on the shortest possible notice, and shall probably be absent from town for many days, and hence we are unable to give any particulars of the proceedings of the Committee Meeting, which was held in Hamilton, on the 17th inst. We embrace the opportunity of stating this much, however, that the enterprising yeomen of the Gore District, are determined to acquit themselves in the affair in a creditable manner, and that also the friends of the movement, at a distance, may with much confidence, rely upon the good judgment and taste that will be displayed by the respectable and numerous Committee who have been appointed to take charge of the Exhibition.

Show of the New York State Agricultural Society.—The next Annual Exhibition of the New York State Agricultural Society will be held at Saratoga on Tuesday and Wednesday the 14th and 15th of September. The first day will be devoted exclusively to the examination, by the Judges, of the animals and articles exhibited, and no person will be admitted within the enclosure on that day but the Officers, Judges, and Exhibitors. There will doubtless be a great gathering on the Wednesday; and from the most reliable accounts that have reached us, we should infer that the Exhibition under notice will be quite equal to any that have preceded it. We hope to be present, and shall be happy to meet many of our Canadian friends there.

Cultivation of Grapes.

Any land in suitable condition to produce a good crop of corn, will produce good grapes. And dry, a sandy loam should be preferred. The soil should be free from extremes of wet The soil should be deeply stirred or pulverized As to manure any kind may be used that is thoroughly decomposed. Some ashes, salt, lime, broken oyster or clam shells, brick dust, broken bones, cinders from the blacksmith's forge, &c. are excellent as condiments. We have seen fine grapes growing in a gravelly soil, where all the surface loam was removed, with no manure except the refuse from the blacksmith's forge.

Train a grape vine above or below ground to the place you would have the fruit, as on buildings, fences, &c, then train out the branches to form the frame work of the bearing part, and then prune off old shoots that have borne and train up new ones for another crop. Do the pruning in November. In summer prune sparingly, as much foliage is necessary to the perfection of the fruit. When the branches have extended a good distance beyond the fruit, pinch off the end to check its growth.—Small slender branches that have no

fruit on them may be cut off wholly, and the sooner the better.

If the object be to rise the fruit in the most convenient manner, without training against building, &c., train the vine up about two feet, without branches to the trellis or stakes, allowing them to extend np 6 or 8 feet high. Here from the frame work, from which train out small branches for bearing, cutting out the old branches and traning up new, and shortening them in the fall, when luxuriant. When one of the main branches or outline frame work, has become old and unproductive, cut it off and trane up a new one.

The object in carrying the vine up about two feet before allowing any branches, is for the convenience of tilling around the stem, and allowing a cirlulation of air to dry the ground readily after wet weather, as the grapes are apt to rot if the ground be moist for a long time. This mode of training not only facilitates drying after wet weather, but daring its continuance, it allows of a circulation of air, that tends to prevent mildew and rot.

Grapes are excellent fruit, and as easily raised as corn or potatoes, after a little information as to management. They require no richer soil, nor any better culture. The same soil and care that will produce a good hill of corn, will, if continued, produce a luxuriant vine, with an abnndance of fruit. Train grape-vines on ledges, rocks, or heaps of stones, and they will ripen earlier.

As to the propagation of grape vines, they may be easily raised from seed, but in such cases we cannot tell what kind we shall obtain; or the same kind may be continued by cuttings, layers, or grafting —*Bost. Cult.*

Deep and Thorough Tillage.

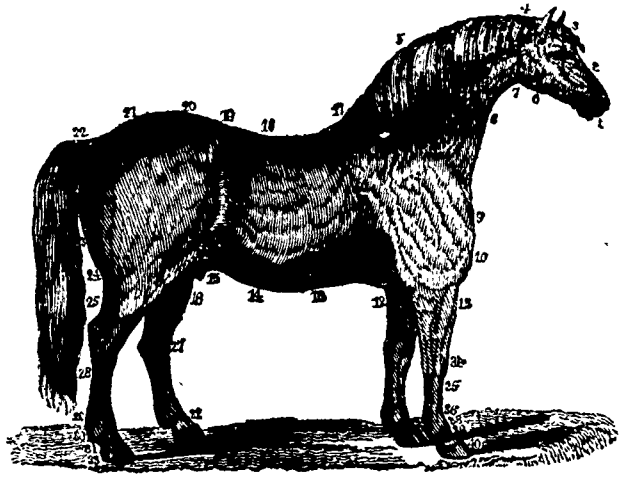
We have noticed with pleasure that most farmers in this section have become converts to the system of deep plowing and fine tilth. Instead of making their soil mellow only four or five inches deep, as is still practiced by a few, the general custom is to plow from seven to ten inches, and thoroughly pulverize the earth to an equal depth with the harrow and cultivator. Experience has taught them that a deep mellow soil is vastly more productive, other things being equal, than a hard shallow one. We expect soon to see a few enterprising men driving a second plow in the furrow of the one that breaks the surface, and thus secure to their crops a double amount of pervious soil, in which a double quantity of soluble mineral elements may feed and bring to maturity a double harvest. Very few fields in Western New York lack vegetable mould. So far as the atmosphere supplies nutritive elements, these are mainly dependant on the large develope of roots. A root of corn or other plant which is one-fourth of an inch in circumference and five inches long, presents to the soil, the rains, dews, and air of heaven, only *one-third* the surface for imbibing nutrition, that it would, if ten inches long and three-eight of an inch in circumference. In a deep mellow soil and a large growth of roots, the husbandman is sure to have a corresponding growth of green stems and leaves above ground, to imbibe gaseous food from every passing breeze. The atmosphere can only fulfil its whole great office in support of vegetation on deep pervious soils like riverbottoms.

If the earth lacks any essenti l ingredient used by nature in the organization of the cultivated plant, no amount of tillage can create the absent element out of nothing. This fact should never be lost sight of.

We have a parsnip in our office 3½ feet long; and have pulled beans in a field, whose roots ran 30 inches into the ground. To give plants a fair chance in a poor soil, it should be very deep that roots may travel a good way to get their alimen. —*Am. Ag.*

How to Preserve Tomatoes.—Take clean, ripe tomatoes, suificient to cover the bottom of a large kettle, and place over a slow fire until their skins break, which must then be peeled off; cut out the hard core, and slowly boil the remainder until it becomes quite thick and of a dark-brown color, stirring it well to prevent burning. Spread it upon plates about an inch in thickness, and dry in the sun for seven or eight days, afterwards placing it in a moderately warm oven until thoroughly dried. The substance thus prepared will keep for years, and is so highly flavored, that a piece two inches square, stewed in half a tea-cupful of water, will be sufficient to mix with the gravy of five pounds of beef-steak, or a ragout.—*Am. Ag.*

To Destroy Red Ants.—As every housekeeper may not know how to get rid of these troublesome little intruders, I will state my experience. Place a piece of fat bacon, or a pan of grease or butter near the place where they enter the kitchen or pantry. This will soon attact them together, when they can be easily removed or destroyed by a little hot water. Thousands may be destroyed in this way in a few days.—*Ohio Cultivator.*



Terms denoting the External parts of the Horse.

1. Muzzle.
2. Race.
3. Forehead,
4. Poll.
5. Crest.
6. Jowl.
7. Gullet.
8. Windpipe.
9. Point of the Shoulder.
10. Breast or Bosom.
11. Arm.
12. Elbow.
13. Girth.
14. Flank.
15. Sheath.
16. Stifles.
17. Withers.
18. Back.
19. Loins.
20. Hip
21. Croup.
22. Dock.
23. Quarter.
24. Thigh or Gaskin.
25. Hamstring.
26. Joint of the Hock.
27. Ham or Hock.
28. Common.
29. Fetlock.
30. Large Pastern.
31. Small Pastern.
32. Coronet.
33. Hoof.
34. Knee.
35 Common.
36. Fetlock.
37. Heel.
38. Large Pastern.
39. Small Pastern.
40. Hoof.

—*Bost. Cult.*

The Horse.

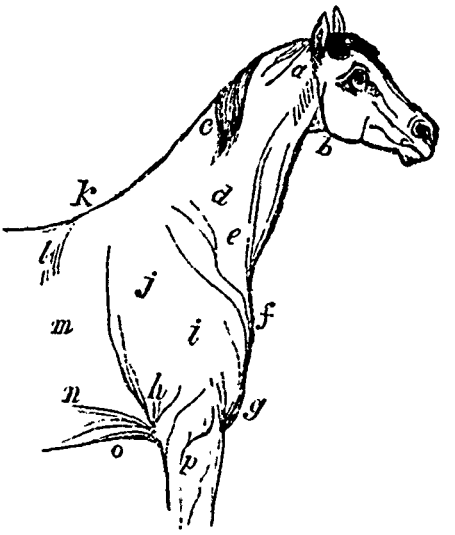
The Anatomy of the Muscles.—The bones of the whole body constitute a frame-work to which the numerous muscles (which are concerned in, and are the means of the various motions of the animal) are attached. The bones are not smooth, but have an uneven surface, and present depressions and elevations; these elevations are like nipples, and are called nipple-shaped processes, or tubercles, the muscles are attached. The bones are levers, and the power of their motion is the muscles.

In our discussion we propose to direct attention mainly to those bones and muscles only which are concerned chiefly in the travelling, carrying, and drawing motions of the horse. These bones and muscles are mostly those of the body and legs, and consequently the body and legs, in their bony and muscular anatomy, will be treated of. We content ourselves with an enumeration of the bones of the head, as the head is only in a small way employed in motion or draft. The power it has over either arises from its elevation or depression. When the horse increases his pace he lowers his head, if it be free; when he is called on for greater exertion in draft, he also lowers his head. Without this depression of the head, and that to the level of the body, the horse cannot reach the height of his speed, nor the utmost of his power or draft. In ordinary motion or draft, the head is not so low as the level of the body; it is only in his higher and more powerful exertion, in either speed or draft, that the horse brings his head to the level. It is then the posi-

tion of the head, and not its power, which is concerned in motion or draft. Consequently, in animal mechanics, it is relatively of small consequence. The head is not even held up in its natural position by the muscle, but by a strong ligament or cord called the pack-wax, which is attached to the head at one end, and on the withers at the other, and hence into the muscle of the back. When, however, the head is to be depressed, the muscle of the neck and shoulders is called on to do it. Thus the bones and muscles of the neck, as well from their shape as from their size, are of importance in the power of the horse for motion,

Muscles of the neck.—We shall first consider the muscles of the neck. They lie chiefly in the lower part of the neck, and end in tendons at or near the head. Those concerned in the raising and lowering of the head and turning it in various directons, make a complicated system. Two of the most important of them are the *splint-like* muscle and the *large* complicated muscle. The splint-like muscle constitutes the bulk of the neck on its upper side and is attached to all the bones of the neck except the upper one, called the *atlas*, nearest the head. From this muscle a tendon goes to and attaches itself to the atlas and the bones of the temples. Its office is to elevate the head and neck, and for this it is very powerful, as it must needs be; upon it depends the beauty of the neck. As it is more or less arched, or it should be light above, and large below and at the junction of the neck with the shoulder. From it arises the thickness and muscularity of the neck, and if full at the lower part and light in the upper part of the neck, the neck itself when joined well to the head, will be perfect. Clumsy necks arise from too much cellular substance or fat, and not from this muscle, as also do heavy crests. Mares and geldings have rarely clumsy necks or lofty crests.

The large complicated muscle is the largest and most powerful in the neck. It arises from the five lower bones of the neck, and makes the bulk of the lower part of the neck, *d, e,* at its upper part, as it nears the head, it lessens its bulk and unites in part with the same tendon as the splint-like muscle, but is pincipally joined to the line of the back part of the head. It assists to raise the head and neck, and it is particularly concerned in raising and thrusting forward the face. When too powerful, it makes the nose *stick out,* and deforms the horse. The martingale is used to counteract the force of this muscle. When this muscle is very large and the splint-like one quite small, the horse will be ewe-necked, hollowed (or at least straight) above and projecting below. In such a neck the nose protudes and can hardly be got down.



The Muscles of the Neck.—The *small* complicated muscle, the *straight,* and the *oblique* muscles of the upper part of the neck, attached mainly to the two upper bones of the neck, are also employed in raising the head.

One of the muscles used to lower the head is attached to the breast bone, and lies next to the skin; it proceeds up the neck, and near the head changes into a tendon, and is inserted into the lower jaw near its angle, *b.* It is used to bend the head towards the chest. Another muscle concerned in lowering the neck, springs from the back of the head, and the first or four upper bones of the neck, and the pack-wax proceeds downward, mixes with the muscles of the shoulder, and attaches itself to the lower shoulder bone; it also assists in raising the shoulder.

The muscles of the neck are all double (in pairs,) one on each side of the neck. To raise or depress the head they must act together. To turn the head and neck to one side, one only must act, on the side to which the head and neck are to be turned; if an elevating muscle, then they will be raised and turned at the same time; if a depressing muscle, then lowered and turned. Thus is provision made for every kind of motion of the head and neck.

Muscles of the Breast.—The muscles of the

breast are very important. They are largely concerned in the expansion of the chest; and are the power by which the arm in rapid motion is confined to the side, and thus keep the leg in a straight line before the horse. The chief of these is the pair of *transverse muscles* of the breast. They form two full points in the front of the breast; they spring from the upper and front part of the breast, consisting of the four first bones of the breast, and are attached to the lower end of the lower bone of the shoulder, extend backward between the legs, pass across the inside of the arm, and reach from the elbow almost to the knee. These muscles act to place the fore legs in that position, which will allow them to receive the weight of the body in the easiest manner, and with the least shock.

The *great and small muscles of the breast* lie above and behind the transverse muscles; they extend from the breast bone to the arm of the shoulder; their office is to draw back the point of the shoulder and bring it into the upright position. There is still another muscle which goes from the breast bone to the shoulder blade. It assists in the same office as the *great* and *small* breast muscles. It is less in size than either of the others. A horse not well developed in the muscles of the beast will be deficient in power. He will not have the power to expand perfectly the chest, so that the lungs must suffer taxed by violent motion to increased action; and this even if the lungs be large enough. Nor will the horse be able to use his fore leg to full advantage. Their breast muscles must be large to allow the horse to avail himself of the full power of the muscles which are used to propel forward his carcase. The progressive muscles have enough work of their own to do, and will not long last if called on to do that of other parts These breast muscles have more to do in supporting the weight of the body and giving direction to motion than in creating motion; if they be not competent to their office, other muscles are called upon to overwork themselves to supply the deficiency, viz. the muscles of the shoulder and hunch in motion, and the muscles between the body and shoulders and the muscles of the belly (abdominal muscles) in breathing. Then the breast muscles should be large to produce and preserve a proper balance both in action and breathing.—*Am. Ag.*

Weeds exhaust the strength of the ground and if suffered to grow may be called garden sins.

The Farmer's Weather-Ometer.

Comprising General Indications and Local P dictions respecting the Changes of Weath gathered during Travels in America Europe.

BY A RURALIST.

" A rainbow in the morning
Is the Sheherd's warning.
But a rainbow at night
Is the Shepherd's delight!"

A rainbow in fair weather denotes foul—i foul, fair weather will follow. A double rain indicates much rain.

A predominance of the purple color of t rainbow, shows wind and rain—dark red, te pest—light red, wind—yellow, dry weather, green, rain—blue, denotes that the air is chan

if the *Aurora Borealis* appear after seve warm days, it is generally succeeded by a co ness of the air. If the *Aurora Borealis* has be considerable, either an increased degree of co is immediately produced, or bodies of clouds immediately formed.

If, in a very wet season, the sky is tinged w a sea-green color, near the bottom, when it ou to be blue, it shows that rain will speedily follo and increase, when it is of a deep dear blue, i overcharged with vapors, and the weaher wil showery.

When the sun appears white at the setting, goes down into a bank of clouds, which lie in horizon, they indicate the approach or contin ance of bad weather.

When it rains with an east wind it will pro ably continue for twenty-four hous.

The heaviest rains, when of long continuan generally begin with the wind blowing easte which gradually veers round to he south—a the rains do not cease until the wind has go the west, or a little north west.

While rain is falling, if any small space of sky is visible, it is almost a certain sign that rain will speedily cease.

If the clouds that move with the wind beco stationary, when they arrive at that part of horizon which is opposite to the wind, and app to accumulate, they announce a speedy fall rain.

A frequent change of wind, with an agita of the clouds, denote a sudden storm.

A fresh breeze generally springs up before set, particularly in the summer.

The weather usually clears up at noon—be

rain at midnight, it seldom clears up till sun-
el.

The winds which begin to blow in the day
re are much stronger, and endure longer than
se which begin to blow only in the night.

A hollow or whistling wind denotes rain.

f the wind follow the course of the sun, fair
ather will follow.

Veather, either good or bad, which takes
ce in the night time, is not generally of long
ration—and, for the most part, wind is more
common in the night than in the day time.
neweather in the night with scattered clouds,
es not last.

Vident winds prevail more in the vicinity of
ountains, than in open plains.

A Venetian author says—"A sudden storm
m the north does not last three days."

If it thunders in December, moderate and fine
ather may be expected.

If it thunders, at intervals, in the spring time
ore the trees have acquired leaves, cold weather
ill to be expected.

Thundering in the morning, denotes wind at
on—in the evening, rain and tempest.

If in summer there be no thunder, the ensuing
and winter will be sickly.

If it lightens on a clear star-light night, in the
th or south-east, rain and wind will follow—if it
hten in an evening towards the north, south, or
th-west, it indicates wind.

Hot weather generally precedes thunder, which
ollowed by cold showery weather.

When the wind is south-west during summer
autumn, and the temperature of the air is un-
ally cold for the season, both to the feeling
the thermometer, with a low barometer,
h rain is to be expected.

Violent temperature, as storms of great rains,
duce a sort of crisis in the atmosphere which
duces a constant temperature, good or bad, for
e months.

n a morning, if a mist which hangs over the
lands, draws towards the highlands, it is a
of an approaching fine day.

f in the evening a white mist spreads over a
dow through which a river flows, it will be
wn up by the sun in the following morning,
a fine clear day will follow.

When the dew lies plentiful upon the grass
a fine day, another fine day may be ex-
ed—but if, after such a fine day, no dew fall
nor any breeze be stirring, it indicates that the vapours are ascending, and will soon be precipitated in the form of rain.

It is certainly a surprising phenomenon to see the earth, after a very long and abundant rain, to be sometimes almost dry, the roads quite free from dirt, and the lands to become quite arid and parched. This is a sign that the rain has not altogether ceased, and denotes a continual efflux of electric matter, which, being renewed, carries with it, in the form of vapors, all the moisture that falls on the earth. There is sometimes, however, a great deal of dirt, even after a very moderate rain, which, in that case, is a sign of fair weather, because it indicates that evaporation has ceased. Dry stones and moist earth announce fine weather—dry earth and moist stones announce rain.

If the flame of a lamp crackles or flares, it indicates rainy weather. The case is the same when soot detaches itself from the chimney and falls down.

It is a sign of rain when the soot collected around pots or kettles takes fire, in the form of points like grains of millet, because this phenomenon denotes that the air is cold and moist.

If the coals seem hotter than usual, or if the flame is more agitated though the weather be calm at the time, it indicates wind.

When the flame burns steady, and proceeds strait upwards, it is a sign of fine weather.

If the sound of bells is heard at a great distance, it is a sign of wind, or of a change of weather.

The hollow sounds of forests, the murmuring noise of the waves of the sea, their foaming, and green and black colour, announce a storm.

Good or bad smells, when unusually strong, seeming as if they were condensed, are a sign of change of weather, either because exhalations arise and are dispersed in more abundance, which is a sign of an increase of elasticity,—or because the air does not dispel or raise these exhalations, which indicates that the constitution of the atmosphere is motionless, light, and void of elasticity.

When the spider's web and the leaves of trees are agitated without any sensible wind, it is a sign of wind, and perhaps of rain, because it denotes that strong and penetrating exhalations arise from the earth. These signs are less equivocal, when the dry leaves and chaff are raised into a vortex, and carried into the air.

Lancaster, Ohio.—Ohio Cult.

Field Culture of The Carrot.

Having for 18 years prepared the drills for the Carrot, Mangold Wurzel, and Parsnip seeds, sowed and covered them on the home farm here, superintended by the worthy and very intelligent factor, Thomas Ord, Esq, and for a few years also on a small farm occupied by his son, a very enterprising farmer, I have had many opportunities of witnessing the culture of the Carrot in great perfection, and find, if the soil be suitable and well prepared, and the season moderately propitious, no crop that I know, generally cultivated in the field, pays better. In a good hazel loam on the home farm here, 29 tons an acre have been obtained, and 25 tons an acre have been obtained on the model farm at Deanston, as occupied some years ago by the indefatigable agriculturist, James Smith, Esq. However, from 16 to 20 tons an acre are reckoned a good crop, and from 3*l*. to 3*l*. 10*s* a ton, a fair price, which would fetch from 48*l* to 56*l* an acre, at 16 tons per acre, a pretty good return.

Last season a most enormous crop of Carrot was realised from a newly reclaimed bog near Stirling, viz. the Melton bog, where the great and decisive battle of Bannockburn was fought on the 24th of June, 1314. In Ireland, I believe, many extensive bogs are being, have to be, and will yet be reclaimed, the sooner the better; and I recommend the occupiers of all such bogs, where reclaimed, to grow Carrot on a large scale.

I now proceed to describe—1st, how the manure should be prepared, and laid on the land; 2 id, how the land is to be prepared, 3d, how the seed is to be sown and covered; 4th, how the crop is to be thinned, weeded, and earthed up; and 5th, how it is to be raised and stored up for the winter. First, the manure should be prepared during the summer or autumn in a corner of the dung-yard, where there ought to be a tank to receive the drainings of the dung-hill and cow-houses. The dung may be laid in layers 2 feet thick; then watered with the liquid from the tank; then trodden firmly, and, having a heap of well-made bog mould, ditch scourings, wood ashes, or any charred brushwood, well mixed together, lying contiguous to the dung-hill, lay a layer of this over the dung 8 inches thick; then go on with the dung, liquid manure, and mould alternately, till the quantity required is made up. This may be done as the dung is taken from the byres and stables, or it may be done all in one day, in the last case, the liquid manure would require to be thrown over the dung-hill occasionally after it is made up. A little sulphuric acid or gypsum may be thrown over the dung layers in the operation, the more securely to fix the ammonia. The heap should be finished with a covering of earth, or sods all over, and left in this state till three weeks before spreading on the land, when it should be all turned over, well mixed, and a little of the mixture thrown over. This turning will put the dung in a fine sweet state for laying on the land. It is not advisable to have it much decomposed, as it is to ploughed in by the end of autumn. A he *mould*, or part of the heap prepared for mi with the dung, should be kept till spring, tur it over several times during winter; what is done with this will be noticed afterwards

2nd. *How the Land is to be Prepared*— land, if at all practicable, should be a deep *loam, sand haugh, or meadow*, and free, light reclaimed bog, or moss (bog mould) lyin *strong clay*. If the moss be all cleared either by flooding, burning, or otherwise, e about 1 foot deep of the moss, or 8 inches ashes after burning, or rather 15 inches of a ture of both, ploughed in, turning up 4 or 5 i of the clay over the moss, which, being pulv by the winter frosts, will make an excellen for Carrot when well mixed with the peat. Pe it would be all the better for taking a cro Oats off the newly reclaimed land, before p ing for Carrot. I have seen excellent cro Carrots here, growing on land of this las scription; but which ever of these soils it ma when the land has been cleared of the cereal the dung may be spread over it at the rate of 24 to 28 tons an English acre, according a land is poor or rich; then with a good fo plough, in the direction of the former ri beginning gathering up in the old furrow, with the common plough—it being under that the land has been properly drained, and the top of the drains is 18 inches below the face of the ground, to allow the subsoil plou sair the land to the depth of 14 or 16 inches

The land being thus ploughed, the large s dug out and carted off, is left to be pulveris the winter frosts; but in cases where the has been subsoil-ploughed previously, a s furrow 16 inches deep, with the common p with three horses yoked abreast, will su When dry weather occurs in the month of m the land should be harrowed and cross-plou and left in this rough state for further melio by the spring frosts. Between the middle end of April, any time when the weather i harrow and plough again in the direction winter ploughing; then grub across, harrow, gather out the weeds. The roller will be useful if the land be ill to break If nece the land may now be limed, at the rate of 4 drons to an acre, giving one turn of the harr distribute equally over, and incorporate the with the surface soil. Roll slightly, and dra drills very shallow, and only 2 feet from cen centre. If it can be done 20 inches with the mon or double-moulded plough, so much th ter. Ten tons of the compost formerly refer may be carefully and thoroughly mixed w cwt. of guano for an acre, and distributed evenly in the bottom of the drills, and the post covered by the second drilling, about ches.

3rd. *Soaking and Covering the Seed*— kinds of seeds best for field culture, I ment in a former paper. The Altringham, lon

Surrey, and white Belgian, which may have been brought to the point of germination by having been mixed with damp sand, and put into shallow vessels in heat—such as a vinery at work, or on a hot-bed under any sort of cover. We sow carrot, mangold wurzel, and parsnip, all with the hand here, and 6 lbs. of each sort for an acre, if the seed be good. The seed is kept from being blown about, if windy, by means of a funnel with a long tube and handle for conducting the seed to the rut made in the drill. Two lads go before the sower making a rut with draw-hoes; the sower follows with the seed in an apron slung about his waist, carrying the funnel in his left hand, and sprinkling in the seed with his right; and three or four lads follow with rakes, covering neatly and firmly to about the depth of an inch; when very shallowly covered, the seed is apt to get dry, which checks vegetation. The seed should not be allowed to remain exposed in the drills, but should be covered immediately. A light roller should be drawn along the drills whenever the soil gets so dry as not to stick to the roller.

4th. *How the Crop is to be Thinned, Weeded, and Earthed up.*—I should have remarked that, if hares and rabits abound, the crop should be protected from them; the way it is to be done here is by means of flakes 3 feet high, made with eight uprights, and two horizontal ratters, which are fixed to stakes around the field.

What I said regarding the thinning of the main crop of Carrot in the garden may suffice for thinning in the field, that is, they may be cut with a very sharp small hoe below the surface of the ground, studying to leave the strongest at from 4 to 6 inches apart. Those who have been accustomed to the cleaning and earthing up of Turnips will be at no loss to know how they should clean and earth up Carrot. It must, however, be remembered that the soil should be kept firmer about the roots of Turnips when young; this double moulded plough should be preferred to the common plough for earthing up.

5th. *Raising the Crop, and Storing for Winter use.*—The Carrot crop is generally raised about the beginning of November. Carrots grow on so long as the weather keeps mild, and should be left as long as mild weather continues, choosing a fine dry day to have them taken up. It is better, I think, to have them raised with a strong-pronged dung-fork, than to have them ploughed up, as the plough is apt to break them, except an extraordinary deep furrow is made. The shaws should be cut away to within half an inch of the crowns; some cut the crown clean away, but I do not approve of this, as, when they are packed among sand, they are apt to rot. Two carts should be on the field, the one to receive the roots and the other the shaws. The Carrots intended to be first made use of, may be built up into a long, narrow, ridged-shaped heap, with the crowns uppermost, and thatched over with straw or turfs, or both; but those intended to be used in spring, would better be stowed away in a cellar, shed, or Potato house, laying a layer of clean sharp sand on the floor, then a layer of Carrots, and so on alternately, keeping the crown ends outermost. The side, or sides, of the heap, not encompassed by the wall or walls of the shed or cellar, may be built almost perpendicular, and surrounded with boards or straw hurdles, about 2 inches from the crowns of the Carrots; this space to be filled with sand. Those intended for kitchen use should be of the medium size, and clean; they should be picked out in the field when lifted, and kept separate from those to be given to the horses and cows. It will be necessary to have those remaining turned all over by the end of April, or beginning of May, the rotten ones picked out (if any), and the young sprouts rubbed off. I have kept some Carrots this last winter in charred wood dust, which, I find, keeps them better than sand. A good many of those put in sand damped off in the same way as the Potatoes, although these seemed perfectly sound when taken from the field. —*James Drummond, Blair Drummond Gardens, in the Dublin Farmers' Gazette.*

Increase in the Value of our Grain Crops.—A writer in the Boston Courier, over the signature of "J. N. C." estimates the rise in value on the agricultural productions of the United States, since September 1, 1846, as follows: On the crop of Indian corn (estimated at 480,000,000 bushels) the advance (estimated at 25 cents per bushel) is $120,000,000; on the crop of wheat the advance is estimated at $56,000,000; on the crop of oats, $16,000,000; rye, $36,000,000; on the crop of hay the advance, in consequence of the increased use of corn and other grains for breadstuffs, is estimated at $45,000,000; showing a total rise in value of $273,000,000.

To the above should have been added an estimate of the amount of the rise in the price of beef, which is intimately connected with the price of hay and of corn. What was the price of beef, June, 1846, as compared with June, 1847, when it was 16 to 17 cents for choice pieces? Colonel Thomas Shelby, of Kentucky, had a drove of 400 bullocks to arrive in New-York the middle of May, that were on the road 80 days, and cost $6,000, from his magnificent blue-glass farm to the New-York markets.—*Far. Library.*

Consumption.—An officer in the British East India service, far gone in a consumption, is stated to have been perfectly cured by inhalations of the vapor of melted rosin—in which practice he persevered night and morning, for several months.

Though a man without money is poor, a man with nothing but money is still poorer.

FARM FENCE AND GATE.

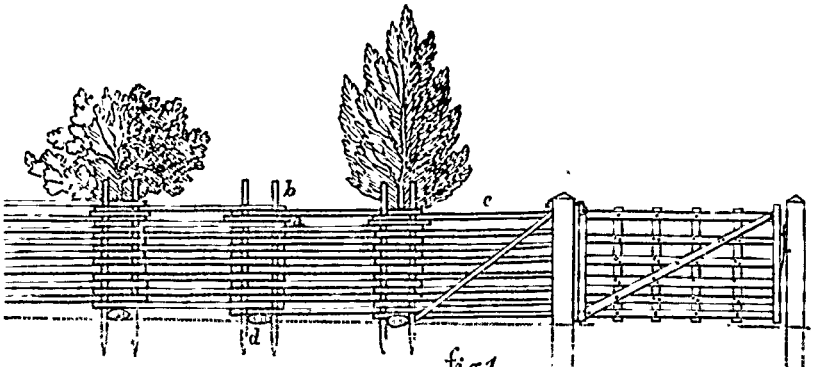


fig 1.

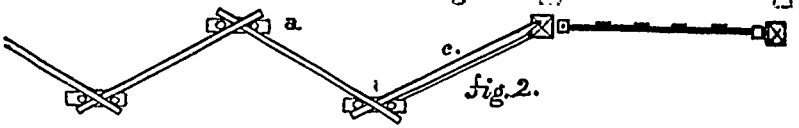


fig. 2.

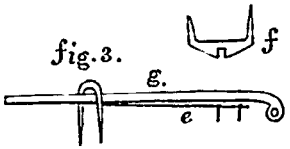


fig. 3.

Scale of 1-10 in. to the foot; the latch is ½ in. to the foo —The same letters refer to figs. 1 and 2; *a* shews the block of the fence, with the two holes through, *b*, the stakes whic pass through the holes in the block; *c*, the rails, *d*, the ston foundation in the corners; *e*, (fig, 3,) shews the spring to b nailed on the gate, behind the latch *g*, and *f*, the catch, allow the gate to open both ways. Dotted line shews the groov line. The gate is 11 feet wide; space each side, 3½ inche

MR. EDITOR,

I send you a drawing of a farm fence and gate, of a cheap, substantial and durable kind, for a rail fence, which must be the principal material for fencing in Canada for some time to come. The sketch is drawn from a model I have constructed. Fig. 1, shows the elevation, and fig 2, the ground plan, the rails are cut 11 feet long, and to make a handsome fence, should be sawed of an even length before splitting. The stakes should be durable timber, 9 feet long, and of a size to pass through a 3½ inch hole; the lower ends sharpened to go in the ground. The blocks which the stakes pass through are from 2 to 3 inches thick, and from 9 to 11 inches wide, durable wood, and two holes bored in each block, of a proper distance apart, to correspond with the general thickness of the rails. These blocks can be bored by hand, or what is more expeditious, with an auger attached to a threshing-machine power, or a piece of mill or cross-cut saw bent round in the form of a hoop, the size of the hole to be made, and fastened to a shaft, by being nailed on by the back of the saw. A spiral spring is placed on the end of the shaft inside the hoop-saw, to throw out the block when the hole is sawed through; the shaft is made to revolve r pidly with little power, and cuts sufficiently de for the purpose, is cheaper than an auger, a works with less power, this is the invention an ingenious man, Mr. William Nixon.

This fence is the same as a common wor fence with the stakes set perpendicular on t same side of the fence in the corners, which form a firm lock, and prevents the fence ever getti out of line, and is quite an impossibility for t wind to blow it down, or for breechy animals t throw off the top rails, as there is not room f them to run their necks between the rails. I the first place the ground should be staked o and a narrow lane ridged up in the followin manner. back-furrow two furrows on each sid leaving a space of ten inches in the centre, the plough up some loose earth in the best furro and throw it in the centre space with a shovel- this will make a level ridge for to build the fenc on and preserve it many years longer, and if th ditches are made deep it will drain the fields a the same time. In laying this fence, it would b well to put a flat stone under each corner, or block of wood, where stones cannot be had. A ter laying the fence seven rails high, the hol

should be dug for the stakes as in most soils in the wet season, the stakes can be driven with a large beetle, afterwards, the top rail is laid on the locks, and the fence is finished. Once in two or three years or more, the frost may have raised the stakes so that they will require driving down, and being sharpened will easily be done; the length of the stakes is such that they will bear driving down several times after being rotted off.

The field gate is partly taken from the "Close-barn Field Gate" in Loudon's Architecture, with several improvements in the hinges and bars of my own, the pillars may be a foot square oak, set 3 feet in the ground; the gate should be oak; the hanging stile is 4 inches square, the falling stile 3×4 inches and six feet long; there are only six horizontal bars one inch thick and six inches wide,—the three top ones taper to 4 inches at the falling end; there are 4 upright bars 5 inches wide, and a brace of the same thickness, which are rivetted on at their ends and bailed at the middle; a flat plate of iron bent over the ends of the hanging stile and rivetted on; a common crook hinge goes into a hole in the plate at the ends of the stile; the upper crook goes through the gate pillar with a nut; this kind of hinge is simple and prevents the gate being thrown off the hinges. The latch is an upright bar with a rivet going through one end, and a mortice in the gate and is kept out by a spring behind it. Near the upper end a staple confines the spring and latch. This kind of upright latch will always latch should the gate settle; the whole will be easily understood by every one from the sketch. The gate and pillars should be painted, the neatness and durability will well repay the cost and trouble. The expense of the fence described will not be perceptibly more than the ordinary wretched fences that are every where to be seen in Canada and the United States. The additional ease and security farmers would enjoy from the consciousness that their cattle, horses, &c., could do no mischief, or escape or become breechy by bad fences, were they to adopt universally this cheap system of fencing, would produce incalculable benefit. I have known old men to live and die on large well cleared farms without having such an improvement as a gate; many times they would have to keep a sentry boy to watch the gap while teaming. I will venture to say, that any farm with a dozen gates and fence such as this, would look respectable, without any other improvements. The trouble in making the sketch and penning this article, will be far more than compensated, could I see farmers generally adopting this method of fencing, which is cheap and practicable, as a substitute for a more expensive one when rail timber will have become scarce. I cannot refrain making some further remarks, although somewhat irrelevant to the present subject. It is much to be regretted that Canadian farmers in general, are so narrow-minded and indifferent about taking an agricultural journal, or expending a few dollars a year for agricultural and other useful works of the best kind, which in a few years would, if followed up, amass a very useful and entertaining library, that would repay the money so expended with more than compound interest, by expanding the mind and intellect. Every farmer, rich or poor, should be a subscriber for one or more agricultural papers, which are as important, or more so, to himself, than a political paper, because it tends to throw light and knowledge upon his own immediate profession; sometimes a single article or receipt is worth ten times more to him than the year's subscription; and I may say, the above article on fences and gates, so fully explained, will be worth more to many farmers than the price of the *Cultivator;* and as there are only two or three agricultural papers in Canada, they should meet with the generous and universal support of the farming community, that the several proprietors will spare no talent or expense in making them highly respectable and useful. The *Cultivator* now comes out in a convenient form for binding, and is much improved, and I think quite equal to the "*Genesee Farmer.*" It contains a great many useful practical hints well suited to this country farming, and which is often found in the editorial department; and I perceive considerable useful matter is gleaned from different American papers,- this is well,—and no doubt much valuable information may be got from British works on agriculture, and which should be studied by all professed farmers, yet, they contain many theories, which, if carried out, would either be too expensive or not suitable to the climate or other circumstances of this country.

One day I asked a rich farmer who sometimes raises a thousand bushels of wheat yearly, to become a subscriber for the *Cultivator*,—reader, what do you think was his reply? "Why," said he, "I take the *Christian Guardian*, and can hardly get time to read that." There are positively many farm-houses in Canada where you would find little else than the *Christian Guardian* or a Methodist Hymn-book; the reader must judge for himself of the contracted state of such a man's mind.

It is also necessary for farmers to become well acquainted with the political and commercial affairs of their country, which can only be done by taking the papers, and reading books on political science; until this is generally done, the farming interest will become secondary to the interests of other classes, which should not be in an agricultural country; and when agriculturists become better informed, they will be better enabled to judge and control the they send to represent their interests in the popular branch of the Assembly,—in short, the country requires a more enlightened public opinion.

Yours, very respectfully,

FRANCIS G. WILLSON.

Saltfleet, July, 1847.

Manufactures of Providence, R. I.

We copy from an exchange the following interesting statistics of Manufactures in Providence. The account is highly creditable to the place, and is well worth examining.

There are in that city four bleaching and calendering establishments, bleaching 18 tons of cotton per day, including printing cloths, employing nearly 500 hands.

There are printed every week 13,000 yards, employing near 500 hands.

Four cotton mills of 34,000 spindles, make 58,000 yards of cloth per week, employing 730 hands.

Two woollen mills manufacture 375,000 yards of satinetts and jeans, consuming 156,000 pounds of wool annually—employing 120 hands.

Two screw factories for cutting wood screws, so called, from one-eight to four inches long, one-eight to three-eighths of an inch in diameter; manufacture annually 800 tons of iron, employ 475 hands.

Fourteen furnaces, consuming 5,000 tons pig iron for machinery, &c., and turn out 14,000 parlor cooking, and counting-room stoves, and 550 ploughs—employ from 250 to 275 hands.

One rolling mill employs 275 hands, makes 30 tons railroad iron and 3 tons of wire per day, from pigs and blooms.

One edge tool, nut and washer factory, manufactures annually, 31,200 dozen plane irons, 100 tons hinges, 300 tons bolts, 200 tons nuts, 100 tons pick-axes and other forges—employs 95 hands.

Three India Rubber shoe factories make annually from 180,000 pair of shoes—employ 200 hands.

One factory for manufacturing shoe ties, corset lacings and braid—employs 57 hands, and consumes 1200 pounds of cotton per week.

Four planing machines plane 10,000,000 feet of lumber annually; make 75,000 boxes for goods, candles and soap, and 100,000 sash lights—employ 400 hands.

Eight engraving shops for engraving copper rolls for printing cloths—employ 80 hands.

Two butt hinge factories employ 30 hands, and manufacture 100,000 dozen hinges annually.

There are in the city 5 brass foundries and 17 tin and sheet iron shops.

1200 men are employed in making cotton and woollen machinery.

500 house carpenters and 350 stone and brick masons here find employment.

There are in operation 65 steam engines.

There is paid annually for labor alone in the manufacture of jewelry, rising $100,000.

There were erected during the year 1845, 517 buildings, 333 of which were dwellings

Scientific Agriculture--Buying Land.

"You know very well," said Science, "how your neighbor, old Mr. Stubborn, went into the next State to buy a farm. The owner knew what the farm was, and advertised it in spring time, when he expected damp weather. I advised Peter to take me with him to view the strata of rocks below, and to analyse the soil on the surface; to see how it laid for draining, and what aspect it presented to the atmosphere. I told him I could save him my expenses many times over. But Peter scorned my advice—he thought he had worked more land than I had, and was as good a judge of land as any man in the States. and he set off, muttering something about 'not letting book-worms have money out of him.'—He walked carefully over the farm—it looked green and flourishing, and not swampy, even in that damp, wet weather. He was delighted with it, and gave forty dollars an acre for over three hundred acres. He paid his twelve thousand dollars, and took possession. But in the summer time as I passed that way, I found that so-much-praised farm almost burnt up with drouth, and its vegetation drooping and panting for moisture which the soil could not supply! Peter had bought a light, sandy soil, lying upon what we call, geologically a coal formation, with a pretty decided slope eastward. I took a little bit of the soil, and analysed it, and showed what it contained. In one hundred parts there were about eighty-three of sand, three of oxide of iron, one of potash, and one part of phosphoric and carbonic acids, and four parts of vegetable and organic matter. 'Now,' I said, 'the soil will be beautifully productive in wet weather, but will be parched in dry weather'

"'Ah,' he said, 'that was how I was taken in—I saw it in a wet spring season'

"'If,' I rejoined, 'you had taken me with you, I would have taken a handful of this soil from various parts of the farm, and would have told you exactly what it contained, as I do now. I would have told you that sand, which predomi-

ties here, cannot retain moisture, which flies
, nevertheless, I would have told you, that in
rtain positions the soil might be made fruitful,
t laid upon a faithful geological formation, and
ith a moist atmospheric aspect. I should then
ve examined the geological strata here, and
ve told you that it was on a coal formation,
nsisting of beds of limestone and blue shale,
ar the surface, which generally underlays the
orst lands—and sloping so rapidly toward the
st, the moisture would drain away through the
nds and down the slope, while the east wind,
e most drying and piercing of all winds, would
ow with its keen drouthy breath into the soil,
iving out that moisture which had not drained
ay; that in summer your crops would be im-
verished, and in long drouths probably would
t grow at all. I could have shown you all
is, and you would have known that the farm
as of small value, and saved your money. But
ur ignorance has caused you to throw away as
uch as you have made in many years of hard
ork.'"—*Sat. Courier.*

Wheat Culture.

The farmers of Monroe county sow annually
out 72,000 acres in wheat, and harvest not far
m 1,400,000 bushels of this most valuable
ain. The breadth of land sown last year, ac-
ding to the Census, was 72,635 acres; while
e acres harvested were 68,383. These facts
e interesting, because they show that wheat
lture is on the increase in the Genessee coun-
, there being 4252 acres sown in one county
1845, more than there were the year previous.
The average yield is something less than 20
shels per acre. That this is a very profitable
p, may be safely inferred from the circum-
ance, that about one-third of the plough land in
onroe county has constantly a wheat crop on
The whole amount of land in meadow, pas-
e, and tillage, is 281,011 acres. Deduct only
e-fifth of this for moist land permanently in
adows or pastures, and it leaves 224,809 acres
wheat land. Divide this sum by 3, and it will
e but a fraction more than the number of acres
nually sown with wheat in the county.

It is taxing the natural resources of the soil
etty severely, to take from it a crop of wheat
ery third year, and send the grain out of the
unty to distant markets. Our researches, how-
er, by chemical analysis, into the composition of the soil, and of the fragments of rocks, which being broken up into pebbles, and ground into powder, form the principal weight and substance of all soils, warrant us in saying that, with skilful management, this land may be cropped with wheat every third year without impairing its enduring productiveness. But what *is* skilful management? No general rule can be laid down which shall embrace the best practice applicable alike to all soils, under all conditions and circumstances.

The common sense, not only of the profession but of the community at large, has decided the point that no physician, no matter how well versed he may be in the sciences of anatomy, physiology and pathology, and in the properities of medicines, can make a general prescription that will apply to all constitutions and all diseases. He must see every patient, and learn all the facts and circumstances peculiar to each, before he can say what remedies are needed in each particular case. This common sense principle applies with equal force to the renovation, and lasting improvement of soils, by removing every defect that attaches to each man's farm. We make these observations as an apology for not attempting to prescribe rules of practice for the guidance of farmers in the details of wheat culture. Without an analysis, we can only deal in generalities.

It is obvious that by growing and sending off a farm, 500 or 1000 bushels of wheat per annum, the ingredients in the surface of the earth that combine with elements taken from the atmosphere to form the seeds of this plant, must gradually become less and less, without restitution from some source. The farmers of Monroe county annually make out of *something*, and export from their estates, the *matter* converted into wheat, equal to forty-eight millions of pounds. The whole crop of wheat at sixty pounds to the bushel, will weigh nearly one hundred millions of pounds. We do not regard it as impracticable for this county to produce and export annually that weight of matter in good wheat, for indefinite ages to come. Our reliance is on the elements of this bread forming plant, which nature has stored up in the sub-soil, drift, and solid rocks for hundreds of feet in thickness below the surface of the earth where the plough-share now runs. In many respects this mine of the minerals required in making good crops of wheat, is vastly

superior to the resources of the Nile, which enable the people of Egypt not only to feed unnumbered millions at home, but to export at Rome and other cities in Europe and Asia, for thousands of years, an incalculable amount of breadstuffs. It is a profound and most interesting study to learn the best process for transforming Earth, Air, and Water, into bread, milk, meat, wool and flax. It is the earth, aided by air and water, light, heat, and electricity, that furnishes all *manures*, whether vegetable, animal, or mineral. Hence it is that man ploughes the earth, harrows and cultivates it in a thousand forms, to favour the organization of useful plants. But he fails to plough and mellow the soil deep enough to command the full advantage of its mineral elements. The plough passes over too much surface in a day, and only half so deep as is necessary to give the roots of plants a fair chance to expand, and draw nourishment from a consideradle depth in the earth. We have recently taken up roots of common white beans, grown on a deep sandy loam, which extends two feet each way from the stem, and penetrated 18 inches into the soil. By placing the stem of a plant in the centre of a square whose sides are distant 2 feet from it, the area will be 16 feet, or 4 on all sides; and if we include a depth of 18 inches, the solid contents will be 24 cubic feet of soil to yield food to the growing plants. Now, limit the extention of the roots of the plant to one foot in all directions, to the depth of 9 inches, and you will have a surface of only 4 square feet, containing just *one-eight part* of 24 cubit feet.—Every body knows that a hard, impervious soil is fatal to the growth of bountiful crops. Plough, then, a narrow furrow, move all the earth down eight inches, and let a sub-soil plough follow in the same tracks, to break up and pulverize the compact earth six or eight inches deeper. This will enable the oxygen and carbonic acid in the atmosphere, and other meteoric elements, to decompose the before insoluble silicates and phosphates of potash, soda, and lime; and permit the thirsty roots of starving plants to go down and drink in the nourishment which they most need. In this operation the sub-soil is not brought to the surface, but only broken up, and made friable and pervious to water, air, and roots, in all respects like the surface-soil.

How can one best increase the elements of wheat in soils where such elements are lacking?

This is a question of great practical moment. To show, in the first place, what one acre of land can do, where Science had supplied it with each element used by nature in farming this invaluable plants, so far as such elements were lacking in the soil, we ask the reader's attention to the following facts:

In part VIII. vol. 2, p. 206, Mr. Colman says: "It is well attested that a crop of wheat grown in Norfolk county in the same year (1845) produced 11 quarters, 2 bushels, 3 pecks per acre, that is to say, 90 bushels, 3 pecks per acre." The evidence of the truth of this statement being satisfactory to the Royal Agricultural Society, its Council directed Prof. Playfair to make a critical analysis of the soil that produced this remarkable crop. He did so, with the following result:—

Organic matter,	2 43
Hydrate water,	2 60
Carbonic acid,	0 92
Silica,	81 26
Per oxide of Iron,	3 41
Lime,	1 28
Alumina,	3 18
Sulphuric acid,	0 09
Phosphoric acid,	0 38
Magnesia,	1 12
Potash,	1 80
Soda,	1 50
Chlorine,	a trace
Loss on analysis,	0 63
Total,	100 00

In so small an amount as 100 grains, this soil shows an appreciable quantity of each element (14 in number,) found in perfect wheat plants. And yet, more than four-fifths of the soil is nothing but silica, and pure flint sand. The proportion of silica is about the same as we find in our best wheat soils in Wheatland. It differs from them in containing more *soda*, *potash*, and *phosphoric acid*; while the amount of lime, magnesia, alumina, oxide of iron, and chlorine, correspond very exactly with the results of our own analysis. We have, however, never so small an amount of organic matter (vegetable mould) as 2½ per cent. The fact that over 90 bushels of wheat can be grown on an acre with so little organic matter in the surface soil as 2. 43 per cent. is worthy of mature consideration by those that desire to prepare their land for producing large crops of wheat at the least expense. It is not *vegetable*, but *mineral* matter that our soils lack to give a large yield of plump wheat. An abundance of mould will increase the growth of straw, but not of *grain*. To promote the growth of the latter, no one thing is so valuable as a general rule, as that of *bones boiled to a powder in strong lye*. To this the addition of gypsum and common salt will be of great service. The

osphate of lime contained in bones is an indis-
asable ingredient in forming the seeds of the
ca plant The gluten in this grain contains
pher, which the sulphate of lime (gypsum,) will
nish. The plant also needs potash, soda mag-
sia and chlorine; all of which the common salt,
l ashes leached to obtain lye, will supply. The
uid excretions as well as the dung of animals
ound in elements most useful in forming wheat.
t an excess of manure will be ruinous to the
p. And *why* this is so, let us now consider.
ppose, for an experiment, one should make 2000
. of ripe wheat, including both straw and grain,
o a heap of manure for feeding a second crop of
eat plants. Let this manure be spread over the
und eight or ten inches deep, so that the plants
ld have to organize their tissues, seed, &c.,
n the appropriate elements contained in the ma-
e. Could a large yield of good seeds be thus
wn? We think not. Why not? Every thing
kernels of wheat need, as well as all that the
n and leaves require, would be present in great
ndance. The difficulty is this: Nature designs
t this plant shall derive from the *atmosphere*,
ough the medium of its roots and leaves, a large
tion of the carbon, nitrogen, oxygen, and hydro-
, used in organizing its seed. Hence, to feed
eat plants with an excess of these elements in
ing manure, is to inflict a *surfeit* and *disease*
the same. All organized beings, whether
table or animal, may be injured more or less,
having an excess of nutritious matter thrown
their circulating systems. Wheat can endure
surfeit far less than corn, oats, or barley.
re is a *natural limit* beyond which we cannot
any plant or animal the use of its most
priate food. But in regard to wheat culture,
are far behind the maximum of product consist-
with the highest profit. Something can be
ed on most farms, by the droppings of domestic
nals, applied directly to wheat fallows. They
not generally too rich for a dose of barn-yard
ure; especially if it be well rotted, and contain
admixture of gypsum, salt, ashes, and lime.
't spare the clover seed, the plaster, nor the
hed ashes, where you wish to enrich your soil.
Genessee Farmer.

The Farmer--To Young Men.

What honest vocation can be named that does
ribute, in a greater degree, to the enjoy-
t of mankind? It may be humble indeed,
but it goes to swell the mighty aggregate; it may be the rill that trickles from the mountain side, but it diffuses *fertility* through the valley and mingles its drops at last with the ocean. The American Farmer's true motto is and must be—marked upon our foreheads, written on our plow-shares, and cannelled in the earth—"INDUSTRY—*labor is honorable*, and idleness is *dishonorable*." Let us exhort those of you who are devoted to intellectual pursuits, to cherish on your part, an exhalted and a just idea of the dignity and value of the farmer, and to make that opinion known in your works, and seen in the earnest of your actions; and the farmers of this country will be vast in number, and respectable in character.

We are indebted to the farmer for the most gladsome spectacle the sun beholds in its course—a land of cultivated and fertile fields, with a splendid variety of golden fruits in plenteous profusion. Give to the farmer the honor and credit of the annual spectacles of the golden harvests, which carry plenty and happiness alike to the palace and cottage. Old Ireland now looks to the American farmer for bread, and is thankful for the surplus of our bountiful fields.

Be Economical.—Save all you can. You need not be poor forever. Who are the rich! Very generally they are those whose only capital at one and twenty was a fund of industry and economy. They were not too proud to do any kind of labor that brought cash into their pockets—nor did they let it depart without an equivalent. Young man, why cannot you follow in their footsteps? You have energies—arouse them. You have talents—bring them out. You have ambition—kindle it into a flame. As true as you live, if you cherish unworthy pride in your bosom, and fear to soil your hands and tan your skin, you will never rise a step higher than you now are. Stir yourself, then—earn and save—dig and keep digging, and you *must* prosper.—*Ohio Cult.*

Apple Tart.—Peel, core and quarter eight or ten russet apples or lemon pippins; lay them closely in a dish, adding lemon juice if the apples are not very sharp, add lemon peel and sugar. Some cooks put in two or three cloves, others quince marmalade; but as the flavoring ingredients are not always liked, they are better omitted. Cover the dish with puff paste, and bake an hour and a quarter.

Though a man without riches be poor, a man with nothing but riches is poorer.

Trenching.

Trenching is one of the readiest modes in the gardener's power for renovating his soil. The process is thus conducted:—

"From the end of the piece of ground where it is intended to begin, take out a trench two spades deep, and twenty inches wide, and wheel the earth to the opposite end, to fill up and finish the last ridge. Measure off the width of another trench, then stretch the line and mark it out with the spade. Proceed in this way until the whole of the ridges are outlined, after which, begin at one end, and fill up the bottom of the first trench with the surface or 'top spit' of the second, then take the bottom 'spit' of the latter, and throw it in such a way over the other, as to form an elevated, sharp-pointed ridge. By this means, a portion of fresh soil is annually brought on the surface, to the place of that which the crop of the past season may have in some measure exhausted."—*Gar. Chron.*

Bastard trenching is thus performed:—"Open a trench two feet and a half or a yard wide, one full spit, and the shoveling deep, and wheel the soil from it to where it is intended to finish the piece; then put in the dung, and dig it in with the bottom spit in the trench; then fill up this trench with the top spit, &c., of the second, treating it in like manner, and so on. The advantages of this plan of working the soil are, that the good soil is retained at top—an important consideration where the subsoil is poor or bad,—the bottom soil is enriched and enloosned for the penetration and nourishment of the roots; and, allowing them to descend deeper, they are not so liable to suffer from drouth in summer; strong soil is rendered capable of absorbing more moisture, and yet remains drier at the surface by the water passing down more rapidly to the subsoil, and it insures a thorough shifting of the soil."

In all trenching, whether one, two or more spades deep, always, previous to digging, put the top of each trench two or three inches deep, or more, with all weeds and other litter, at the bottom of the open one, which not only makes clean digging, and increases the depth of loose soil, but all weeds and their seeds are regularly buried at such a depth that the weeds themselves will rot, and their seeds will not vegetate.—*Jour. of Ag*

Substitute for Paint.—"W. E. W." is informed that the following is taken from the appendix to Young's "Farmers' Calendar," edition 1815.—Take fresh curds, and bruise the lumps on a grinding stone or in an earthen pan, or mortar, with a spatula. After this operation, put them into a pot, with an equal quantity of well slaked lime. They will become thick enough to be kneaded; stir this mixture well, without adding water and you will soon obtain a white coloured fluid, which may be applied with as much facility as varnish, and which dries very speedily. But it must be employed the same day as it will become too thick the day following. Ochre, Armenian bole, and all colours which hold with lime, may be mixed with it, according to the colour which you wish to give to the wood; but care must be taken that the addition of colour made to the first mixture of curds and lime may contain very little water, else the painting will be less durable. When two coats of this paint have been laid on, it may be polished with a piece of woollen cloth, or other proper substance, and it will become as bright as varnish. It is certain that no kind of paint can be so cheap; and besides other advantages, in the same day two coats may be laid on and polished, as it dries speedily and has no smell. If it be required to give more durability in places exposed to moisture, go over the painting after it has been polished with the white of an egg; this process will render it as the best oil painting. Another from "Bath Papers." vol. 2, p. 144.—Melt 12 oz. of rosin in an iron pot, add 3 gallons of train oil and three or four rolls of brimstone; when melted thin, add as much Spanish brown ochre, first ground fine with as much of the oil as will give your colour; lay it on as hot and thin as possible, and some days after the first coat is dry lay on another. It will preserve plank for ages. Dr. Parry recommends the addition of 4 oz. of bees-wax. Another from "Patterson Society Trans.," vol. 72, 255: Weather boarding—to pay. Three parts of air-slaked lime, two of wood-ashes, and one of fine sand or sea-coal ashes; sift through a fine sieve, add as much Linseed oil as will bring it to a consistency for working with a painter's brush. Great care must be taken to mix it perfectly; it is impenetrable to water, and the sun hardens it. As far as personal experience goes, I know nothing of the above. I use a mixture of Stockholm tar and rosin, or pitch, whichever is most easily obtained; the price is about the same. Care must be taken, if heated in the same pot, that

do not boil over. The better way to boil separately, and mix them in such proportion ay be required. After wood-work is saturwith the above, a mixture of gas-tar and , or pitch, may be used. G. W. K.
m. Ag.

LADIES' DEPARTMENT.

he Wife.—It needs no guilt to break a hus-'s heart; the absence of content, the mutgs of spleen, the untidy dress, the cheerless e, the forbidden scowl and deserted hearth: , and other nameless neglects, without a e among them, have harrowed to the quick heart's core of many a man, and planted e beyond the reach of cure, the germ of dark air. Oh! may woman, before that sight es, dwell on the recollections of her youth, cherishing the dear idea, of that tuneful time, ke and keep alive the promise she then so ly gave. And, though she may be the in-, not the injuring one—the forgotten, not the tful wife—a happy allusion to the hour of eful love—a kindly welcome to a comfortable e—a smile of love to banish hostile words—a of peace to pardon all the past, and the hardeart that ever locked itself within the breast lfish man, will soften to her charms, and bid ive, as she had hoped, her years in matchless —loved, loving, and content—the soother of sorrowing hour—the source of comfort, and pring of joy.—*Chamber's London Journal.*

Mother's Tears.—There is a touching sweetin a mother's tears, when they fall upon the of her dying babe, which no eye can behold out imbibing its influence. Upon such hald ground the foot of profanity dare not apch. Infidelity itself is silent, and forbears its ing. And here woman displays not her kness, but her strength; it is that strength tachment which can never, to its full intensie realized. It is perennial, dependant upon imate, no changes; but alike in storm and hine, it knows no shadow of turning. A r, when he sees his child going down to the valley, will weep when the shadow of death fully come over him; and as the last parting l falls on his ear, he may say "I will go down e grave of my son mourning." But the hurf business draws him away; the tears is ng from his eyes; and if, when he turns from his fireside, the vacancy in the family circle reminds him of his loss, the succeeding day blunts the poignancy of his grief, until at length it finds permanent seat in his breast. Not so with her who has nourished the tender blossom. It lives in the heart where it was first entwined, in the dreaming hours of the night. She sees its playful mirth, or hears its plaintive cries; she weeps in the morning, and goes to the grave to weep there.

Beware how you Use it.—All admit the great influence one sex has over the other. None will deny the influence the wife has over the husband, the mother over the son, or the sister over the brother; but while we know that we possess that influence, we should be careful, very careful, in what way we use it. Man, in the majority of cases, will not be commanded or coerced into any measure. Tenderness, persuasion, and affection, may and will accomplish much; while a different course will estrange him farther from you. O, how the words of a criminal, who was convicted for a State Prison offenee, now ring in our ears. He said, "*One kind word, one affectionate look from my wife, would have saved this.*"

Wife, if thy husband fall, cast him not aside: reproach him not with bitter words, but by kindness win him back, remembering, that as you hope to be forgiven, you must also forgive.

Mother, wife, daughter, beware how you set temptation before those who are near and dear to you.—How many a man has been driven to intemperance, by the first glass presented to him by woman.

Wife, make the home of thy husband a happy resort for him from the cares and troubles of life; let him ever receive from you a cordial welcome —he may be perplexed with many cares and troubles that he would desire to keep from you, fearing it would cause you sorrow and grief—for in so doing, you keep him from resorting to places for company and enjoyment, where the seeds of dissipation and ruin may be sown.—*N. Y. Pearl.*

Corn Bread.—We are in the daily habit of eating corn bread made after the following recipe, by our good landlady, Mrs. Norton, of Astoria. It is equal to anything we ever tasted:—To one quart of sour milk add two teaspoonsful, well stirred in, of finely pulverised salæratus, two eggs well beaten, one table-spoonful of brown sugar,

and a piece of butter as large as an egg. Salt to to suit the taste, and then stir in the meal, making the mixture about as stiff as for pound cake. Now comes the great secret of its goodness. Bake quick—to the color of a rich, light-brown. Eat it moderately warm, with butter, cheese, honey, or sugar-house molasses, as most agreeable to the palate

Remarks on Horticulture and Rural Taste.

Nature has been bountiful with her gifts to our beautiful State, and should not all feel ambitious to improve what has been so abundantly bestowed? We often see large farms, with extensive fields under a high state of cultivation, and seemingly every effort made to get as many dollars as possible from every acre of land. This is all right. But when we turn to the house, perhaps we see a newly painted mansion with its green shutters, exposed to the burning rays of the sun, without a shade tree or a shrub to give freshness to the scene, or to impart loveliness to the spot; and the yards filled with dock, thistles, and other weeds! Can it be that the inmates of such a mansion, have no taste for plants and flowers? Do they think the hours thrown away that are devoted to the culture of "nature's loveliest gems?" I do not envy them their feelings,

"I love the flowers, the fair young flowers,
Wher'er their dwelling be,
Though springing on the mountain side;—
Or 'neath greenwood tree."

There is a power in scenes of rural beauty which affects our social and moral feelings. One may judge with a good degree of confidence, of the taste and intelligence of a family by the external appearance of their dwelling. A habitation, however spacious or costly, with nothing ornamental or interesting around it, indicates a want of delicate and kindly sentiment among its inmates, their books are generally few, ill chosen, and seldom read

When we see a house, however humble, which is apparently as comfortable as its owner has means to make it, with the delicious grape or some other vine climbing up the porch, the yard neat, and tasty, we feel assured that this is the abode of quiet and rational enjoyment A fondness for scenes like this is seldom blended with coarseness of sentiment or rudeness of manners. Why should we devote so much attention to the internal ornaments of our house, while we never seem to think of displaying our skill in out door improvements? What is more delightful than the balmy breath of morn, rendered doubly fragrant by the perfumes of flowers?

How sweet to inhale the fragrance of the opening rose, or pink, which our hands have planted and cultivated? Cannot some of those delicate young ladies, who seem to fear that a little exercise in the yard or garden will injure their beauty, be induced to try the experiment and see if they do not both look and feel better? How many there are that spend most of their precious time, reading "the last work," looking after some new fashion, making a few fashionable visits, and then pretend to th that they have performed a vast amount of us labor! When will the female mind expand enou to *see* and *feel* that health, beauty and usefuln will be enhanced by spending a few scraps of t in the culture of those external ornaments, that attachment which families have for the sacred s will cause them to look back with the most ende ing recollection, when far away!

But I must stop, I do not deem myself capa of writing for others, but wish to elicit the m and pen of those competent to instruct in this every other good work Much is to be done many of us, in erasing our erroneous ideas prejudices in relation to the dignity of labor, preparing our minds for enjoyment in the works nature, in inspiring a love for natural beauty ev where, and for all that is lovely and beautiful the works of our Creator. The inhabitants of country should rise above the mere drudgery life, become familiar with nature in her charm aspects, take pleasure in viewing God's ever va ing works.

"There comes from every fading flower
A lesson for the heart."

What are the richest fruits or the brightest adorments of earth, without the intellectual nature, moral fruits of the heart and mind.

ELIZABETH

Willow Cottage, Ross county, June, 1847.
—*Ohio Cult.*

Training of Children.—The instruction your children cannot commence too early Every mother is capable of teaching her child obedience, humility, cleanliness, and propriety behaviour; and it is a delightful circumstance t the first instruction should thus be communicat by so tender a teacher. It is by combining affectionate gentleness in granting what is right, w judicious firmness in refusing what is improp that the happiness of children is promoted, and good and orderly habits are established If c dren are early trained to be docile and obedi the future task of guiding them aright will compuratively easy.—*Nicholls.*

Cranberry Tart.—Take and wash a quar cranberries in several waters; put them into a king dish, with the juice of half a lemon an quarter of a pound of moist or powdered lump gar. Cover them with puff paste, and bake th quarters of an hour. Five minutes before i done, ice and return it to the oven.

Rhubarb Tart.—If the rhubarb has a g spotted surface, it is a kind that may be cu without peeling; if the red sort the peel must torn off before it is cut up in pieces of an inch length. Fill a dish with these, adding sugar lemon peel, and, after covering it with a pu short paste, bake it for three quarters of an h *Am Ag.*

Facts For Farmers.

There are some things that farmers ought to now.

It is an error to plant seeds from a State fur-er south. In a cold season only, the seed of a lder climate will ripen well.

Often breaking up a surface keeps a soil in alth; for when it lies in a hard bound state en-ching showers run off, and the salubrious air nnot enter.

Never keep your cattle short: few farmers can ford it. If you starve them they will starve you.

It will not do to hoe a great field for a little op, as to mow twenty acres for five loads of hay. nrich the land and it will pay you for it. Bet-r farm 30 acres well than 50 acres by halves.

Drive your business before you and it will go sily.

In dry pasture dig for water on the brow of a ll; springs are more frequently near the surface n a height than in a vale.

Rain is cash to a farmer.

The foot of the owner is the best manure for nd.

Cut bushes that you wish to destroy in the sum-er, and with a sharp instrument; they will eed freely and die.

Sow clover deep, it secures it against the rought.

Never plow in bad weather, or when the ground very wet.

It is better to cut grain just before it is fully or ad ripe. When the straw immediately below e grain is so dry that on twisting it no juice is pressed it should be cut, for then there is no further circulation of juice to the ear. Every ur that it stands uncut after this stage is atten-d with loss.

Accounts should be kept detailing the expense d product of each field.

When an implement is no longer wanted for e season lay it carefully aside, but first let it be ll cleaned.

Obtain good seed, prepare your ground well, w early and pay very little attention to the oon.

Cultivate your own heart aright; remember at "whatsoever a man soweth, that shall he al-reap."

Do not begin farming by building an extensive use, nor a spacious barn till you have some-ing to store in it.

Avoid a low and damp site for the dwelling house. Build sufficiently distant from your barn and stockyard to avoid accidents by fire.

Keep notes of all remarkable events on your farm.

Recording even your errors will be of benefit.

Good fences make good neighbors.

Experiments are highly commendable, but do not become an habitual experimenter.

The depredations of birds are fully compensated by the services they render in preying upon in-sects.

Sheep put into fresh stables are apt to be killed by eating too much grain.

A bare pasture enriches not the soil, nor fattens the animals, nor increases the wealth of the owner.

One animal well fed is of more value than two poorly kept.

The better animals can be fed, and the more comfortable they are kept, the more profitable they are, and all farmers work for profit.

Ground well plowed is better than thrice poor-ly kept.

Doubtful crops are more profitable than poor ones. Make the soil rich, pulverize it well and keep it clean, and it generally will be productive

Weeds that grow unmolested around the fen-ces, stumps and stones, scattered their seeds over the farm and they are likely to grow.

Cows well fed in winter give more milk in summer.

An ox that is in good condition in the spring, will perform more labor, and stand the heat of summer much better than one that is poor.

When you see the fence down put it up, if it remains until to-morrow the cattle may get over.

What ought to be done to-day, do it, for to-morrow it may rain.

A strong horse will work all day without food, but keep him at it and he will not last long.

A rich soil will produce good crops without manure, but keep at it and it will tire.

Farmer's sons had better learn to hold the plow and feed the pigs, than measure tape and count buttons.

Young ladies who have the good fortune to become farmers' wives will find it more profitable to know how to make Johnny cake, butter and cheese, than to play the piano.

All who wish to be rich must spend less than they earn.—*Sat Emporium.*

An Ingenious Clock.—Mr. Timme of Brooklyn, N. Y., has just constructed a most curious and elegant musical clock. The Advertiser thus describes it:—

"It is a great work, standing, when mounted on its case, six feet high, and occupying a space of some eighteen inches in width. The dial has the 12 signs of zodiac neatly painted around its outer edge, and is ten inches in diameter. A fluted moulding encompasses the glass face, sorrounded by an apex of cornice work, in which is a trigonal window, prefaced by the bluest looking little curtain in the world. Now, it is through this window the instrument breathes its gentle music, so subdued, so touching, so delicate. There is no harsh rattle of machinery, no skipping of notes, no dysphony. The tunes are all given with regularity and precision, equal to the performance of any *maestro* in the musical world, be he ever so skilful or accomplished a player. The tiny whistles, as they blend in harmonious unison with the full rich tones of the trumpet notes, produce a "concord of sweet sounds," that at once animate and delight the ear. The cost is only equal to that of a gold watch, being $130. It plays twenty-four beautiful airs, several of them marches, waltzes, &c., always commencing a different piece at every hour's termination.

Recipe to prevent Infection from Fever.—In order to aid as much as possible the prevention of infection from typhus fever, we present the following simple and efficacious recipe of Dr J. C. Smith, for which he was paid £5,000 by Parliament: "Take six drachms of powdered nitre (salt petre) and six drachms of sulpheric acid (oil of vitrol,) mix them in a tea-cup. By adding one drachm of the oil at a time, a copious discharge of nitrous acid will take place. The cup is to be placed during the preparation on a hot hearth or a plate of heated iron, and the mixture stirred with a tobacco pipe. The quantity of gas may be regulated by lessening or increasing the quantity of ingredients. The above is for a moderate-sized room, half the quantity would be sufficient for a small room. Avoid as much as possible breathing the gas when it rises from the vessel." No injury to the lungs when the air is impregnated with the gas, which is called nitrous acid gas: and it cannot be too widely known that it possesses the property of preventing the spread of fever.——*Leeds Times.*

I'm going to be a Man.—The editor was visiting some time since in a family where he saw a little lad, about four years old. Calling the little fellow to him, 'Well my little boy,' said he, 'what do you intend to be when you grow up?' He had asked the same question a great many times before, and some boys told him they meant to be farmers, some merchants, and some ministers. But what do you think was the answer of this little boy?—Better than all of them. 'I mean to be man!' said he. It will matter very little whether he is a farmer, or a merchant, or a minister, if he is a man; he will be successful and be loved and respected. The editor has known some persons who never became men, but great boys, after they were grown up. Ask your teacher, what makes the man, and then, like the little boy, aim to be one.

Hear what Robert Burns says——

'What though on homely fare we dine;
Wear hodding gray, and a' that;
Gie fools their silks, and knaves their wine,
A man's a man for a' that,
For a' that, and a' that,
Their tinsel show and a' that;
The honest man, though e'er sae poor,
Is king of men for a' that.'

—*Com. School Jour.*

The Cockroach Nuisance.—This being the season when the cockroach, the pest of our kitchens, commences its nocturnal excursions, the following recipe may call forth the grateful acknowledgements of those of your readers who suffer from the presence of this loathsome insect.

Take a sixpenny loaf of wheat bread—the staler the better—reduce it to a crumb, (of course after parting off the crust) then in a pint of boiling water put two tea spoonsful of Cayenne pepper, one of pulverized criseed, half a drachm of saltpetre, the same quantity of white lead, and a wine glass full of extract of hops. Now throw in your crumb of bread, digest for six hours in a moderate heat; strain through a cloth, add to the liquor 30 drops of tincture of quassia, and let it stand till the next day, then bottle it and keep it in a pantry. Some dozen lumps of sugar, saturated with this mixture, and strewed about the kitchen, will remove this pest in less than no time.—*Am Ag.*

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