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# The Farmer's Journal,

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TRANSACTIONS

OF  
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## The Farmer's Journal.

### The Farmer's Friends and His Enemies.

#### No. 3. WHEAT MIDGES.—(Continued.)

In our last we noticed several enemies of the wheat distinct from the wheat midge, and distinguished the *Chalcidomyia Fitchii*, and its relative, the Hessian Fly, as being properly midges and not weevils. We also gave an account of the appearance and habits of the former of these insects. We propose now to advert to the remedies for the midge; but may first remark, in addition to the facts stated in our last, that Fitch, in his second report, notices several other minute flies, Dipterous and Hemipterous insects, that injure the wheat, but not so largely as the midge. Some of these insects we have noticed in past years, but were not aware that they are so extensively distributed over America, and so injurious as they would appear to be from Fitch's Report.

One tribe of these minute wheat destroyers consists of several species of *Chlorops* and *Oscinis*, creatures resembling the common house fly in form, though of very minute size. Their larvæ or grubs are very small worms of greenish and whitish colours, burrowing in various parts of the plant. Some of the species are well known to observant farmers as "Mow flies," appearing in great numbers, either in the grub or perfect state, on the grain after it has been housed.

Another group of species, described by Fitch, are of very different form and habits from the midges, being hemipterous insects, principally of the genus *Thrips*. They are still more minute than the midge, live in the ear, and cause the grain to shrivel. Their larvæ are very small, six legged, active and of yellowish and black colours. The habits of these creatures still require investigation, but they are probably far less destructive than the true midge.

To return to the midge, the facts stated in our last article resolve themselves into the following statements:

1 The insect deposits its eggs on the grain about the time when it is in flower, and usually in the evening.

2 The larva when hatched attaches itself to the young grain and prevents its growth.

3 When full grown it becomes stiff and torpid, and if left long enough falls to the ground.

4 It buries itself in the ground and thus passes the winter.

5 In early summer, it emerges from the ground as a perfect insect, in which state, if the weather be favourable, it seeks the growing wheat for the purpose of depositing the germs of a new brood.

First, then, can we prevent it from depositing its eggs. This has been attempted by kindling smoky fires on the windward side of the field, and by drawing stretched lines through the heads of the grain when the flies are found to be on the wing. These expedients are no doubt useful, but it is difficult to resort to them on a large scale, and just in the proper time. It has also been ascertained that the bearded varieties of wheat are less likely to be attacked than

those not so protected, and that wheat on high and airy situations, being more agitated by the wind, often escapes when that in low and sheltered places suffers. These are facts well worthy of attention when danger from the midge is apprehended.

In the case of spring wheat, late sowing has been recommended, and is no doubt often effectual. The very early varieties must however be selected, and these are not so productive as others, and late sowing is likely to expose the crop to injury from autumnal storms and rust. Beside these difficulties, it is known that the midge is somewhat irregular in its appearance. A correspondent in Upper Canada suggests to us that this may depend on the relative warmth and moisture of different springs, and this we think very likely, from having observed that the midge could be hatched from a flower pot in a sunny window much earlier than the time of its appearance in the open ground. It is also possible that by the continuance of late sowing, a late variety of the midge might in time be produced, which would not come forth until the late sown grain was ready for it. Nevertheless late sowing has been much practised, and to a certain extent has been effectual.

As the midge does not appear to like rye, and is not found in oats and barley, it would be possible, periodically, to avert its ravages as well as those of many other enemies of the wheat, by adopting a provision similar to that in the Mosaic Law, for a periodical rest of the land, and restricting the culture of wheat for a year over large districts. Practically this has been done in many places,

owing to the precarious nature of the crop, and the consequence has been that, after a time, the wheat culture could be safely resumed.

So much for remedies under our first head.

*Secondly*, After the egg has been deposited, it does not appear that we can do anything in the way of prevention. Cold rain storms, however, occurring at this stage, appear often to kill large numbers of the insects. If it should appear evident that the crop is to be a failure, it is economy to cut down the grain, and dry it as fodder, as in this way it will serve a useful purpose and the insects will be destroyed. It sometimes happens that only the breadth of a few ridges at the margin of a field is seriously affected. In this case that portion may be cut, and the rest allowed to remain.

*Thirdly*, If we can secure the crop before the insects have fallen out in autumn, we may destroy them in the barn. It has been ascertained that if kept dry the insect in this stage perishes; it must bury itself in moist ground in order that it may survive the winter and come forth in the perfect state. It is only necessary, therefore, in threshing the grain to set aside the chaff and dust in a dry place to destroy the insects. A much more effectual course is, however, to burn this refuse, which will contain all the larvæ that have been taken in with the wheat. We have known bushels of the larvæ to be collected and destroyed in this way; and in England, where the insect was known long before it appeared in America, this course has been successfully adopted. If, however, the farmer wishes to do all in his power to increase and multiply the midge, he will sweep out all the refuse of his threshing into his barn-yard, where the little foe will quickly bury itself, and be ready in summer to wing its way to every part of the farm.

In seasons when the fly appears early, and in any season if the grain be allowed to stand till ~~dead~~ ripe, large numbers of the midges will have fallen to the ground before reaping. These of course will be ready to come forth in the spring. The farmer should, however, endeavour, if possible, to reap before the grubs have left the ear, so that he may secure them in the barn; and it is well known that such early reaping is more advantageous in other respects, as the grain reaped immediately after the top of the straw has turned yellow, yields more

flour than that which is left to ripen completely. When it is impossible to do this, and the farmer knows that large quantities of grubs have fallen, he should, if possible, avoid sowing wheat in or near the same ground in the following year. The midge does not usually fly far, especially against the wind, and hence, when farmers are careless and sweep the young midges into their barn-yards, it will be observed that in the succeeding year the wheat nearest to the barn is that most seriously affected. In like manner where there is no system of rotation, and wheat is raised for several years on the same ground, the increase of the midge is greatly favoured. Where this kind of farming is followed, it is probable that fall ploughing must have a considerable effect in dislodging the larvæ and exposing them to be killed by frost.

*Fourthly*, The last remark under our third head says nearly all that occurs to us in relation to the under-ground stage of the midge. It certainly buries itself to the depth of several inches, and can withstand our severest winters; but it is not unlikely that in some bare and cold winters large numbers of these and other enemies of the husbandman are frozen and killed.

The farmer will observe in the above list of remedies many that are quite practicable, but perhaps none that is completely effectual, but by adopting one or more as may be convenient; and especially by destroying all the larvæ that he can find when threshing and cleaning his grain, he will do much to secure himself from this plague. We would advise every intelligent farmer, next autumn, to take up and examine carefully the dust and chaff of his thrashing floor, and if he should find any of the little yellow larvæ of the midge, to take effectual measures to destroy every one of them, since every female midge may cost him in the succeeding harvest an ear of wheat.

WHAT CROPS CAN I RAISE, AND WHAT CAN I MARKET, TO THE BEST ADVANTAGE?—This is a question which every cultivator of the soil, whether on a large or a small scale, might put to himself, every year, with the probability of its leading him to see what otherwise might have escaped his observation in regard to his best course in raising and marketing of crops. Two men, the one on a light sandy farm and the other on a farm the soil of which is a heavy clay, cannot raise the same crops with equal propriety and advantage. Two farmers, the one of whom is near a city or village where manure can be had for a trifle and the other so situated that he can avail himself only of what helps to

fertility he can derive from his home resources, cannot farm their lands in the same way, nor raise the same crops with equal advantage. Two farmers, the one near to a Railroad depot, and the other remote from one, cannot raise potatoes, and perhaps other heavy crops, with equal advantage. A farmer in a district of country where every bushel of corn he raises costs him nearly a dollar, had better leave commencing to districts in which corn can be raised at twenty cents a bushel or less, and get his corn by raising stock, wool, hay or something else which he can raise to better advantage than corn, and procuring his supplies by selling the one and buying the other. On a farm or in a district where not more than six to ten bushels of wheat can be had from an acre, it would be folly to supply what a farmer needs for his own family from his own land, while he could raise some other crops which, when marketed, would yield him two three, or five times as much money as his supply of wheat or flour would cost him.

There are instances of classes of cases in which the results will be very different according as an adaptation of crops to the soil, the market, and other circumstances, is considered and determined with good judgment, or otherwise. Instances might easily be multiplied, for many circumstances, such as peace or war, a plentiful or a scanty crop during the preceding year, the establishment of a new market by a new railroad, a new manufactory, or some other new thing in a neighborhood, will have an influence in determining what crops can be raised with the greatest profit. A man of foresight and good judgment will take many such circumstances into account in fixing his plans for a year, and will thereby secure advantages and profits, which the man who goes on in a certain routine without thought will very surely miss. But then such men have always just such luck!—A. R. A.

### New Plants,

#### Recommended for Farm culture.

From a notice of the forthcoming volume of the Report of the Washington Patent Office, contained in the *New York Tribune*, we extract the following statements respecting useful plants there recommended for cultivation in the Northern and Middle States. Many of these plants deserve trial in Lower Canada, and we suppose that Agricultural Societies could readily obtain supplies of their seeds or cuttings, from cultivators in the United States, or through the Agricultural Board, which could open communication for the purpose with the Patent Office. One of these plants, the Chinese sugar cane, has, as stated in last number, been cultivated with satisfactory results by Mr. Shepherd of this city.

One of the few sensible acts of the agricultural branch of the Patent Office was the appointment of D. J. Browne, a gentleman of good education, speaking several languages, and a great traveler, and of extensive information upon agricultural subjects. To him the country is greatly indebted for his

introduction of some very valuable new seeds and plants, and for getting up the agricultural reports in somewhat more of a readable form than the mass of trash that has been issued some years from that office. In his report upon seeds and cuttings in the forthcoming volume, we find the following useful information :

" Among the seeds, cuttings, and tubers that have been introduced, or otherwise obtained, within the last three years, the culture of which has been attended with marked advantage and success, I would instance the following :

" *The Turkish Flint Wheat*, from near Mount Olympus, in Asia, a hardy Fall variety, with a dark-coloured chaff, a very heavy beard, and a long, flinty, light-coloured berry, will prove profitable to the farmer and miller, from its superior weight and the excellence of the flour it will produce. It appears to be well-adapted to the soil and climate of the Middle States, and has even improved in the quality of its grain, both in regard to its color and size. It withstood the severity of the past winter, without much injury from the cold; and, from its very long and thick beard, it doubtless will be protected, in a measure, from the depredations of insects in the field, as well as from heating or moulding in the stack. The hardness of the grain, too, when dry, is a sufficient guaranty against ordinary moisture in transportation and the perforation of the weevil in the bin."

Mr. Browne speaks highly, but no more so than it deserves, of the *King Railin* or *Brown corn*, the seed of which was obtained from an island in Lake Winnepissogee, in New-Hampshire, and has been extensively disseminated through the Northern States. It may be planted in June, and matures in 90 days, growing on a low stalk, and yielding, with good cultivation, 80 to 100 bushels per acre of hard, yellow, flinty grain, full of oil, and the stalks afford abundance of fodder.

*Sorghum Saccharatum*—*Chinese Sugar-Cane*.—Mr. Browne speaks of this plant as principally valuable as a forage crop. He wrote before the growth of last season had developed its undoubted value as a sugar crop. He says :

" Since its introduction into this country, it has proved itself well adapted to our geographical range of Indian corn. It is of easy cultivation—being similar to that of maize or broom-corn—and if the seeds are planted in May in the Middle States or still earlier at the South, two crops of fodder can be grown in a season from the same roots, irrespective of drouth—the first one in June or July, to be cut before the panicles appear, which would be green and succulent like young Indian corn, and the other a month or two later, when or before the seed is fully matured. The amount of fodder which it will produce to the acre, with ordinary cultivation, may be safely estimated at seven tons, when green, or at least two tons per acre, when thoroughly cured. The

stalks, when nearly mature, are filled with a rich saccharine juice, which may be converted into sugar, sirup, alcohol or beer, or may be used for dyeing wool or silk a permanent red or pink; and the entire plant is devoured with avidity, either in a green or a dry state, by horses, cattle, sheep and swine.

" Considered in an utilitarian point of view, this plant, perhaps, has stronger claims on the American agriculturist than any other product that has been brought to this country since the introduction of cotton or wheat. Aside from other economical uses, its value for feeding to animals, alone, in every section of the Union where it will thrive, cannot be surpassed by any other crop, as a greater amount of nutritious fodder cannot be obtained so cheap, on a given space, within so short a period of time."

This plant, according to Mr. Browne, is not, as some have asserted, the "Dourah Corn," or "African," or "Egyptian," or "Chocolate" or "Mummy Corn," and should not be cultivated near that variety, nor near broom-corn, a well-known variety of *Sorghum*, because the seeds will mix and destroy the value of the sugar plant. We are free to say that experiments already made with this plant indicate its value to the American farmer only second in importance to Indian Corn. The crop grown this year is so large that all who desire seed will be able to obtain a supply at moderate cost. Remember not to use any that has been grown near broom-corn, or Dourah corn, and not to plant it near either of these, if you wish to obtain pure seed for future planting.

Of another plant much talked of, much bragged about, much speculated upon, Mr. Browne has the following :

" *The Chinese Yam* (*Dioscorea batatas*), originally from China, but more recently from France, has been introduced, which has succeeded well in various parts of the Union, and promises to serve as an excellent substitute both for the common and sweet potato. It possesses the remarkable property of remaining sound in the earth for several years, without either deteriorating in its edible qualities or sustaining injury from frost, which adds much to its value, in being always in readiness for the kitchen, and this, too, often at times when the potato is shriveled or otherwise impaired."

The seed was distributed in small tubers, the size of peas, made by covering the vines with earth till the joint sent out roots, when, sowing the vines the roots form tubers.

Many who planted these "small potatoes" were disappointed and gave them up in disgust. Mr. Browne thinks perseverance will produce favorable results. He says :

" When cultivated in a deep, rich, loose soil, the small tubers, after the first year, will penetrate the earth perpendicularly to a depth of two or more feet, and will continue to increase in size from year to year, without becoming woody, like those of the parsnip and many other plants after the first

season's growth. They may be planted in the Spring, in the open air, as soon as the season is sufficiently advanced to be free from danger by frost, and may be cultivated somewhat after the manner of the sweet potato, or yam, of the South, except that they should remain undisturbed in the ground from one year to another, until they are ready for market or use. In the colder portions of the Middle and Northern sections of the Union, it would be well to protect them from frost during the Winter, by covering the ground with a bed of spruce boughs, leaves or straw, which should be removed as early in the Spring as circumstances may require.

" When fully matured and cooked, the Chinese yam is dry and farinaceous, much resembling in taste and appearance the common potato, and is more agreeable to the palate than the ordinary yam. Considering its property of persisting in the ground for several years without deterioration, being in readiness for the kitchen at all times, and all seasons, after the first year's growth, it cannot fail to prove an excellent substitute both for the sweet and the common potato in all localities where it will thrive."

Mr. D. Bolt, of this city, says the last Winter did not affect his roots—they were in fine condition, and beginning to vegetate in April.

" I had one cooked plainly, in water, with a little salt. The flavor was like that of a fine Kidney potato, and the yam was very white and delicious. I think it will prove a useful and profitable vegetable."

Another of the new earth-growing esculents lately introduced is, "the Earth Almond, or Chufa, (*Cyperus esculentus*) a small tuberous esculent, from the South of Spain, which has naturalized itself to our climate and soil, and has proved very prolific in its yield, when cultivated in the light sandy soils of the Middle and Southern States, as well as those which are rich, and bids fair to become a valuable crop for cattle and swine. It belongs to the same genus as the notorious nut-grass, (*Cyperus repens*.) but does not possess the power of spreading itself like that pest of Southern fields."

If this root is half as prolific and as easily grown as the nut grass, known as "Coco," there will be no difficulty in its propagation—the difficulty will be in its extermination. The Coco is the nearest indestructible of any vegetable we have ever seen. One kind, called sweet coco, is much sought after by the hogs, and is nutritious. The bitter coco is a great pest in Louisiana.

Among the nuts largely imported into this country is the Persian Walnut, or Madeira Nut, (*Juglans regia*), originally a native of Persia, or the north of China.

" This has been somewhat extensively distributed, and appears to be well adapted to the climate of the middle and southern latitudes of the United States. A tree of the 'Titmouse' or 'Thin-shelled' variety

(*Juglans regia tenera*), about twenty years planted, forty-five feet in height, and fifteen inches in diameter, standing on the premises of Colonel Peter Force, in the city of Washington, is perfectly hardy, and bears yearly an abundance of excellent nuts. This is considered the most valuable of all the walnuts, as the tree begins to bear in eight or ten years from planting the seed; and the fruit is very delicate, keeps well, and is rich in oil."

The nuts when planted should be steeped seven or eight days, and planted in the beginning of March. In forty days the shoot will appear.

In Cashmere, walnut oil is used for painting, burning, and for cooking.

"The Almond, (*Amygdalus communis*), which is indigenous to Syria and Northern Africa, has become naturalized in the south of Europe, Madeira, the Azores and the Canary Islands, and is cultivated for ornament or its fruit in the central and southern portions of the United States. The advantages of this tree may be briefly summed up in the following words: It prospers upon indifferent soil; requires but little care in its cultivation; is beautiful as an ornamental tree; useful as a shade tree; and profitable in its production of a much-desired fruit, yielding in its bearing years about 20 pounds to the tree, which, at 15 cents a pound, would amount to at least \$500 to an acre. The amount of almonds annually imported into the United States is believed to be valued at more than \$250,000.

The Cork-Oak (*Quercus suber*), which is an evergreen tree, indigenous to the south of Europe and Northern Africa, which furnishes the well known article, cork, Mr. Browne thinks may be advantageously introduced into the South-western States. Some of these trees have been grown to large size in England and Ireland. The cork comes from the outer bark of the tree, which naturally falls off, though it is much more valuable when removed artificially.

"When this oak has attained the age of fifteen years, according to Hamel, or twenty years, according to Bosc, the bark is removed for the first time; but this first bark is found to be cracked, and full of woody portions and cells, and hence it is fit only for fuel, or perhaps for tanning. The second disbarking takes place in eight or ten years, when the cork is sold to fishermen for buoying up their nets, and to others for inferior uses. But, in eight or ten years more, the tree yields cork of good quality, and so continues to do until it is two or three centuries old, the cork improving in quality throughout the whole period."

Licorice (*Glycyrrhiza glabra*) has been introduced and somewhat experimented upon in some of the Southern States, but we do not get any very flattering accounts of success. Mr. Brown thinks

"There is no reason why its culture could not be profitably extended in most localities where it will thrive. The amount annually

imported in a crude and manufactured state is valued at about \$300,000."

It is a tender perennial plant, largely grown in the south of Europe as a profitable crop. There is a plant called wild licorice growing in the New England States.

As an oil-producing plant, if not for the purpose of extracting opium, the cultivation of the Poppy (*Papaver somniferum*) is recommended, because

"There can be but little doubt that our clear sky, fervid summer sun, and heavy dews, would greatly favor the production of this article; but how far these circumstances, in connection with American ingenuity in devising improved methods for its extraction, would allow us to compete with the cheapness of labor in the East, can only be determined by actual trial. Certainly it is an object worthy of public encouragement, as the annual amount of opium imported into the United States is valued at upwards of \$407,000—a considerable portion of which might be saved, and thereby add to our resources."

Iceland Moss may be grown, probably, in the mountainous regions of the North, as well as in Scotland. In Iceland it is used as food; in this country as medicine.

*The Florentine Iris, or Orris-root Plant* (*Iris florentina*), a perennial, native of Carniola, and common in the gardens of Europe, is another of the plants recommended, if not for the production of orris, for the purpose of ornament. The flowers, which put forth in Spring, are noted for the graceful curve of their petals, as well as for the brilliancy of their hues.

*Turkish Rhubarb*, as it is erroneously called in this country, comes from the *Palmated Rhubarb*, (*Rheum palmatum*), a perennial, native of Russia and some parts of Asia, whence the dried roots is imported into this country for medicinal purposes.

The East Indian Rhubarb, which is also largely imported, is grown in England to a large extent. If its culture were success-fully prosecuted here, we might thus add to our productive resources.

In the middle and cooler parts of the United States, the seeds may be sown in March, in a gentle hot-bed, and, when the roots are about an eighth of an inch in diameter, they may be carefully drawn up, preserving the tap-root, and planted in a fine rich and deep soil.

Among other out-of-the-way things recommended for cultivation in this report is the Assafœtida plant (*Ferula assafœtida*) a native of the South of Persia, growing on the mountains in the Provinces of Charasaa and Laar, where it is called Hingisch. The gum, resin, known in commerce under the name of "assafœtida," is the concrete juice of this plant, which is said to vary according to the soil and situation, not only in the shape of the leaves, but in the nauseous quality of the juice which comes from the inside portion of the perennial roots, which grow as large as a man's arm. When the

plants are four years old, the roots yield the gum, which exudes from the cut-off-end as it stands in the ground. It would probably grow in the mountains of the Southern States.

In Cashmere, as well as other countries, not only the mountains are made to produce food, but the lakes and streams.

"*The Sinhara or Water Nut* (*Trapa*?), is a native of Cashmere, but grows abundantly in the lakes near the capital, especially in the Wurler lake, and yields an average return of 10,000,000 pounds of nuts a year. They are scooped up from the bottom of the lake in small nets, and afford employment to the fisher men for several months.

"These nuts constitute almost the only food of at least 30,000 persons for five months in the year. When extracted from the shell they are eaten raw, boiled, roasted, fried, or dressed in various ways after being reduced to flour. The most common preparation is to boil the flour in water, so as to form a kind of gruel, which, though insipid, is very nutritive.

*The Lotus* (*Nymphaea lotus*) is also a native of the lakes of Cashmere, and its stems serve as another article of food. In autumn, after the blade of the leaf has begun to decay, the stem has arrived at maturity, and being boiled till tender furnishes a wholesome, nutritious diet, which is said to support, 5,000 persons in the city for nearly eight months in the year.

"This plant, as well as the preceding, probably would succeed well in the muddy bottoms of the coves, creeks, and sloughs of our lakes and streams; and, if not relished as human food, doubtless its produce would serve to nourish animals."

—:—

In a recent number of the *Cultivator* we were surprised to find a practical farmer gravely maintaining the advantage of applying stable manure as a surface dressing. The following communication to that journal gives very ably the opposite and certainly more scientific view:

#### APPLICATION OF BARN-YARD MANURES.

MESSRS. EDITORS.—I am one of the many readers, that you imagined would be surprised to learn how so good a farmer as Mr. JOHNSTON applies his barn-yard manure. That he raises very fine crops of corn in his way, I can readily believe, because I have seen good crops raised by planting on merely inverted sod, and certainly the addition of manure, in his way, would add materially to the crop; and also because I am confident that Mr. Johnston would not persevere in his plan unless he did raise good crops. At the same time, it does not necessarily follow that his plan is the most economical way of applying manure.

When I commenced farming in this country twenty years ago, I used to heap up my manure, I suppose because I had always

done so in England, but for fifteen years I have adopted a different plan, and like our friend, Mr. Johnston, I do not feel disposed to change it until I see my neighbors raise better crops by some other plan. As soon as I have finished spring sowing, I draw my manure out of my yards onto the land intended for corn, taking pains to have it well shaken and evenly spread, and plowed under as quickly as possible.

After speaking of plowing the manure in the bottom of the furrow, Mr. Johnston adds: "where it would be of little if any use in our dry seasons." Now my experience is just the reverse of this; in fact it is on the very account of our dry seasons that I deem it so very advantageous to plow in fresh manure. When I say fresh manure, I do not mean such stuff as we too frequently see dotted about a field, here a load and there a load, which in fact is little better than dry straw. But I mean good solid manure, full of rich juice, which it will be, if properly manufactured in a well shaped and regularly littered yard. Let such manure as this be evenly spread and quickly plowed under, and I maintain, without any fear of being called a theorist, that it is a more economical way of applying manure than to let it lie so long on the top of the ground, "wasting its fragrance on the desert air."

In a sensible letter on this subject in your last publication, subscribed "A READER," occurs this sentence: "It may be laid down as a universal rule, that stable manure, to be applied in the most efficient manner, should be perfectly intermixed with the soil, at precisely such a depth as the roots of plants go in search of nutriment." Now would not this be a difficult operation? Years ago JETHRO TULL, who was styled the father of drill husbandry, made an experiment on this subject in regard to Swedish turnips, which experiment was republished by Cobbett in his English Gardener, in 1829. He proved that their roots must have extended a yard all round; this is laterally; there is no mention of depth. But this was tested with wheat about 25 years ago by LORD VERNON, an account of which I have never seen in print, but I had the fact from his own lips. He had long been urging his tenants to adopt a system of deeper cultivation, but without effect, as his tenants persisted that they plowed already as deep as any root would go. To settle the point Lord Vernon put soil into a large barrel, 3 feet deep, and sowed it with wheat. When it was ripe, he called his tenants together, and had the barrel taken apart, when he convinced them by ocular demonstration that the roots had penetrated to the bottom of the barrel, where they had formed a web of fibres. How much farther they would have gone, had the barrel been deeper, deponent cannot say, but it is quite evident that there need be no fear of plowing manure in so deep that the roots of plants cannot search it out.—C. B. MEEK. *Canandaigua, N. Y., Dec. 1, 1856.*

#### PREPARATION OF FOOD FOR ANIMALS.

The Ohio Farmer lays down the following rules for the management of fattening animals:

1. The fattening animals should have good, wholesome air, and plenty of it.

2. They should be allowed to rest most of the time. Very gentle exercise is all they need.

3. They should have a clean resting place. Filth is always hostile to the best physical condition, whether of man or beast.

4. They should be kept in a tranquil, easy state of mind. We say "state of mind," designedly; for nothing is more clear to the careful observer, than that animals have intelligence and feeling, and that anxiety and fear depress their physical condition, as certainly as they do that of man.

5. They should be placed where their temper will be as even as possible. For this reason, as the season advances, fattening animals should have suitable shelter, especially from cold winds, rains, and snow storms.

6. They should have plenty of the most nutritious food, adapted to the increase of their flesh and fat, as rapidly as may be consistent with health and solidity. The grains are generally best adapted to this end, and accordingly they are generally used; but the condition in which they are used in most cases, greatly lessens their value. In nine cases out of ten, we doubt not, grain is fed entire, that is, unground and uncooked.—This, we are satisfied, is a great mistake; and in this opinion, we are sustained by scientific writers, and by the most experienced stock-feeders in this country.—Grain should be *crushed* and *cooked*, to yield the greatest amount of nourishment, with a given expenditure of digestive power. With the aid of a corn-crusher, and with the use of some convenient mode of steaming grain and vegetables, (Scott and Hedges' is altogether the best we have seen, we have no doubt that a considerable saving may be made in the use of fattening-food. But let our friends satisfy themselves. Let some one of them take two animals, as nearly alike in every respect as he can find; then let him treat them in every respect alike, except that the grain fed to one has been crushed and steamed, while that fed to the other is in the kernel. At the end of two months let him weigh both. The result will aid him in forming a sound judgment in the matter.

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**PASTURE GRASSES.**—The subject of improving our pastures is receiving much attention, and is one well deserving of much more consideration than it has yet received. In our natural pastures, from four to six acres are required for the pasturage of one cow. In pastures properly prepared, half this number of acres is found sufficient. Indeed, many instances may be named, in which one acre has yielded an ample supply to a cow for five months. But most of our pasture lands are of such a character, that

we can never hope to reach this standard. Land that will feed one cow per acre, will yield from one to two tons of good hay, worth from twelve to twenty dollars. This is too expensive pasturage. The land is worth more for hay or other crops. Some years ago, I pastured a cow upon an acre of interval land, and she did well. But the land would have yielded a ton and a half of good hay, worth fifteen dollars standing. Cows were pastured in the vicinity for 7 or 8 dollars per year. This was not good economy. It was merely a matter of convenience. But if our pasture lands can be made to yield double the amount of feed they now do, the advantage must be too obvious to need a word of comment. Our native pastures contain from twenty to forty kinds of plants. Many of them are little better than worthless weeds. Some of them contain so much bitter extractive matter, that cattle will not eat them. Others are so dry and tough that cattle will not eat them, so long as they can find anything green and succulent. These various grasses arrive at maturity at different seasons of the year. This is a circumstance of great importance—and shows the necessity of having a variety of grasses in a pasture that is to be fed during the whole season. Some grasses, as the meadow focketail, the orchard grass, the meadow fescue, the herds grass, the sweet vernal grass, and the brome, put forth early and are productive in May and June. Others, as the oat grass, the dogstail, the various meadow grasses, and red and white clovers, and the smooth fescue, yield most feed in the summer months. The various bent grasses, the wheat grass, the birds foot clover, and some others, are green and vigorous in the autumn. By a mixture of these various grasses, a green and tender herbage is furnished through the season. This is seldom or never done in artificial pastures, where but two or three kinds of grass are sowed. The various grasses and plants on which cattle feed, possess very different properties. Some contribute more to the production of fat. Others yield more milk, while others furnish in larger quantity the bone-making materials. Others again have properties by which they affect the various glands of the body. Some promote the secretion of urine, others the bile, others the saliva. When obtained in due proportion, they promote the health and vigor of the animal. The finest natural pastures contain about twenty kinds of valuable grasses, some one or more of which is in a green and thriving state every month in the season, from early spring till late in the fall. The spring grasses are, the *Alopecurus Pratensis*, (meadow focketail,) *Phleum Pratense*, (meadow cat's tail or herds grass,) *Anthoxanthum Odoratatum*, (sweet vernal grass,) *Dactylis Glomerata*, (orchard grass,) *Festuca Pratense*, (meadow fescue,) *Holcus Avenaceus*, (tall oat grass,) *Lolium Perenne*, (rye grass,) *Brmus Arvensis*, (field brome,) and the *Poa Anqua*, (annual meadow grass.)



The summer grasses are, the *Cynosurus Cristatus*, (crested dogstail,) *Poa Trivialis* and *Poa Pratensis*, (rough and smooth stalked meadow grass,) *Festuca Duriasculus*, (hard fescue grass,) *Trifolium Repens*, (white clover,) and the *Festuca Glabra*, (smooth fescue.)

The fall grasses are, the *Agrostis Vulgaris*, (the various red tops,) *Triticum Repens*, (creeping wheat grass,) and the *Lotus Major*, (birdsfoot trefoil.) Some of these are annual plants, that is, they arrive at maturity, drop their seed and die in one year. Others are biennial, or require two years to attain maturity, and then die, like winter rye and wheat. Others are perennial, that is, spring up from the root every year, for many years in succession. Where pastures abound in worthless grasses, the best remedy, if the nature of the land admits it, is to plow and cultivate two or three years, with some hoed crop—by which they will be killed out. Sometimes the larger and more vigorous grasses may be brought in by means of plaster or ashes or ground bone or compost spread upon the surface. These grasses thus stimulated, will attain a rank growth, and choke out the less valuable and sour grasses. Harrowing old pastures with a sharp harrow, and sowing them with oat grass, herds grass, or red and white clover, and dressing them with plaster or bone dust, will often succeed in bringing in a much larger and better growth of feed, and is money and labor well laid out. Dry plains, that yield but little grass, may be greatly improved by this treatment, applied to them in August, so that the grasses may get well rooted before winter. The late excellent Daniel P. King, of Essex county, had a tract of light, sandy plain land, which he brought into good condition, by plowing it in the summer, and applying a dressing of compost manure, and seeding it down with different kinds of grasses. He usually took off from one to two tons of hay, the next season—and then pastured three or four years, and repeated, the same process. He was highly satisfied with the result of this treatment.

#### A New African Grain.

In *Chambers' Edinburgh Journal* we find the following notice of a grain, obtained from the colony of Sierra Leone, Africa, which has recently been introduced into Great Britain:

"According to Mr. Clarke, Assistant Surgeon of the Colony, this grain which is called 'fundu,' or 'fundungi,' is cultivated in the neighbourhood of Kissy village, and in other parts of the colony, by industrious individuals of the Soosoo, Foulah, and other tribes, by whom it is highly prized. By the natives it is called 'hungry rice,' though neither in botanical character nor appearance does it bear the least resemblance to the rice of common culture. The fundu is a slender grass, with digitate spikes, and grows to the height of about eighteen inches.

The ear consists of two conjugate spikes, the grain being arranged on the outer edge of either spike, and alternated; the grain is attached by a short peduncle to the husk, from which it is easily separated. The grain which is ear-like, (heart-shaped) and about the size of mignonette seed, is covered by a thin fawn-colored membrane; and when freed from this membrane, is whitish and semi-transparent. It is highly glutinous, and has a delicate flavor, between that of rice and kiln-dried oats.

The mode of culture is extremely simple. The ground is cleared for its reception by burning down the copse-wood, and hoeing between the roots and stumps. It is sown in the months of May and June, the soil being slightly opened, and again lightly drawn together over the seed with a hoe. In August, when it begins to shoot into ear, it is carefully weeded. It ripens in September, growing to the height of about eighteen inches; its stems, which are very slender, being then bent to the earth by the mere weight of the grain. The patch of land is then either suffered to lie fallow, or is planted with yams or cassado in rotation.—Experienced cultivators of this Lilliputian grain assured Mr. Clarke that manure was unnecessary, nay, injurious, as it delights in light soils, and is even raised in rocky situations, which is the general character of the surface in and around Kissy. When cut down, it is tied up in small sheaves, and placed in a dry situation, generally within the huts of the natives; for, if allowed to remain on the ground and to get the rain, the grains become agglutinated to their coverings. The grain is trodden out with the feet, and is then parched or dried in the sun, to allow of the more easy removal of the outer membrane (or epicarp) in the process of pounding, which is performed in wooden mortars. It is afterwards winnowed with a kind of cane fanner on mats.

In preparing this delicious grain for food, it is first put into boiling water, assiduously stirred for a few minutes, and the water then poured off. To the grain so prepared, the Soosos, Foulahs, &c., add palm oil, butter, or milk, but the Europeans and negroes connected with the colony generally stew it in a close saucepan, with fowl, fish or mutton, a small piece of salt pork being added for the sake of flavor. This is said to make a very good dish. Sometimes it is made into puddings with the usual condiments, and eaten either hot or cold with milk. By the few natives of Scotland in the colony it is dressed as milk porridge. In either form it is said to be excellent; and Mr. Clarke is of opinion that could it be raised in sufficient quantities, it would become an important article of commerce, as it would prove an addition to the light farinaceous articles of food now in use among the delicate and convalescent.

From the specimen kindly furnished us by Mr. Clarke, the fundu grain appears to be quite as delicate as arrow root, while it

possesses a more agreeable flavor than sago potato starch, and other similar preparations."

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EFFECTS OF CLOVER HAY ON ANIMALS.—Some late writers have taken the position that clover hay produces a most injurious effect on domestic animals, particularly horses; and that to this cause the great increase of diseased horses is to be attributed. We lately heard a farmer affirm, that he believed the introduction of clover into general cultivation the greatest curse yet inflicted on the country, and assigned as a reason for this singular opinion its effects on animals when used as fodder. Late English writers have attributed to this kind of hay the prevalence of heaves in horses, and the great increase of other diseases that effect the respiratory organs. This is a most important subject, and should receive a full investigation. Clover is too important a plant to be discarded, or condemned, except upon the most satisfactory evidence. Its value as a fertilizer and a preparative for wheat, to say nothing of its use for pasture and hay, would demand that it should not be condemned unheard. For ourselves, we have very little belief in the injurious properties assigned to clover. We have used it constantly for pasture and for hay, more than thirty years, and never, to our knowledge, has any animal suffered from it; certainly, no horse has been taken with the heaves when fed on it, or while in our possession. As hay for sheep, we have considered it unrivalled, and should have no fears that any stock would not winter well with a supply of well-cured clover hay.

And here lies, we think, the great source of objection to clover hay. It is too often imperfectly cured. To save the leaves and the heads, which are apt to fall in handling or curing, the hay is put into the barn while the large stems are full of moisture, or the natural juices, and the fermentation which ensues causes the whole mass to become damp; and if not spoiled wholly, it becomes mouldy, black, and when used, raises such a dust, it is no wonder that horses and cattle are choked or their lungs destroyed. Our experience shows that clover may be perfectly cured without losing any of its valuable parts; cured so that when fed out, no more dust will be flying than from timothy or herd grass, and we shall be slow to believe that from such hay any injury to animals ever ensues.—*Ohio Valley Farmer.*

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#### DISEASES OF ANIMALS, &c.

A correspondent of the *Country Gentleman*, writes that paper as follows:—

*Editors of Country Gentleman.*—Having often seen requests in different papers, for remedies for different diseases in cattle, horses, &c., and having myself arrived at the age commonly allotted to man, and having seen some of the good effects of experiments, and feeling it to be a duty to do as much good as possible when I have an

opportunity, I send you a number of receipts.

**Cure for Hollow-Horn in Cattle.**—Take a tea-kettleful of boiling water; turn the head of the creature one side so as not to scald the hide, then pour the water on to one horn until the creature feels it. Then on the other; so alternately, which will probably produce considerable perspiration. Then give 2 ozs. or more of good mustard seed in some feed.

**To Prevent Hollow-Horn.**—Cut off the end of the tail as far as it is minus bone, whenever you discover the hair rolled or twisted, if the weather is warm and propitious, and not likely to freeze. Then feed them well and there will be no danger.

**For Cattle that have Eat too much Corn or other Grain.**—Take one quart of good yeast, mix a half-pint of human excrements, and pour it from a bottle down the creature's throat, and I think you will soon hear from it.

**Cork on Oxen's Feet.**—Put on British oil.

**Cure for Foul in the Feet.**—Cleanse between the hoofs with a rope; then put in powdered blue vitriol.

**For a Horse Kicked in the Stifle.**—Put in fine salt often, and nothing else, or bind a small bag of fine salt on to the wound.

**For a Flesh Wound on a Horse.**—Boil the bark of green osier (Dog Mavamouse) to a strong decoction, and wash the wound often.

**Wind Galls.**—I do not believe that wind galls can be cured without running the risk of killing or ruining the horse, as they are caused by the undue secretion of the synovia or mucous fluid, that lubricates or greases the joints, brought about by too hard use. A dirt floor or well littered stall, moderate use and good rubbing may prevent them from increasing, and they may be cured by lancing and bandaging—but lancing may cause inflammation and consequent stiffness of the joint. I have known one case successfully treated in this way, but I would never try it, believing that the risk is too great for what is no injury, but merely a blemish.

—R. C. in *Country Gent.*

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**VEGETABLE ECONOMY.—Functions of the Leaves.**—The leaves are the most important parts of plants, performing various most essential functions in the vegetable economy. By them the actions of respiration, digestion, exhalation and absorption are carried on. The leaf, it is considered, is formed by an extension of the skin or cuticle of the plant, and if examined, it will be found that a skin may be stripped off from either surface, the interstices being composed of cells. The cuticle of the leaf is furnished abundantly throughout its surface with pores, called by botanists stomatas, through which water and gases pass out and enter. These are chiefly or sometimes wholly on the lower surface. By these pores, are carried on the respiration of air, and the exhalation and absorption of water.

Experiments have shown that some plants exhale twice their own weight daily. A cabbage has been found to exhale from 15 to 25 ounces daily: a sun flower 20 ounces, on an average of 15 days, and on a warm, dry day, 30 ounces. A leaf of a sunflower weighing 31½ grains, with its stalk immersed in water, took up, in 4 hours, 25 grains; the leaf had increased in weight only 4½ grains, so that 20½ grains had passed off by exhalation. At this rate the leaf would take up its own weight in about 5 hours, and exhale an equal weight in 6 hours.

Plants of a juicy kind, or succulent, have usually very few pores, and require much light to stimulate their evaporation. Hence when melons are grown in a frame, as many leaves as possible should be exposed to the light of the sun, and the accumulation of water from within should be prevented. Some of these plants of the succulent kind, by reason of a deficiency of pores, may be preserved a long time without moisture. In the summer, exhalation is most active; and therefore plants cannot well be transplanted, because from the injury to the roots, absorption is checked, and is not sufficient to supply the loss by exhalation. In young plants like cabbages and lettuce, the roots suffer but little, and plentiful watering will enable the plant to rally. By keeping plants in the dark, exhalation is checked, and thus a nosegay may be preserved a longer time from withering.

**CABBAGES FOR STOCK.**—Every farmer, and indeed, every person having a garden and a hen, a pig or a cow, will do well to have some cabbage plants with which to fill the ground when early crops have been removed too late for turnips. The cabbage is a sure grower, and faithful in its mission, whether put out early or late. To secure good, firm heads for table use, requires considerable care in kinds, times, soil, and culture; but to secure a good growth of highly nutritious and valuable food for stock, requires but a small measure of regard for either.

The cabbage contains a full proportion of nitrogen in addition to the oxygen, hydrogen and carbon, the elements of the great mass of the vegetable kingdom. In this, it is closely allied to animal food, and on this account as well as others, it is a valuable addition to the usual food of animals. We believe the cabbage worthy of high estimation as a regular field crop, not merely for the pork and cabbage trade, but as food for cattle and hogs, and that it will be extensively cultivated for that purpose; but however this may be, we are confident that the cabbage affords the best means of filling the ground which, from any cause remains vacated the first of August.—*Cultivator and Gazette.*

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**THE SNOW.**—The snow was proverbially called the "poor farmer's manure" before scientific analysis had shown that it contained a larger per centage of ammonia than

rain. The snow serves as a protecting mantle to the tender herbage and the roots of all plants against the fierce blasts and cold of winter. An examination of snow in Siberia showed that when the temperature of the air was seventy-two degrees below zero the temperature of the snow a little below the surface was twenty-nine degrees above zero, over one hundred degrees difference. The snow keeps the earth just below its surface in a condition to take on chemical changes which would not happen if the earth were bare and frozen to a great depth. The snow prevents exhalations from the earth, and is a powerful absorbent, retaining and returning to the earth gases arising from vegetable and animal decomposition. The snow, though it falls heavily at the door of the poor, and brings death and starvation to the fowls of the air and beasts of the field, is yet of incalculable benefit in a climate like ours, and especially at this time, when the deep springs of the earth were failing and the mill streams were refusing their motive powers to the craving appetites of man. If, during the last month, the clouds had dropped rain instead of snow, we might have pumped and bored the earth in vain for water; but, with a foot of snow upon the earth and many feet upon the mountains, the hum of the mill-stones and the harsh notes of the saw will soon and long testify to its beneficence. Bridges, earth-works, and the fruits of engineering skill and toil may be swept away, but man will still rejoice in the general good and adore the benevolence of Him who orders all things aright. The snow is a great purifier of the atmosphere. The absorbent power of capillary action of snow is like that of a sponge or charcoal. Immediately after snow has fallen, melt it in a clean vessel and taste it, and you will find immediately evidences of its impurity. Try some a day or two old, and it becomes nauseous, especially in cities. Snow water makes the mouth harsh and dry. It has the same effect upon the skin, and upon the hands and feet produces the painful malady of chilblains. The following easy experiment illustrates beautifully the absorbent property of snow: 'Take a lump of snow (a piece of snow crust answers well) of three or four inches in length, and hold it in the flame of a lamp; not a drop of water will fall from the snow, but the water, as fast as formed, will penetrate or be drawn up into the mass of snow by capillary attraction. It is by virtue of this attraction that the snow purifies the atmosphere by absorbing and retaining its noxious and noisome gases and odors.

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**CUTTING DOWN TREES BY STEAM.**—The *Country Gentleman* in noticing the machinery exhibited at the New York State Fair, gives the following account of a new machine which may prove of great utility in clearing away the forest. It is to be regretted that a machine of this description had not been invented half a century ago. It



would have saved an immense expenditure of muscle:

"The show of machinery in motion, we think, was never greater. Much of it was owing to the enterprise of Hoard & Sons, manufacturers of Engines at Watertown, who had a large number constantly at work. We were pleased to see the portable Engine of A. N. Wood & Co., of Madison county on hand, and busily engaged. We did not discover anything particularly new—with two quite important exceptions, viz: a Reversible plow, patented by A. Barton of Syracuse, in which, by a simple movement of the beam, the point is carried round so as to form a perfect plow to turn the furrow either way as desired, or by setting it in the middle straightforward, as good a double mould board as one could wish. Its simplicity and facility of change are worthy of the highest commendation, and should at once attract the attention of manufacturers and users of this important implement.

The other machine referred to, was no other than a steam tree-chopper! We have been in the habit of thinking a portable engine quite an improvement; what will our readers think of one which two men carry about with them, and which by attaching it, by means of a flexible tube or hose, to a boiler on an ox-cart, can work in a circle of 200 feet, without moving the boiler, cutting or rather *sawing* down trees of 15 inches diameter in *one minute's* time, as we actually saw it do on the fair ground. The saw is attached immediately to the piston-rod of the cylinder, the valves of which are worked by the most simple of all contrivances, but one so far as we know entirely new,—and cylinder and all is carried from tree to tree, first sawing it down, then divesting it of branches and dividing the trunk and branches into any desired lengths. It attracted perhaps more attention than any other one thing shown, and deservedly received the highest award the committee could give. It cannot but prove itself of great value especially to lumbermen. It is the invention of Mr. Fairbanks, of the firm of Fairbanks, Wilmot & Co., No. 343 Broadway, New York, who are not yet prepared, as we understand, to offer them for sale—this being merely an experimental effort which has been at work among the woods for a few months on trial. They may anticipate a demand which will keep them busy as soon and as fast as they can supply it.

### Preservation and use of Agricultural Journals.

As the volume of most periodicals closes with their year, it is an appropriate time to make some suggestions upon their use. To begin—Carefully preserve your agricultural papers. After reading the papers as they come out, have a place for them where you can lay your hand on them at any moment, when waiting for meals or for anything else. A distinguished scholar is said to have acquired a language in odd

moments, when waiting for breakfast. Every farmer has at times leisure in his family, which may be well occupied in referring to facts which have excited his interest in the first reading of the papers. Have a place, then, for them; and be very careful how you lend them. If your experience is anything like the writer's, it will be a losing business, both to yourself and to the borrower. Ten chances to one, the paper will not come home at all, or if it does come, it will be minus one or more leaves, or plus a little *soil* which has ceased to be free. In that case, your volume is broken or injured for binding, and you are the loser. It is equally a bad operation for the borrower; for so long as he lives by borrowing he will not take and pay for an agricultural paper for himself, and what he reads or learns of his business will be superficial. "A little learning is a dangerous thing" in farming. Better pay for a second paper for your neighbor than to be without your own. The merchant might as well lend his ledger, the scholar his text-books, or the Christian his Bible.

At the close of the volume bind up the number and put them on the shelf among the books. If you are flush, and live near a book-binders, get the man of sheep skin and muslin to give your volume a handsome dress; but if mother wit is more plenty with you than the coin, and you have a Yankee's skill in the use of tools, do the binding yourself. A table, a bradawl, a darning needle, and a stout piece of twine, will furnish you for the work. Put your numbers in regular order upon the table or board, then, with your awl, make three holes, at suitable distances apart, and with the twine and needles make the numbers fast. If you wish a cover to the volume, put a coating of glue upon the back, and put over a stiff sheet of wrapping paper, and trim it off to the size of the book. Put the name of the work upon the back, and the No. of the volume, and your binding is finished.

You have now preserved your volume. No number, containing just the information or experiment you want, will be lent to your neighbor, or stray away into the miscellaneous pile of newspapers, and be hustled off into the garret by the good housewife, who loves so dearly to have everything packed away in its place. The next thing, after preserving the papers, is to use them. If an agricultural journal is worth reading at all, it is worth studying, until you thoroughly comprehend its teachings. If your paper is merely an appendage to an agricultural seed or tool store—a vehicle of puffing this man's potatoes or that man's plow—it would be better to change it for one that has no axe of its own to grind, but stands ready to do the needful by yours. There are practical scientific farmers, as well as seedsmen, in the editorial field, and there is a choice in papers, as well worthy of your attention as a choice of seeds or a choice of stock. If the editor of your paper is accomplished in

his profession, take him as a standard, and his teachings for your text-book, until you can find a better. Study your text-book, for it contains not only the news of your business, but its fundamental principles. There is a grammar of agriculture, which needs to be fastened in the memory, and inwardly digested. These principles are as essential to your success, as the principles of Blackstone and kindred text books are to the lawyer. The lawyer has also his reports and book of cases, with which it becomes him to be familiar. Your bound volumes contain your reports and record of cases. Many of the experiments therein recorded would be an improvement upon your present style of farming, if you would adopt them. They would give you larger crops with less expense, and show a great difference in the annual income of the farm. If the writer has derived any benefit from agricultural papers, it has been gained by studying their principles and following their teachings. If any one can grow corn, or any other farm crop, more economically than yourself, it is for your interest to learn the method and put it in practice. We say, then, preserve your papers and use them. They will beguile you of many a weary hour in stormy weather or in winter, and furnish you with material for reflection when your hands are busy.—*The Homestead.*

HOW TO CONVERT A STIFF CLAY SOIL INTO A FRIABLE LOAM.—In one of our late volumes an instance was mentioned, in which the clay soil of a garden was greatly ameliorated by the addition of a coating of about two inches of well dried and pulverized muck. An instance of a similar kind we notice in the *Boston Cultivator* of Sept. 6. The following account of the conversion of a hard clay soil into a loam of easy tilth, may serve as a hint of considerable value to some who are troubled with the uncomfortable tenacity of clay:

"We once saw a most inveterate clay converted into an excellent friable loam, and devoted to a garden, chiefly by the application of white oak sawdust. Several years were required to fully effect the change. The dust was spread on the surface, two inches thick and spaded in—in a part of the lot two spades deep. The same dressing was made, succeeded by the same mixing process, for two or three years; and with only moderate applications of stable manure, the garden was brought to a pitch of fertility and productiveness unequalled in the vicinity. The sawdust applied in this case had not previously been used for litter, nor was it impregnated with urine."

After the mention of some other particulars of little practical importance, an opinion is given in regard to the sawdust from pine lumber, which, we think, should be remembered by those who may employ sawdust either as a manure, an absorbent, or an ame-

liorator of the soil. The writer of the foregoing gives the following, in the way of caution:

"We do not think it would have answered to have applied pine sawdust in so large quantities, unless it had been thoroughly soaked with urine. In a raw state it would probably have remained for a long time undecomposed, and might have communicated to the soil some properties injurious to vegetation."

In connexion with the mention of the utility of saw-dust for amending clay soils, it is stated that it is a good top-dressing for grass lands when it had been previously used for litter, and had become well rotted. It does not interfere with scythe or rake, and its fertilizing qualities are readily carried into the soil by rains.

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#### QUESTIONS FOR FARMERS TO CONSIDER.

The great question for every cultivator is whether he is laboring advantageously and profitably. Is the soil deteriorating or improving? Does the farm produce less or more than formerly? Is the income sufficient to leave a proper balance over and above the necessary expenses of cultivation, for the support and education of his family? If farming does not *pay*—why? Is it lack of good culture, rotation, manuring, &c., or in consequence of a persistence in endeavoring to produce what is not adapted to the soil and climate, or crops which are annually revaged by insects? Or, is the reason attributable to the want of a convenient and good market for the articles produced? By the way, as much judgment and attention are requisite in preparing for and marketing, as in the production of many articles—matters too frequently overlooked, and which subject the producers to much loss. For instance, the packing, shipping and marketing of fruit, dairy products, poultry, &c., and proper information as to prices and the best markets, are often of as much importance as their production. These articles are frequently sold to speculators and "middle men" at from one-fourth to a half less than their actual market value—a sad commentary upon the intelligence and enterprise of producers.—*Rural New-Yorker*.

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**SAVING HEN MANURE.**—One of our agents in one of the western states undertook about planting time, to ascertain how many farmers were in the habit of saving and using the droppings of their poultry houses or hen roosts. He could not hear of a single farmer in his vicinity who had used any of this domestic substitute for an expensive foreign fertilizer, and his astonishment at this neglect and waste of a valuable manure, led him to undertake the more minute inquiries above referred to. After extending his inquiries over the greater portion of two townships, each six miles square, he found only two farmers who had ever made any use of the droppings of their fowls, either in the garden or on the farm, among all the occupants of over thirty sections or square miles of a well set-

tled district. The number of farmers upon whom he called, or of whom he obtained information upon which he could rely, amounted to about one hundred and fifty, which, by the way, shows an average of about five or six farms, large and small, on each section of 640 acres of land.

If similar inquiries were undertaken in various portions of the country, both east and west, we might obtain results which would not only be interesting, but instructive also. We fear that the results obtained would furnish foundation for a charge against farmers generally, of gross neglect and wastefulness in regard to fertilizing matters—the food of plants—which are within the easy reach of all. We fear that it might even be found that while some are expending more or less for fertilizers from abroad, or for fraudulently got up ones at home, they are allowing a great deal of manurial matter to go unappropriated and unused on their own premises.

If curiosity or hope of doing good should induce any of our agents or readers to make inquiries such as we have mentioned, we should be glad to give the results to the public through our columns.

One of the two farmers who were in the habit of collecting and using these droppings of their henneries, stated to our agent that he would not be willing to part with it if any one should offer him \$1.00 a bushel for it. He used it for his corn mixed with pulverised muck, and on his garden dissolved in the suds and slops of the house. The other of the two estimated the manure of his poultry at a lower rate, but still at more than half the above. Even at the lowest estimate it is worth several dollars on every farm.

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#### CORRESPONDENCE.

*To the Editor of the MONTREAL GAZETTE:*

SIR,—Agreeing with Mr. Watts in his statements in refutation of certain charges, brought against the Board of Agriculture of Canada East, by your correspondent "P.," I beg, in compliance with his request, to forward to you the enclosed letter for publication.

I am, Sir,

Your obedient servant,

T. EDMUND CAMPBELL,

Member of the Board of Agriculture.

St. Hilaire, 16th Dec., 1856.

*To the Editor of the Montreal Gazette:*

SIR,—My attention has been called to two letters signed "P." which have appeared in your columns of the 4th and 8th instant.

In those letters "P." accuses the Board of Agriculture of misappropriating a large portion of the funds granted by the Legislature for the encouragement of Agricultural and Industrial Exhibitions, and with sundry other irregular proceedings, either acts of the Board or for which they are responsible. To these charges, which I shall take up in their regular turn, I feel it my duty to reply through the same medium, and shall leave it to the public—to whom "P." has appealed—to determine whether the charges are based upon truth.

The first letter contained in the *Gazette* of the 4th instant, says:—"The misappropriation of a large portion of funds granted by the Legislature for the encouragement of

"Agricultural and Industrial Exhibitions, by the Board of Agriculture for Canada East, demands some notice."

*Answer.*—As no funds have ever been placed at the disposal of the Board for Industrial purposes, it cannot have misappropriated them.

*2nd Charge.*—After some observations on the Three Rivers Exhibition, "P." proceeds:—"It was amusing to see a prize of 10s paid for a canary bird, the value of which on the market is from 2s 6d to 3s 9d."

*Answer.*—This statement is incorrect; the prize for a canary bird was 5s and not 10s.

*3rd Charge.*—"On the same list of premiums 5s is offered for a stove which cost £7 10s."

*Answer.*—This statement is incorrect; of the premiums offered for stoves, the highest amounts to 25s, and the lowest is double the amount of P.'s assertion.

*4th Charge.*—"Five shillings for an oyster knife, its true value being 4d."

*Answer.*—This statement is incorrect; there was no premium of any kind offered for an oyster knife.

I now come to the charges contained in the letter published on the 8th instant:—"The continual practice of paying for animals and articles on show that have no competitors, and not in other respects worthy of prizes, spavined or wind-broken, all the same, and so the intended award for sound is given to unsound."

*Answer.*—"In no case shall a premium be awarded unless the Judges deem an animal to possess sufficient merit, more especially if there be only one lot in the section."

I have above quoted the instruction given to the Judges, and also printed with the prize list. See the seventh regulation under the head "*Pleading and judging the stock*," to show that the Board has taken every possible precaution to prevent such occurrences as "P." states to have happened.

In "P.'s" letter I hear these complaints for the first time:—"The mention of spavined and wind-broken must mean horses in particular. On referring to the Three Rivers prize list, I find that Messrs. Edwin Quinn, Charles S. Baker, and Eustis Plaird, were the Judges for horses,—the latter is a stranger to me. But all I can say of the two former is, that if they failed to give satisfaction in judging horses, I do not know where better are to be found in the Province.

The Board must pay the prizes as awarded by the judges; and if it make every possible exertion to secure the services of efficient gentlemen in that capacity, I hold it exonerated, even though a portion of the public may condemn the awards.

The next charge is:—"It has occurred that an exhibitor, who was also on the committee, has been made an assistant judge on his own articles that have been placed in competition for a just, fair and an unbiassed award. It has occurred that the same judge acted as secretary to the jury, marking himself to the first prize, when his fellow exhibitor was awarded it. It is also a fact that a judge has awarded to himself, first, second and a discretionary prize, when others might have been more justly entitled to them. When the fact of the existence of these glaring abuses has been made known to parties acting on the Board, why did they not guard against their future occurrence?"

*Answer.*—I have been a member of the

Board since its first institution, and never heard a single imputation of the kind before. I am most positive that it was never reported to the Board, and will not believe that it happened. It is too irregular to be true.

The next and last charge to be noticed in this letter is:—"That it has happened that an Individual who exhibited largely was refused admittance to rooms occupied by controlling individuals when a champagne luncheon was spread,—yet the same gentlemen allowed others, who had contributed nothing, to have free access to the rooms. Thus it fell out that when this and other exhibitors called for their money prizes that had been awarded to them, they were told that there were no funds, the local expenses had been so large. Nor have these prizes been paid to this day. I may be told that individual members of the Board are not blameable. If not, who is? That may be true; but the government and the country do not know the local committee in the matter. They look to the Board, and hold it responsible for everything."

Answer:—"P." is again incorrect. The Government and the country do know the local committees, and the Board is not responsible for their acts. If he refers to the Act under which the Board of Agriculture exists, he will find that the Association, not the Board, has to appoint the local committee on a given day. The only control which the Board has over it, is to repudiate expenses incurred without authority. For the luncheon affair, I can answer for myself most distinctly (I believe every member of the Board can say the same for himself), that I never was present at any champagne luncheon; and further, that the Board has never sanctioned their payment. The only refreshments I ever witnessed were those for the Judges at the expense of 1s 10<sup>d</sup> each, and then no intoxicating liquors were allowed on the ground. The Board has never repudiated the payment of any prize advertised in the list. The full amount has always been paid to the successful exhibitor.

Having replied as closely as I could to the charges contained in "P.'s" letters, I shall add in conclusion, that the Board is ready at all times to receive suggestions for the better management of its exhibitions, and is thankful to parties who will take the trouble to offer them. All complaints against the decisions of the judges, or of any irregularity on the part of competitors, receive every attention, and are invariably submitted to the Board in full session.

R. N. WATTS,

Presdt. of the Board of Agriculture,  
Canada East.

Grantham Hall, 12th December, 1856.

The above communications have already appeared in the *Montreal Gazette*, and are a complete refutation of the allegations of a correspondent in that paper, signed P., so far as the Board of Agriculture are concerned in the management of the late Provincial Agricultural Exhibition at Three Rivers.

The Board of Agriculture, acting under the provisions of the Act 16 Vic., chap. 11, as Directors of the Agricultural Association

and as Council of the Association "between the annual meetings thereof," have done all in their power to make the Provincial Agricultural Exhibitions both useful and popular. So far as regarded the annual location of the Exhibitions, it rested with the Association, at their annual meetings, to determine this question, and there cannot be a doubt that for the last four years the Exhibitions could not have been more judiciously located for accomplishing the object contemplated by the Legislature, than where they have taken place—namely: at Montreal, Quebec, Sherbrooke, and Three Rivers respectively. Montreal having been again selected in rotation for the next year's Exhibition, in 1857.

The Board as Council for the Association, have had the charge of making out the Annual Prize Lists, Arrangements, and Regulations, and also the fencing and buildings upon the sites for the Exhibitions, and they deserve the greatest praise for the manner in which they have executed these duties. As regards the latter part of their duty, they were the first on this continent to erect covered sheds for the shelter of the live stock, so necessary to preserve them from injury, during three or four days that they have to be kept on exhibition. As a proof of the wisdom of this arrangement the example has been followed in Upper Canada, by the United States Agricultural Society, and by several of the societies of separate States. The Premium List has been made out upon a very liberal scale, and amounts to between £1100 and £1200 annually, for the agricultural part, including Poultry and Horticulture. The Arrangements and Regulations published with the Prize List, may compare favorably with those adopted for a similar object by any Agricultural Society or Association, in this or any other country. By reading over these Arrangements and Regulations it will be manifest that every precaution has been adopted to insure a fair opportunity for competition, and a just award of the premiums offered. The Judges have these Regulations handed to them with the Prize List for their guidance when entering upon their duties—also Books in which to enter their awards, and any remarks they may be disposed to make in relation to the animals, products, &c., brought under their inspection, and these are signed by the Judges and delivered up to the Secretary. One of the members of the Board or Association

accompany each section of Judges to give any explanation that may be required, and to prevent any interruption or interference with the Judges while in the execution of their duties. The Exhibition Ground is kept closed to all visitors while the Judges are making their inspection and awards. In the selection of Judges the Board endeavours to obtain the services of parties who they consider to be the best qualified to act in that capacity, but as they have no power to enforce the attendance of those whom they may apply to, they are constantly obliged to request parties, who they meet at the Exhibitions, to act instead of those who were applied to, but did not attend. When the Board thus do all in their power in the arrangement and numbering of live stock, and other articles, in a perfectly regular manner for inspection, and procure the services of the best Judges obtainable, they can be no further accountable, and very properly decline to interfere or disturb the awards of the Judges, unless upon the most unquestionable evidence of injustice or mistake having occurred. The expenses incurred in fencing, building, &c., at Sherbrooke and Three Rivers, was exceedingly moderate, and much under the usual rates paid for work for public purposes. In both cases, the work was estimated by competent judges at 30 per cent more than the actual cost.

Complaints have been made that the Industrial Sections of the Exhibition had not premiums offered that were in any reasonable proportion in many instances to the value of the articles—strictly speaking—there is not any Legislative appropriation for premiums on any articles except the Products of Agriculture and Agricultural Implements. The funds appropriated by the Legislature for the annual Agricultural Exhibition, is ten per cent., retained by the Board from the Government allowance to Agricultural Societies, the subscriptions of Members of the Agricultural Association, the sale of tickets of Admission, the voluntary aid that may be obtained occasionally from the Agricultural Society located where the Exhibition is held, and from any other source that may *voluntarily* contribute. For the last four years, the Board appropriated from £200 to £300 annually for the Industrial Department, assigning the duty of arranging the Premium List to the Local Committee. Besides this appropriation, the Industrial building and decorations cost at

least £100 annually. The Exhibitions are strictly Agricultural and the Act which provides for them plainly indicates that they are intended to be so. If it is considered expedient and advantageous to connect the Industrial Department with the Agricultural, the funds for this object should not be taken from those appropriated for the Agricultural Department, namely, the ten per cent. retained from the Government allowance to Agricultural Societies. The contributions made by Corporations or Municipalities of Localities where the Exhibition is fixed to take place, cannot be considered in any other light but as a return for the actual benefit to be derived by the locality from the numerous visitors and other advantages that result from these Exhibitions. The Industrial Department is never connected with the Agricultural at the great Exhibitions held in England, Ireland, and Scotland, and yet the locality where they are held contribute nearly the whole expenses of the Exhibition, and there is a very strong competition for the privilege of having the Exhibition held at a particular place.

The Prizes offered and awarded at the Exhibitions of the Agricultural Association for Lower Canada have always been paid on demand, and very frequently these prizes are sent in cheques by mail to the parties if not called for immediately.

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We learn that Mr. Wm. Evans, Junr., of the Agricultural Warehouse and Seed Store, St. Ann's Market Hall, has imported six samples of Black Sea Spring Wheat, and we recommend parties requiring Seed, to call and see these samples.

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### Mighty Cedars of California.

Rev. Dr. Bushnell, of Hartford, writes from California to the New York *Independent* a graphic account of the immense cedars of California, the greatest trees in the world. One of them, which had been felled, he ascertained, by containing the grains of the stump, to be twelve hundred and eighty years old. When Mahomet was at ~~nume~~ <sup>use</sup> this tree was sprouting. Says the Rev. gentleman: "It is forest, yet nothing that we mean by forest. There is no under-growth, scarcely anywhere a rock; the surfaces are as beautifully turned as if shaped by a landscape gardener, and dotted all over by myriads of flowers, more delicate, if not more various, than any garden ever grew. Moving along these surfaces, rounding over a hill, or galloping through some silent valley, winding here among the native oaks, casting their round shadows, and here among tall pines and cedars drawing their huge conical shapes on the ground, we seem, in fact, to be riding

through some vast park. Indeed, after we had seen the trees and taken their impression, we could think of nothing but to call it the park of the Lord Almighty. The other trees we observed were increasing in size as we neared the place, till finally, descending gently along a western slope among the files of little giants, we came to the gate of the real giants, emerging into the cleared ground of the Big Three Hotel, between the two sentinels, which are 500 feet high, and stand only far enough apart for the narrow road to pass between. These were the first of the Washington cedars we had seen; it would really seem that we had never seen a tree before. And yet they were only medium specimens.

Close by the house lay the first cut of the Big Tree *par eminence*; the remaining part, or top, had been cut up and removed. Near this first cut stood the stump, about six feet high, with an arbor mounted on the top, which had been squared down for this purpose, the posts of the arbor standing out in the line of the largest circuit at the ground, and the space between them and the circuit of the top filled in by a floor of short boards. The diameter of the top is by measurement 25 feet one way, and twenty-three and one-half the other. The diameter at the ground was thirty-one feet. They are all included in a space of fifty acres, and are only ninety in number. The ground occupied is a rich wet bottom, and the foot of the moist northern slope adjacent, covered also with an under-growth. And why are they here, just here, and no where else? This, I confess, is to me the greatest, strangest wonder of all, that nowhere in the whole earth is there another known example of these Anakims of the forest; ninety seeds alone have been started, ninety, and no more. Is there, was there ~~no~~ other piece of ground but just this, in the whole world, that could fitly take the seeds of such a growth?—Why have they never spread, why has no one seed of the myriads they sprinkled every year on the earth, ever started in any other locality?

And what a starting it is, when such a seed of life begins to grow. Little did that tiny form of matter, about the size of a parsnip seed, and looking more like it than any other, imagine what it was going to do, what feelings to excite, when it started the first sproutings of the Pig Tree! We measured an enormous sugar pine recently felled. Sixty feet from the ground it was six feet in diameter, and it was two hundred and forty feet high. We measured one of the prostrate giants, and two hundred and forty feet from the ground it was six feet in diameter. The top was gone, but it could not have been less than three hundred and fifty feet high, and yet this tree was only eighteen feet in diameter, where the Big Tree was twenty-five. If the Big Three were hollowed, one might drive the largest load of hay through it without even a brush of contact.

Many of the trees, and all the largest of them that remain, are greatly injured by fire. Their time is therefore shortened, and a long time will be required to bring the smaller ones to their maximum of growth. That a man instigated by the infernal love of money, should have cut down the biggest of them, and skinned the next, one hundred and twenty feet upwards from the ground, (viz.: the mother) that he might show or sell the bark of his body, both sound as a rock at the

heart, and good for a thousand years to come—O, it surpasses all contempt! And yet to see this giant mother still growing up as before, and bearing her fresh foliage, ripening her seeds, and refusing to die: hiding still her juices and working her pumps in the deep masses of her barkless body, which the sun of two whole years has not been able to season through, dead as it is, and weather-cracked without—it is a sight so grand as almost to compensate for the loss we suffer by the baseness of the human scamp."

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**GREAT BARLEY CROP.**—The *California Farmer* says Mr. P. D. Bailey, of Napa city, raised the past summer *three hundred and fifty* bushels of superior barley on *three acres*..

A SIGNIFICANT motto for an ardent young farmer would be—*Good implements for the field, and good books for leisure hour.*

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### Corn-Fields.

When on the breath of autumn breeze,  
From pastures dry and brown,  
Goes floating like an idle thought,  
The fair white thistle-down,  
O then what joy to walk at will,  
Upon the golden harvest hill!

What joy in dreamy ease to lie,  
Amid a field new shorn,  
And see all round on sun-lit slopes  
The piled-up stokes of corn,  
And send the Fancy wandering o'er  
All pleasant harvest fields of yore!

I feel the day; I see the field,  
The quivering of the leaves,  
And good old Jacob and his house  
Binding the yellow sheaves;  
And at this very hour I seem  
To be with Joseph in his dream.

I see the fields of Bethlehem,  
And reapers many a one—  
Bending unto their sickles' stroke,  
And Boaz looking on;  
And Ruth, the Moabitess fair,  
Among the gleaners stooping there.

Again I see a little child,  
His mother's sole delight,  
God's living gift of good unto  
The kind, good Shunamite,  
To mortal pangs I see him yield,  
And the lad bear him from the field.

The sun-bathed quiet of the hills,  
The fields of Galilee,  
That eighteen hundred years ago  
Were full of corn, I see,  
And the dear Saviour take his way  
'Mid ripe ears on the Sabbath day.

O golden fields of bending corn,  
How beautiful they seem!  
The reaper-folk, the piled up sheaves,  
To me are like a dream;  
The sunshine and the very air  
Seem of old time, and take me there!

## CULTURE OF THE CRANBERRY.

Mr. Charles A. Snow, of Orrington, has presented us with a box of the finest cranberries we ever saw. For the past three years he has been experimenting in the cultivation of this fruit on a patch of bog near his house, and he has succeeded in bringing them to a higher state of perfection than those raised on the famous fields of Massachusetts. The muck is about two feet thick where the berries are raised, and a piece containing four square rods yielded him full ten bushels. He first scrapes off the moss, &c., from the surface and scars it out a small place with a spade, into which he puts the plant, and he has no further trouble with them. In two or three years the bushes run together so that it impedes the growth of the berry, when he passes over the ground with a spade and takes up alternate spadefuls and sets them out in some other place or throws them aside. Mr. S. thinks that in time, by attention to cultivating them, he will raise still better cranberries than those he now harvests. He estimates that several hundred bushels may be raised on an acre. We see no reason why the culture of cranberries may not be made profitable business in Maine, as there is no danger of overstocking the market, for every year adds to the consumption, and they are not raised at all in the South nor in Europe, as we have been informed. We hope others may be induced to try the experiment.—*Bangor Courier*.

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LEONARD SCOTT & CO.'S. REPRINTS OF THE BRITISH REVIEWS AND BLACKWOOD'S MAGAZINE.—We are reminded that the closing year calls for something beyond our usual acknowledgement of the periodical advent of these most interesting republications. We have much pleasure, then, in again inviting the attention of our readers to Messrs. Leonard Scott & Co.'s advertisement. The distinctive characters of the five leading periodicals republished by them—the *London Quarterly*, the *Edinburgh Review*, the *North British Review*, the *Westminster Review* and *Blackwood's Edinburgh Magazine*—are so generally known that it is hardly necessary for us to say that, in them, the reader obtains the views and opinions of the ablest exponents of the British mind, on all matters connected with politics, religion, science and literature. It is well known that among the contributors to these publications are to be found the most distinguished writers in Great Britain; and that without their perusal no one can hope to keep himself informed on the leading topics which agitate and interest the public mind of Europe. The press has, indeed, of late years become so prolific of books, that it is only by the aid of the "critic craft" that the reading public, more especially in America, can keep pace with the rapidly advancing knowledge of the age. Little, however, worthy of attention, either in fact or specu-

lation, can escape the notice of the regular reader of Messrs. Leonard, Scott & Co.'s reprints; for, in one or other of them he will certainly find ably-written and well-constructed articles on whatever subject—be it connected with religion, politics, science or literature—may have attracted the attention of the civilized world. Is it not, then, a privilege—a valuable privilege, which none but the ignorant and thoughtless would willingly forego—that enjoyed (thanks to the enterprise and management of L., S. & Co.) by American readers, of obtaining so complete and valuable a "library of useful and entertaining knowledge," at something under one-third of its cost to the British reader? Surely, but one answer can be given.—*Herald*.

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## MONTREAL MARKET PRICES.

Rules at which produce is purchased from the Farmers.

30th Dec., 1856.

Hay from 9 to \$11 per 100 bundles.

Straw from 4 to \$5. do.

Fresh Butter, per lb. from 1s 2d to 1s 3d.

Salt Butter, do from 10d to 11d.

Country Cheese, from 6d to 8d.

Wheat, none offered.

Barley, 3s 6d to 4s.

Rye, none.

Oats, from 2s to 2s 2d.

Yellow Indian Corn, from 3s 9d to 4s.

Indian Corn, (Ohio) none.

Buckwheat, from 2s 9d to 3s.

Peas, from 3s 9d to 4s 3d.

Beef, per 100 lbs, from \$5 to 8.

Pork, \$8½ to \$9½ per 100 lbs.

Mutton, per lb., from 5d to 7d.

Veal, 6d to 7½d.

Eggs, 1s 3d to 1s 4d.

Honey, per lb. 7½d to 8d.

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culus,	0	12	6
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HEW RAMSAY.

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THE MUTUAL FIRE INSURANCE COMPANY of the COUNTY OF MONTREAL, insures the properties of farmers, in Lower Canada, at 5s. for £100 currency, for 3 years, &c.

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P. L. LE TOURNEUX,  
Secretary and Treasurer.

Montreal, 1st July, 1854.



CROWN LANDS DEPARTMENT,

Toronto, 8th November, 1856.

NOTICE is hereby given that the under-mentioned Crown Lands in the Township of Bungay, in County of Kamouraska, L. C., will be open for sale to actual settlers, on and after the TENTH day of DECEMBER next, on application to FLORENCE DEGUISE, Esquire, the Local Agent, at Ste. Anne de la Pocatiere, in said County, on the following terms, viz:

The price to be One Shilling and six pence per acre, payable in five equal annual instalments, with interest; the first instalment to be paid upon receiving authority to enter upon the land,—actual occupation to be immediate and continuous,—the land to be cleared at the rate of two acres annually for each hundred acres during the first five years,—a dwelling house, at least sixteen feet by eighteen feet, to be erected,—the timber to be reserved until the land has been paid for in full and patented, and to be subject to any general timber duty thereafter,—a license of occupation, not assignable without permission,—the Sale and License of occupation to become null and void in case of neglect or violation of any of the conditions,—the settler to be entitled to obtain a Patent upon complying with all the conditions,—not more than two hundred acres to be sold to any one person.

TOWNSHIP OF BUNGAY.

1st Range.

Lot 1 (74 acres), 2 (71), 3 (67), 4 (65), 5 (62), 6 (58), 7 (55), 8 (52), 9 (48), 10 (46), 11 (43), 12 (39), 13 (36), 14 (32), 15 (29), 16 (27), 17 (99).

2d Range.

Lots 1 to 24 incl. (100 acres each), 25 (97), 26 (93), 27 (90), 28 (87), 29 (85), 30 (81), 31 (78), 32 (75), 33 (72), 34 (68), 35 (66), 36 (84).

3rd Range.

Lots 1 to 8 incl. (100 acres each), 9 (95), 10 (87), 11 (85), 12 (90), 13 to 35 incl. (100 acres each), 36 (163).

4th Range.

Lots 1 to 8 incl. (100 acres each), 9 (95), 10 (87), 11 (85), 12 (71), 13 to 36 incl. (100 each), 37 (105), 38 (107), 39 (105), 40 (104), 41 (101), 42 (99), 43 (97), 44 (94), 45 (92), 46 (65).

5th Range.

Lots 1 to 10 incl. (100 acres each), 11 (97), 12 (93), 13 (91), 14 (92), 15 (98), 16 to 45 incl. (100 each), 46 (66). 3 ins.

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H. RAMSAY.





BUREAU OF AGRICULTURAL STATISTICS,  
25th July, 1856.

## TO EMIGRANTS AND OTHERS SEEKING LANDS FOR SETTLEMENT.

**T**he PROVINCIAL GOVERNMENT have recently opened out THREE GREAT LINES OF ROAD, now in course of completion, and have surveyed and laid out for Settlement the Lands, through, and in the vicinity of which those Roads pass.

The Roads, as advertised by the Agents of the Government, appointed to the respective localities to afford information to the Settler, are known as "THE OTTAWA AND OPEONGO ROAD," "THE ADDINGTON ROAD" and "THE HASTINGS ROAD."

### *The Ottawa and Opeongo Road*

Commences at a point on the Ottawa River, known as "Ferrall's", a little above the mouth of the Bonchere River, and runs in a Westerly direction, passing through the northerly part of the County of Renfrew.

It is intended to connect this road with a projected line of road known as "Bell's Line" (leading to the Lake Muskako, and Lake Huron, by a branch which will diverge from the Opeongo Road in the Township of Brudnell, at a distance of about 53 miles from the River Ottawa, forming with "Bell's Line," a great leading road, or base line from the Ottawa to Lake Muskako, 171 miles in length, passing through the heart of the Ottawa and Huron Territory, and opening up for settlement a vast extent of rich and valuable land.

This road, and the country through which it passes, now open for settlement, is easily accessible, and the Agent for the granting of Lands in this district is Mr. T. P. French, who resides at Mount St. Patrick, near Renfrew, on the Opeongo Road, a few miles from the Lands which are to be granted. To reach the section of Country under Mr. French's charge the Settler must go from MONTREAL up to the Ottawa River to a place called Bonchere Point, and thence by land come twenty-five or thirty miles westward to the Township of Grattan, in which Mount St. Patrick is situated.

### *The Addington Road*

Commencing in the Townships of Anglesea, in the northern part of the county of Addington near the Village of Flints Mills, in Kaladar, runs almost due north to the River Madawaska, a distance of 35 miles—and is to be continued thence for the distance of 25 miles till it intersects the Ottawa and Opeongo Road.

The Agent for the granting of the Land in this district is Mr. E. Perry, who, for that purpose, is now resident at the Village of FLINTS MILLS. The outlines of five townships of very superior land are already surveyed and ready for Settlement within the limits of the Agency, lying north of Lake Massanoka, and between it and the River Madawaska. The Townships are called respectively Abinger, Denbigh, Ashley, Effingham, Anglesea, and Barrie.

The direct route to this Section is by way of KINGSTON, Canada West, thence to NAPANEE, either by land or Steamboat, and thence North to the Township of Kaladar, and the Village of FLINTS MILLS where Mr. Perry resides.

### *The Hastings Road*

Almost paralled to the Addington Road, and at a distance West from it of about 32 miles is the HASTINGS ROAD. This Road beginning at the northern part of the County of Hastings, and running a distance of 74 miles, almost due north, also intersects the OTTAWA AND OPEONGO ROAD and its extensions.

The Government Agent is Mr. M. P. Hayes, who resides at the Village of Hastings, lately called Madoc, about 28 miles north of the Town of Belleville. The Road between these places is in good order—The land to be granted by the Crown under this Agency extends from 15 to 70 miles north of the Village of Hastings. The Road through this large extent of land is passable for 40 miles, and money is now being expended to extend it 30 miles further, so that Settlers can get in and out without difficulty, and find a good market for surplus produce, as well as convenient facilities for bringing in whatever supplies they may require—abundance of which can be had at the Village of Hastings, where the Government Agent resides.

The direct way to reach this Section, which is easily accessible, is by KINGSTON, Canada West, thence by Steamboat up the Bay of Quinte to BELLEVILLE, 56 miles—and thence by a good Road to HASTINGS, 28 miles.

In order to facilitate the Settlement of the Country and provide for keeping in repair the Roads thus opened: the Government has authorized Free Grants of Land along these Roads, not to exceed in each case ONE HUNDRED ACRES, upon application to the Local Agents, and upon the following

#### CONDITIONS:

That the Settler be eighteen years of age. That he take possession of the Land allotted to him within one month, and put in a state of cultivation at least twelve acres of the land in the course of four years,—build a house (at least 20 by 18 feet) and reside on the lot until the conditions of settlement are duly performed; after which accomplishment only shall the settler have the

right of obtaining a title to the property. Families comprising several settlers entitled to lands, preferring to reside on a single lot, will be exempted from the obligation of building and of residence, (except upon the lot on which they live) provided that the required clearing of the land be made on each lot. The non-accomplishment of these conditions will cause the immediate loss of the assigned lot of land, which will be sold or given to another.

The road having been opened by the Government, the settlers are required to keep it in repair.

The Local Agents, whose names and places of abode have already been given, will furnish every information to the intending Settler.

The LOG-HOUSE required by the Government to be built, is of such a description as can be put up in four days by five men. The neighbours generally help to build the Log-cabin for newly arrived Settlers, without charge, and when this is done the cost of the erection is small; the roof can be covered with bark, and the spaces between the logs plastered with clay, and white-washed. It then becomes a neat dwelling, and warm as a stone-house.

The Lands thus opened up and offered for settlement, are, in sections of Canada West, capable both as to Soil and Climate, of producing abundant crops of winter wheat, of excellent quality and full weight, and also crops of every other description of farm produce, grown in the best and longest cultivated districts of that portion of the Province, and fully as good.

There are, of course, in such a large extent of country as that referred to, great varieties in the character and quality of land—some lots being much superior to others; but there is an abundance of the very best land for farming purposes. The Lands in the neighborhood of these three roads will be found to be very similar in quality and character, and covered with every variety of Timber—some with hard wood, and some with heavy pine.

Water for domestic use is every where abundant; and there are, throughout, numerous streams and falls of water, capable of being used for Manufacturing purposes.

The heavy timbered land is almost always the best, and of it, the ashes of three acres—well taken care of and covered from wet,—will produce a Barrel of Potash, worth from £6 to £7 currency. The capital required to manufacture Potash is very small, and the process is very simple and easily understood.

The expense of clearing and enclosing heavily Timbered Lands, valuing the labor of the settler at the highest rate, is about FOUR POUNDS Currency per Acre, which the first wheat crop, if an average one, will nearly repay. The best timber for fencing is to be had in abundance.

A Settler on these lands, possessing a

capital of from £25 to £50, according to the number of his family, will soon make himself comfortable, and obtain a rapid return for his investment. The single man, able and willing to work, needs little capital, besides his own arm and axe—he can devote a portion of the year to clearing his land, and in the numerous lumbering establishments, he can, at other seasons, obtain a liberal remuneration for his labor.

The climate throughout these Districts is essentially good. The snow does not fall so deep as to obstruct communication; and it affords material for good roads during the winter, enabling the farmer to haul in his Firewood for the ensuing year from the woods, to take his produce to market, and to lay in his supplies for the future—and this covering to the earth, not only facilitates communication with the more settled parts of the District, but is highly beneficial and fertilizing to the soil.

In all the localities above named, wherever Settlers have surplus produce, there is a good market for it near to them—farm produce of all kinds being in great demand by the Lumber or Timber Merchants, who are carrying on extensive operations throughout these parts of the country.

According to the ratio of progress which Canada West has made during the last ten years, the value of property on an average doubles within that period; irrespective of any improvements which may have been made by the Settlers.

In many Counties the value of Land, once opened for settlement has increased FIVE-FOLD in the period named, but the average value of such land, according to the statistics of Canada West DOUBLES EVERY TEN YEARS in the mere lapse of time, exclusive of any expenditure thereon—and it is not too much to expect that this ratio will not diminish for generations to come.

The Sections of Country opened by these roads lie in and to the Southern part of the Great Ottawa Region, stretching from and beyond them to the shores of Lake Huron, to Lake Nipissing, and to the Ottawa River—an immense extent of country whose resources are now seeking and will rapidly obtain development.

THE OTTAWA COUNTRY, lying south of Lake Nipissing and of the great River Ottawa, and embracing a large portion of the land offered for settlement, is capable of sustaining a population of EIGHT MILLIONS OF PEOPLE, and it is now attracting general attention, as the more western portions of Canada are being rapidly filled up;

The Parliament of Canada in its last Session, incorporated a company for the construction of a Railway to pass through this Ottawa country from the Shores of Lake Huron to the City of the Ottawa, and thence Eastward.

A survey of the River Ottawa and the neighbouring Country has been undertaken,

and will be completed in the present year: its principal object being to ascertain by what means the River Ottawa can be rendered navigable and connected with Lake Huron so as to enable vessels to pass by that route from the most Western Waters into the River St. Lawrence and the Ocean. These projected works are alluded to, in order to show that the attention of the Government, Parliament and People of Canada has been fixed upon this important portion of the Province.

P. M. VANKOUGHNET,  
Minister of Agriculture, &c.



### Crown Lands Department.

TORONTO, 31st May, 1856.

NOTICE is hereby given that the under-mentioned Crown Lands, in the Township of WOODBRIDGE, in the County of Kamouraska, L.C., will be open for Sale to actual settlers upon application to FLORENCE DEGUISE, Esquire, at Ste. Anne de la Pocatiere, on and after the THIRD day of JULY next, at One Shilling and Six Pence per acre, under the regulations of the 6th August 1852:

#### TOWNSHIP OF WOODBRIDGE.

##### 3rd Range.

Lot 48 (100), 49 (46).

##### 4th Range.

Lot 1 (122 acres), 2 to 15 incl. (100 a. each), 16 to 25 incl. (100 each), 27 to 31 incl. (100 each), 32 and 33 (100 each), 34 (100), 35 and 36 (100 each), 37 (100), 38 (100), 39 to 48 incl. (100 each), 49 (46).

##### 5th Range.

Lot 1 (100 acres) 2 and 3 (100 a. each), 4 to 8 incl. (100 each), 9 and 10 (100 each), 11 and 12 (100 each), 13 to 17 incl. (100 each), 18 to 21 incl. (100 each), 22 (100), 23 (100), 24 to 26 (100 each), 27 to 29 (100 each), 30 to 32 (100 each), 33 to 38 (100 each), 39 (100), 40 to 45 (100 each), 46 to 48 (100 each), 49 (57).

##### 6th Range.

Lots 1 to 21 incl. (100 each), 22 (100), 23 (100), 24 (100), 25 (100), 26 (100), 27 to 38 (100 each), 40 to 47 (100 each), 48 (100), 49 (48).

##### 7th Range.

Lots 1 to 48 incl. (100 each), 49 (42).

##### 8th Range.

Lots 1 to 13 incl. (100 each), 14 (89), 15 (93), 16 to 48 (100 each), 49 (80).

##### 9th Range.

Lot 1 (71), 2 (65), 3 (66), 4 (67), 5 (68), 6 (69), 7 (71), 8 (72), 9 (73), 10 (69), 11 (48), 12 (37), 13 (20), 14 (21), 15 (32), 16 (72), 17 (83), 18 (84), 19 (85), 20 (86), 21 (87), 22 (88), 23 (90), 24 (91), 25 (92), 26 (94), 27 and 28 (96 each), 29 (98), 30 (99), 31 (100), 32 (102), 33 (103), 34 (104), 35 (105), 36 (106), 37 (107), 38 (108), 39 (110), 40 (111), 41 (112), 42 (114), 43 (115), 44 (116), 45 (118), 46 (119), 47 (120), 48 (122), 49 (80).

5 ins.



{ BUREAU OF AGRICULTURE AND STATISTICS,  
Toronto, 15th August, 1856.

### PRIZE ESSAYS.

£40, £25, £15.

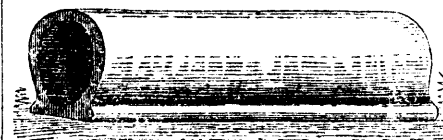
THE above PREMIUMS will be Paid for the Three Best Essays, respectively, on the Origin, Nature and Habits, and the History of the Progress, from time to time, and the Cause of the Visit, of the Weevil, Hessian Fly, Midge, and such other insects as have made ravages on the Wheat Crops in Canada, and on such Diseases as the Wheat Crops have been subjected to, and on the best means of evading or guarding against them.

The Essay to be furnished to the Bureau by the FIFTEENTH day of JANUARY next, and to be designated by a motto, a copy of which shall be also forwarded in a sealed note with the name and address of the author. The Prizes will be awarded according to the decision of a Committee, to be named by the Board of Agriculture for Upper and Lower Canada, or, in default of any such decision, by the Bureau, the Essays selected to become the property of the Bureau. A premium will only be awarded in case an Essay of sufficient merit is produced.

It is feared that the farmer in his eagerness to produce wheat, is not paying sufficient attention to the danger of over-cropping, and it is hoped the warning, and the information and advice which may be obtained through the Essays sought for, will aid in arresting the great scourges of the wheat.

P. M. VANKOUGHNET,

6 ins. Minister of Agriculture, &c.



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## Crown Lands Department.

TORONTO, 29th August, 1856.

**NOTICE** is hereby given that the under-mentioned Crown Lands in the Township of Montcalm, in the Township of Argenteuil, L. C., will be open for sale to actual settlers, on and after the **FIRST** day of **OCTOB R** next, on application to **GEORGE KAYNES**, squire, the acting local Agent at Grenville, in said County, on the following terms, viz.:

The price to be one shilling and six pence per acre, payable in five equal annual instalments, with interest: the first instalment to be paid upon receiving authority to enter upon the land,—actual occupation to be immediate and continuous,—the land to be cleared at the rate of two acres annually for each hundred acres during the first five years,—a dwelling house, at least sixteen feet by eighteen feet, to be erected,—the timber to be reserved until the land has been paid for in full and patented, and to be subject to any general timber duty thereafter,—a License of occupation, not assignable without permission,—the sale and License of occupation to become null and void in case of neglect or violation of any of the conditions,—the settler to be entitled to obtain a patent upon complying with all the conditions,—not more than two hundred acres to be sold to any one person:—

### TOWNSHIP OF MONTCALM.

#### First Range.

Lot 2 (90), 3 (63), 4 (64), 7 (115), 8 (114), 9 (114), 10 (113), 11 (112), 12 (111), 13 (110), 14 (109), 15 (108), 16 (107), 17 (106), 18 (105), 19 (104), 20 (103), 21 (102), 22 (101), 23 (100), 24 (99), 25 (98), 26 (87), 27 (82), 28 (96), 29 (79), 30 (88), 31 (100), 32 (100), 33 (100), 34 (73), 35 (32), 36 (81), 37 to 54 inc. (100 each.)

#### Second Range.

Lot 2 (60 acres), 3 (101), 5 (123), 6 (123), 9 to 25 inc. (123 each), 26 (118), 27 (100), 28 (100), 29 (100), 30 (100), 31 (82), 32 (95), 33 (100), 34 (99), 35 (89), 36 to 44 (100 each.)

#### Third Range.

Lots 3 to 30 inc. (100 each), 31 (82), 32 (97), 33 (86), 34 (76), 35 (32), 36 (85), 37 to 44 (100 each.)

#### Fourth Range.

Lots 1 to 20 inc. (100 a. ea.), 21 (87), 22 (73), 23 (100), 24 (100), 25 (100), 26 (100), 27 (100), 28 (100), 29 (92), 30 (69), 31 (71), 32 (66), 33 (81), 34 (85), 35 (62), 36 (74).

#### Fifth Range.

Lot 1 (100 acres), 2 (100), 3 (100), 4 (100), 5 (81), 6 (93), 7 (98), 8 (42), 9 (48), 10 (58), 11 (55), 12 (52), 13 (57), 14 (39), 15 (32), 16 (76), 17 (92), 18 (100), 10 (100), 20 to 28 inc. (100 ea.), 29 (84), 30 (88), 31 (100).

#### Sixth Range.

Lot 1 (19), 2 (16), 3 (47), 4 (65), 5 (75), 6 (59), 7 (51), 8 (51), 9 (31), 10 (72), 11 (76), 12 (100), 13 (100), 14 (100), 15 (50), 16 (24), 17 (41), 18 (59), 19 (92), 20 to 26 inc. (100 each.)

**JOSPH CAWTON,**

3 ins. Commissioner.



**BUREAU OF AGRICULTURE AND STATISTICS,**  
Toronto, July 28th, 1856.

**HIS EXCELLENCY THE GOVERNOR GENERAL**, has been pleased to approve of the method of distribution of the **LAND IMPROVEMENT FUND**, prescribed by the Order in Council herewith, published, in the hope that a judicious and economical management thereof may be thereby insured.

A Circular from the Department will be received by the Head of each Municipality, stating the amount at the disposal of such Municipality.

As the best season of the year for making improvements to which the Fund is applicable is close at hand, it is recommended that the preparations for the appropriation of the Money be made as soon as possible.

The Order in Council is as Follows:—

It is ordered that the Funds derived from the sales of Lands in each particular Township, or other Municipality, and applicable to the purposes of the Fund formed under the 14th Section of the Act 16 Vic. Ch. 159, and not already apportioned, be applied to the making, maintaining, altering, or improving of the Roads or Bridges in each of those Townships, or other Municipalities, respectively, and be for this purpose, distributed and disposed of by and through the Municipal Council of each such Township or other Municipality. Each such Council to report to the Bureau of Agriculture the manner of Expenditure of all such Monies on the **FIRST DAY OF JANUARY AND JULY**, in each year, and at any intermediate time within ten days after having been called upon so to do, by that Department.

Certified,

**W. H. LEE, C. E. C.**

**P. M. VANKOUGHNET,**

Minister of Agriculture.

6 ins.

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The lectures on Agriculture commence in November, to meet the convenience of persons engaged in farming; but Students desirous of entering for the Special Course, with the view of obtaining diplomas, should present themselves at the opening of the Session on the 10th September.

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