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AGRICULTURAL REVIEW.

SEPTEMBER.

Agricultural Review:—**Official Department.**—Annual Meeting of the Lower Canada Agricultural Association at Sherbrooke—Date and place of the Provincial, State and County Exhibitions during the months of September and October—**Editorial.**—The Sherbrooke Provincial Agricultural Exhibition—Its prospects—The foreign and native breeds of cattle—The buildings—Return tickets by the Grand Trunk Railway—The visit of his Excellency the Governor General—The Provincial Agricultural Depot—What should be the Provincial Agricultural Exhibitions, according to the views of the *Upper Canada Agriculturist*—A plea for farming—Rural gleanings—The last number of the First Volume of the *Lower Canada Agriculturist*—**Farm Operations.**—Suggestions for September—The garden—The field—The cattle—Ploughing heavy land—Pure water for stock—Raising wheat—Securing straw—Topping corn or cutting it by the ground—The potato rot and its prevention—Grass lands seeding and manuring—Summer manures—**Agricultural Implements.**—Farm Engineering—Location of farm buildings—Landscape—Land measurement—Reclaiming lands, with Engravings representing a Drain Tile making Machine, small size, hand power—Drain Tile making Machine, large size, hand and horse power—Drain Tile and Brick making Machine, horse power—Clay Puddling Machine, horse power—Puddling, Drain Tile and Brick making Machines combined—Irrigation of meadows—**Cattle.**—Care of Milch Cows—The art of catching horses—Fanny's flock of Sheep—**Horticultural.**—The town garden—Garden walks—Garden seats—Propagation of Currants and Gooseberries—Summer pruning—**Domestic Economy.**—Rules for making grape wine—Packing eggs for long journeys.

Official Dep'nt.

AGRICULTURAL ASSOCIATION FOR LOWER CANADA.

A meeting of the Directors of the Agricultural Association for Lower Canada will be held at Sherbrooke, on the Exhibition Grounds, on Friday, the 19th September, at 9 a. m., to choose the place of the next Provincial Exhibition.

G. LECLERE, Secretary.

Provincial and United States Exhibitions.

Vermont,	Ruthland,	September,	9-12
Horticul. Ex.	Montreal,	"	11-12
Ohio,	Zanesville,	"	0-12
	Cleveland	"	16-10
Kentucky,	Louisville,	"	16-19
Lower Canada,	Sherbrooke,	"	17-19
Upper Canada,	Toronto	"	22-27
Michigan,	Detroit,	"	23-25
Iowa,	Dubuque,	"	30 Oct 3
Indiana,	Indianapolis	"	30 Oct 3
Illinois,	Peoria,	"	30 Oct 3
New-York,	Rochester,	"	30 Oct 3
New-Jersey,	Newark,	"	30 Oct 3

County Fairs in Lower Canada.

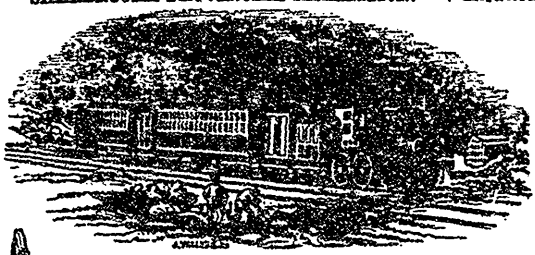
Terrebonne	Grande Ligne,	Sept.	13
Stanstead,	Barnston Corner,	"	13
Chambly,	St. Hubert,	"	15
Montcalm,	St. Patrick, Rawdon	"	16
Iberville,	Iberville,	"	23
St. Hyacinthe,	St. Hyacinthe	"	23
Huntingdon,	Huntingdon,	"	24
St. Jean,	St. Valentin	"	25
Argenteuil,	St. Andrews	"	25
Chateauguay,	Ste. Martine,	"	25
Compton,	Cookshire, Eaton,	"	25
Jacques Cartier	St. Laurent,	"	25
Rouville,	St. Césaire,	"	25
Drummond, No. 2	Durham,	"	30
Temiscouata,	Rivière-du-Loup	"	30
Napierville,	St. Henri	"	30
Bagot,	Ste. Bosalie,	Oct.	1er.
Berthier,	Berthier,	"	1er.
L'Assomption.	St. Paul l'Ermite	"	1er.
Richmond,	Danville	"	1er.
Ottawa, No. 1.	Aylmer,	"	2
Richelieu,	Ste. Victoire,	"	2
Pontiac,	Clarendon Centre	"	3
Vaudreuil, No. 1.	Vaudreuil	"	7
Nicolet, No. 1.	Becancour	"	9
Laprairie,	Laprairie,	"	9
St. Maurice,	Yamachiche,	"	15
Megantic, No. 1.	Inverness,	"	17

In compliance with our agreement, we publish, free of charge, the date and place of every county exhibition in the Lower Province. This tabular form would not have been complete, in our opinion, had we not inserted as well the Provincial and the State Exhibitions of the next two months. Farmers will attend generally to their county fair, but they do not make it a point of sufficient importance to attend the Provincial Exhibitions. No doubt a great deal of good may fellow from attendance at the local exhibitions, for competition will on all occasions bring about some improvement either in the breeding of stock, the construction of implements, or the raising of agricultural productions. Besides, discussions will be raised on the merits of the awards, and if the disappointed competitor will find fault with every first prize, the successful one will justify them by every possible argument.

Discussion and competition among farmers are the two most powerful means of improving the interests of the rural community. No one will allow his next neighbour to take a first prize over himself if there is a way to prevent it, and this alone will prove a mighty argument in favor of every improvement already adopted in one's vicinity. Such is the immediate result of our county exhibitions, and a very desirable result it is. But farmers should not be satisfied with taking the lead in their own county, they ought to enter in competition with the agriculturists of the whole Province. There a great deal could be learnt either from discussions on the most desirable points of first class animals, or from close observation in every department connected with our Provincial Exhibitions. Indeed, every farmer ought to make it a duty to attend these great gatherings of our agricultural wealth in both sections of the Province. Some may object that expenses will run high for parties attending the Upper Canada Exhibition. No doubt this is an important consideration, but for all those who can afford it, there should not be the least hesitation in this advance of capital, for which every cent will be returned tenfold, through the amount of knowledge which can be gathered by any intelligent farmer during the three days of a Provincial Exhibition. Return tickets can be had at half price, and every facility is afforded to make expenses light. We do insist

on this point because farmers do not pay sufficient attention to the subject. In a country like this, where every farmer is his own landlord, hundred of thousands should be present on each occasion, and no doubt the results that would follow would greatly benefit both the rural community and the country at large. This year we certainly expect an unusual large crowd at Sherbrooke; but this is not enough, the Toronto Exhibition which takes place the following week should be attended by every one of our leading agriculturists. They will be then able to judge for themselves of the boasted productions of Upper Canada farming and we have not the least hesitation to say that we doubt not that every department of the Exhibition will fully realize the most sanguine expectations. The presence of the Governor General, the neighbourhood of the world renowned scenery of Niagara Falls and cheap trips, will doubtless be tought a very good occasion for many of our extensive farmers and families to indulge in all which is worth seeing in Upper Canada in the short period of a week.

SHERBROOKE PROVINCIAL EXHIBITION.



ALL our expectations with regard to the Provincial Exhibition at Sherbrooke have been so far fully realized. The Eastern Townships have come in the field with a strong force of well-known names, and have now challenged the whole agricultural community in the contest for superiority about to take place. From all we know of the competitors, we have a decided presumption in favour of the Townships. Still it will be a well disputed victory, for most of our best agriculturists, in every part of the Province, have entered for competition some of their best animals. A fortnight hence, thousands of visitors will be crowding the Exhibition Grounds, eagerly looking for the first prizes in each class, and admiring those animals which will represent, to the best advantage, our native and foreign breeds. For many who have but of late left the shores of England to seek a new home on American land, the happy thoughts of the past will flow to their minds at the sight of our imported breed, of cattle. The Durham, the Hereford, the Devon, the Ayrshire, and the Gallaway, will bring to the remembrance of the emigrant times of old, when these noble breeds were first seen, in his days of boyhood, pasturing the green slopes of old England. The Leicester and the Cotswold, with their heavy fleece, long wool and large frame, will favourably compare with the native breeds, and even with the South Down, which have not yet, in this country, given entire satisfaction. And why, we are at a loss to say. At home they are quite favourites, and justly so, for their remarkably good shape, and above all for the de ided superiority of their hind quarters. Again, their short fleece and their black face and legs, give them a particular and very pretty appearance, which in England contribute greatly to their preference to any other breed.

Next the swine department will have numerous representatives of our most improved foreign breeds. The Suffolk, small and white, will come into competition with the black Essex, also a small breed. Although the public generally have a decided admiration for anything large and heavy, in the shape of a living animal, regardless of perfection or form still we very much apprehend that the desirable points, which are most prominent in those two breeds, will give them a decided superiority over the white Yorkshire and the black Berkshire, which will mainly represent the large breeds. At the last International Agricultural Exhibition of London there was a decided superiority in favour of the small breeds. Their perfection of form at a few months' old was the admiration and astonishment of every one present.

Poultry will be well represented and the feathered tribe will no doubt attract the greatest attention from fanciers and the public generally. Agricultural productions will be the best that have been seen for some years. Crops are generally good, and the samples of grain will be very creditable to the country.

For native breeds and crosses the Eastern townships are well known to be superior to any other part of the Province. Their pasture lands are well attended to, extensive, well shaded and naturally well drained by a gravelly subsoil. To these very favourable circumstances must be added constant improvement in the stock through a careful selection of breeders and thorough-well calculated crossings with imported stock. Roots and hay during winter complete the treatment. We shall witness with the greatest interest the results of good care and feeding, demonstrated in a practical way by the superiority of the cattle exhibited by the Eastern townships. The working oxen of themselves will be quite a display; in no country, do we believe, better oxen can be shown than by our Eastern farmers. After giving several years of hard work they are ready to turn into beef and fetch on the Montreal and Quebec markets the highest prices offered for first class meat. Indeed, summing up the prospects of the Sherbrooke Exhibition, it promises to be one of the greatest successes, if not the greatest of our Provincial Gatherings.

The buildings are now completed and they are a credit to the local committee, who have entirely accomplished all which was expected from them. On no other occasion will the different departments of the Exhibition have been housed more comfortable and with better regard either to space or general arrangement. The new market has been successfully turned to advantage on this occasion and greatly contributed to the elegant appearance of the build-

ings. In short, nothing will be spared, not even the music, to make every body happy and content. Special trains will be run at half price by the Grand Trunk, as we have already noticed.

The Governor General will certainly be present at the show, on the first day, and it is most desirable that a large attendance of the farmers on this occasion should give to his Excellency a favourable opinion of the interest paid by them to agricultural improvements, as well as of the hearty welcome of the rural community to the representative of our Queen.

The establishment of a Provincial Agricultural Depôt at Montreal is now realized, and in a few days hence our collections will be completed. The building selected by the Board forms part of the Marble Block, Notre-Dame street. It consists of three stories, with a large basement for the storage of trees. On the first flat will be the heavy agricultural implements and our office, on the second floor the lighter agricultural implements and seeds. These will be occasionally removed so as to use this floor for a lecture-room. The Board of Agriculture will have their office on this floor. The third story will contain the library department and news' room. We propose having also a permanent horticultural exhibition of flowers, and monthly fruit exhibitions during the summer months. During September we propose attending the Provincial Exhibitions at Sherbrooke and Toronto, and the New York State Exhibition at Rochester. These will afford us a very good occasion of selecting for our collection those implements best recommended for our special circumstances. Again as to young trees, either for orchards or for ornament, we will secure a large supply, so that however large will be the demand for them, we shall be able to meet the orders.

We will also attend most of the county exhibitions, when time will allow us to do so, and more particularly those to which we have been specially invited. We shall always report on the exhibitions which we will attend; but whenever circumstances forbid us to be there we would receive with great pleasure any report, either from one of the officers of the society or from one of the members. It is of the highest importance that every one should be informed of the doings of each society, for the experience of the one may lead to the management of the difficulties of the other, and as a consequence give assistance to the general improvement.

With regard to Provincial Exhibitions we find in the Upper Canada "Agriculturist" the following remarks, in which we entirely concur. In our section of the Province we have already made a wide distinction between the agricultural and industrial departments, but we yet believe in agricultural productions and poultry. These in course of time must be got rid of, and no doubt some improvement in this way will be done at the next Provincial Exhibition.

The Provincial Agricultural Exhibitions.

This Institution, like the Horticultural Society, the House of Industry, and the General Hospital, is under the control of a local oligarchy, to which may be attributed its inefficiency in too many respects. In a recent number we stated pretty plainly our views about the trumpery things unconnected with Agriculture which disgraced the Exhibition at London last year, and indeed every place where an Exhibition has been held. Even the papers of London the Little expressed their regret at the very indifferent show. The contents of the gallery would hardly have been accepted as a gift by a Pawnbroker—indeed, it seemed as if all shops of that description had been ransacked. Old prints, dilapidated Indian curiosities, worsted work and drawings, which any bread and butter Miss, who had just entered her teens, would have blushed to acknowledge—all things at our Agricultural Show, largely subsidized by the Provincial Government! We select from among many letters on subjoined, to show that there are many farmers who agree with us in opinion. The *Globe* has followed our example and denounced the daubs and quilts, and pipes, &c. Why won't the managers of the society consult and follow English precedents as far as circumstances admit. On comparing the prize list of the Royal Agricultural Society of England with that of Canada, we find that England gives 39 prizes for horses of the value of £545 sterling—Canada gives 120 prizes for the same kind of stock, and Canada has built stabling in Toronto, on the Exhibition ground, at a cost of $8,000, for 200 horses. For cattle England gives 91 prizes of the value of £735 sterling—Canada gives 250! For sheep England gives 36 prizes to the value of £410 sterling, and Canada gives about 150. For pigs England gives 45 prizes of the value of £180 sterling, and Canada about 80. The average value of Prizes here must be about 50 cents to every pound sterling in England. Could we not reduce the number of prizes here and increase the value of them.

Here, our show partakes of the miscellaneous character of a village fair at home. At AGRICULTURAL Societies held at home, we do not do not find such articles as "poultry, seeds, fruit, grain, plants and flowers, garden vegetables, fruit, cabinet ware, and wooden manufacture, chemical preparations, fine arts, amateur drawings in oil, water colours, pencil and crayon, photography, wearing apparel, groceries and provisions, preserves, crochet, tatting, best gentleman's shirt! stoves, paper, bookbinding, pottery, paving materials, harness, boots and shoes, bands of music, sugar plums, confectionery!!!"

Now these are all good in their way, but surely a more fitting time and place could be found for them than at an agricultural show. Let them be divided for any sake, and then the gentler sex may exhibit their talent and agility in tatting and tattling. FAIRS are the proper place for many of the above named things, and the farmers about Toronto would do well to avail themselves of the local act which permits them. These fairs every year, in Toronto, would bring as much money into circulation as one exhibition in every five years. A fair in Toronto, we shall be reminded failed, but it got into the hands of a tailor and

picture-frame maker, and the country gentlemen were elbowed out by civic dignitaries. The *Globe* informs us that this year, with a view to encourage grape culture, three prizes are to be offered for the best *three bottles of wine!!* Three bottles—how dreadful!—three whole bottles of grape wine. Have John A. or the coon had a hand in this excess? But now we will suggest what ought to be encouraged by handsome prizes: hedge rows, wool culture, the best hogs head of cider, also of beer made of malt and hops, the best three acres of hops, the best orchard, the best 10 cwt. of cheese, the best 50 lbs. of honey, the best hurdles for sheep folds, spars for thatching ricks, and baskets for agricultural purposes, made by the son or farm laborer of the ehibitor; the best score of walking sticks!—which are convenient supporters for elderly gentlemen—999 out of every thousand are imported from England!!! when this Canada of ours is supposed to be a wooden country.—A prize for the best acre of grapes grown in the open air. Let any one who desires to see a much larger quantity than this go to Lake Erie, on the Yankee side, where he will find a grapery making thousands of good wine yearly. Prizes for the best drained and irrigated farms should be given.

No first prize should be awarded to the same person for two successive years. The prizes for bands should be done away with, and the prize given for the best glee, duet, solo, or march, composed by a Canadian. Prizes should be given to a large amount for various sorts of made wines, to wean us by the use of those cheap and wholesome liquors, including cider and beer, from that vile poison, whiskey which in this country kills yearly more persons by *delirium tremens* than die from that and other cognate causes in Great Britain in the same period.

A Plea For Farming.

From the "Introductory" of a pamphlet recently published, entitled "A Plea for farming," we extract the following:

Well directed efforts in farming are always crowned with success. Individual competence for every one, and a nation's peace and prosperity must be born of agricultural successes. All institutions of civilization rest upon the basis of farming, and these institutions totter and fall, or stand firm and strong, according as the resources and pursuits of agriculture are weak and neglected, or are healthy and vigorous.

Mechanics and manufacturers keep pace in progress with the increase of productions that come from the farmer's hand. The institutions of useful knowledge are developed with the increasing wealth of a nation's agricultural riches. The germ of financial morality, and the antidote for all financial woe that now covers the earth, is yet to be developed by well-directed efforts in agricultural pursuits. There is a long outstanding debt of attention and respect, yet unacknowledged, that the business men of the world owe to agricultural efforts; and the time is not far distant when this debt will be acknowledged, and will be paid. And the wreck and the ruin of the property of trading millions, that now sweeps through the financial ranks of men, is but a warning to take heed of this indebtedness. Men who are the shrewdest, and have had the most experience in trade, see and know the injustice and almost criminality that is incident to "legal trade; they are satisfied of the injustice and the uselessness of nine-tenths of the time and effort bestowed thereon.

Farmers, manufacturers, and mechanics feed and clothe the world. Traders work in an opposite direction; they take the food and clothing that others have produced, to live upon, without producing anything that contributes lawfully to the end of their temporal existence. It is a just demand of nature, that every healthy man should, by his efforts, contribute something to his own support—be useful and do good in the world—and thus it seems a just retribution from the powers that rule our existence, that "ninety-nine tradesmen in every hundred fails in business." They fail to maintain their own prosperity, because they actually do nothing to support it. Every tradesman is unwittingly the agent himself that undermines his own successes.

Let tradesmen, nineteen out of twenty, turn from their unhallowed, unproductive, speculative pursuits, to the honest, useful, healthy business of farming, whereby the necessities and luxuries of life shall be produced, and they will lend a helping hand to the true end of existence. Then, when this shall be, "man's inhumanity to man" will be lessened, and the world will be turned in the direction of the millennial age. It is the desire of all to better the present condition of living. This can never be done by the increase of labor and effort that is unproductive and useless; but it may be easily done by the increase of labor and effort that is productive and useful.

Rural Gleanings.

The grape crop of California promises to be unprecedentedly large this season, and arrangements on a greater scale than ever are making for the manufacture of wine. The "National Dispatch" says the wheat crop in Hardeman, Fayette, and the Western District generally, is a fine one, and promises an abundant yield.—The wheat crop of Ala., Ga., and Southern Tenn. is a failure, while the corn crop is everywhere admitted to be behind what it should be at this season of the year. Many fields of wheat will not yield their seed. "People are dying of starvation," said a gentleman from Mobile. "The poor are starving," said a mechanic at Montgomery. "God help us, we are starving, and that's God's truth," said the wife of a coal miner near Chattanooga.—It is estimated that 20,000 bales of cotton, of good staple, will be sent to market from Illinois the present year.—The late rains have greatly benefited vegetation in Canada, and the prospects are that the crops, although not an average, will be tolerably fair, hay excepted, which will be very light; it was too far gone when the rain fell to be much benefited.—The next State Fair in Minnesota will be held at St. Paul, in September. Horace Greeley of the "Tribune," and Otis F. R. Waite of the N. Y. Stock Journal have been engaged to deliver addresses on the occasion.—The harvest sea-

son in Maryland has begun, and the farmers are now busily engaged in cutting their wheat.

Secretary Chase, in a recent letter to the Committee on Ways and Means, states that the sugar crop of La. last year was 500,000 hogsheads of 1100 lbs. each. There were in New Orleans when captured 80,000, chiefly held by foreigners, and there yet remains on plantations 220,000. He consequently suggested the expediency of such internal duties on domestic sugars as necessary to secure the revenue expected from import duties on foreign, the foregoing being nearly, if not quite enough to supply the wants of the country till the next crop is ready for the market.—This year's vintage in France gives excellent promise, and there is now a rapid and continuous fall in the price of wine.—A man who owned a lot in Sacramento, California, during the late floods, went to see if his fence was washed away. He found that he had lost his fence, but he had caught a fine two-story house, which made him a good deal more than square in the operation.—The wheat harvest has commenced in New Jersey, and the crop is represented to be the heaviest seen in the State for several years past. The hay crop has turned out excellent, and is preserved in good order. Oats look unusually promising, and there will be an extraordinary yield of fruit.—The premium offered by the Legislature of Cal. for the best sample of cotton raised in the State, has caused much interest in the growth of that staple by the farmers, and the question will be thoroughly tested.—The culture of grapes in this country, within a few years, will excel, both in extent and variety, that of any nation in Europe. Cal. will probably be the Eschol of the Western world. It has ten millions of vines under cultivation.—The present crop of sugar cane in Ill. is estimated at 50,000 acres. There will also be in that State a large crop of cotton and tobacco.

The "St. Louis News" says the wheat harvest in the West, now generally secured, is a bountiful one. In middle and southern Ill. and Ind. the yield was so abundant that but for reaping and thrashing machines, much of it would have been lost. Oats are not quite so good, and the yield will not be so abundant. Grass looks promising in Ind. and Ill., but in Mo. and Ky. it has suffered for want of rain. Throughout the West corn looks well.—The Canadian papers notice an improved appearance of the crops.—Reports from the Southern States indicate short crops of wheat and oats. Corn promises well. High prices for breadstuffs are likely to continue.—Thousands of acres of corn and potatoes in Connecticut have not yet had their "first hoeing," in consequence of the scarcity of laboring men this season. The wages of farm laborers in many parts of the State have advanced to $1.50 per day.—The "Woonsocket (R. I.) Patriot" says that apples are falling from the trees, just now, in great quantities. The prospect of a large crop, so promising a month or two ago, is rapidly diminishing. Some orchards are already divested of fruit. In Canada Hay crop is a failure but the grain crops are splendid.

The Lower Canada Agriculturist.

Before closing with this, the last number of our first volume, we feel that it is our duty to thank our subscribers for the very kind support given us to this day. We well understand that our publication is wanting in many respects, and it is our greatest desire to improve the Lower Canada Agriculturist in our next volume, so as to make it more worthy of the high patronage with which we are honoured. Difficulties have occurred during the past year which we cannot foresee in the future. The editorial department will be carefully attended to, and we have every reason to believe that it will show a decided improvement on the past. Moreover the matter of each number will be doubled, and the editor will have all the necessary space to thoroughly investigate every question connected with our agricultural interests.

In looking over the table of contents of the first volume of the Lower Canada Agriculturist, published with this number, we feel that we have done all that could be done in the position in which we were placed. But although it contains a considerable amount of information, and quite a number of engravings, yet it is no criterium of what the publication could, and will be if the farmers will subscribe and write for their own paper. But really to this day the English edition of the Agricultural Journal has been a losing concern, and as long as it is so, it becomes an impossibility to increase expenses to improve it. Yet during the coming year we are determined to do our utmost by doubling the matter and engravings each month. This will be a fair trial, and we hope that the farmers will understand the importance for them of having an English edition of the Agricultural Journal, by subscribing and making it self-supporting.

FARMING OPERATIONS.

ALL kinds of noxious weeds that have been kept subdued during the season until August, will now make a desperate effort to grow, and if possible to mature seed before winter. It seems to be now or never with them.

Let it be kept in mind, that one cutting now injures them and retards their growth more than at any other season of the year. This is particularly true of Canada thistles, elder bushes and most biennial plants.

Stir the soil thoroughly and frequently about plants in the garden. Hoe cabbages, melons, tomatoes, &c., early in the morning, and at evening twilight. It will promote their growth

as much as a good dressing of manure. Even if the soil is free from weeds, stir it often.

Spade the ground between rows of carrots, but, be careful not to disturb the plants.

Save seed oats and grass seed this month. Read the manner of saving grass seed in COUNTRY GENTLEMAN for 1861.

Examine young fruit trees, to see if many of the branches are not growing out of shape; and pinch off the ends of those that grow too rapidly.

Bud young trees, and particularly young peach trees this month.

Take good care of calves and all other young animals that are being weaned during this month, and supply them with fresh water several times per day.

Lambs ought to be weaned this month, in order to allow their dams sufficient time to recruit before winter.

Colts should be weaned this month, and the entire month should be occupied in doing it, in order to wean them gradually. By this means, colts may be weaned with little inconvenience or injury to them; whereas, when they are weaned by taking them abruptly from their dams, they often fall away and become "spring poor."

August is the best time in all the year to prepare a strawberry bed. Let a man spend half a day in spading up a plot of good rich ground, say fourteen feet wide and thirty feet long, and transplant the vines; and if the weather is very hot and dry, shade them with boards placed on benches two feet high.

Call out all hands and go through the Indian corn, and cut up and pull up all thistles and other noxious weeds. One hour spent in this way will save a day's work at some future time.

Straighten up large hills of Indian corn that have been prostrated by storms of wind and rain, and heap up the earth around such hills until they will stand erect alone.

Plow oat stubble, or any other stubble where there are Canada thistles. Plow it deep and thoroughly, and if the weather continues hot, the operation will injure them so greatly, that they will prick but little the next season.

If you have not already commenced feeding meal to swine and beef cattle, now is the time to commence.

Pick up all the wormy fruit beneath your fruit trees, and feed it to swine or boil it to kill the insects in it. Every insect—and there is a little worm in every plum, apple, pear, peach or cherry that drops prematurely—will return to the soil as the fruit decays, and reappear next season to destroy fruit.

I have every kind of fruit that falls in consequence of the curculio, picked up and destroyed.

Plowing Heavy Lands.

It would be interesting and important, says the Boston *Cultivator*, to know what would be the comparative results, in regard to the crops produced for three years, between lots plowed in furrows of fifteen inches and others often inches wide, on heavy soil. It is a rule in England and Scotland, as well as in some parts of this country, to plow clay land in as fine or narrow furrows as practicable, in order to produce the required friability, and give due exposure to the atmosphere, which is so necessary to develop the fertility of such soils. It may be said that the width of the furrows was not greater than usual in proportion to the depth. On this point it may be inquired whether the expediency of plowing sward to this depth has been demonstrated? Would it be better, especially on clayey soils, to bury the sward at only a moderate depth, where it would more quickly decompose, and give more immediate benefit to crops—plowing deeper, if necessary, afterwards? Such is the practice in some sections distinguished for successful farming.

Pure Water for Stock.

A good draught of *good* water, is, probably, as refreshing to beasts as it is to people. But, in the month of August, nearly all domestic animals suffer far more than we imagine, for want of good water. Sheep will thrive far better if they have access to pure water. Teams will endure the heat far better if they can have plenty of clean pure water; and if milch cows must drink stagnant water where ever they can find it, how is it possible for them to give their usual flow of *good* milk. It is impracticable for them to do it.

Some people allow water to stand in troughs, day after day, many times, and compel their animals to drink it all up. Did such people ever drink water from an old dirty slop pail, after it had been allowed to stand in the sunshine for two or three days? Let them try the experiment of drinking such water, and wait for the result; and then they will be prepared to express a correct opinion, whether or not such water is as good for stock, in the sultry days of August, as pure cold water would be.

Water troughs and water tanks should be cleaned frequently, during the hot days of August, and fresh water pumped into them several times during the day.

Milk cows require a vast quantity of pure water in hot weather, in order to produce their usual flow of good milk.

Raising Wheat.

"Drive the plow deep in summer's heat,
And you'll have wheat to sell and eat."

August is the month—the best month in all the year—to prepare the soil for a crop of wheat, whether we raise spring or winter wheat.

The soil *must* be thoroughly prepared in August for winter wheat; and if a crop of spring wheat is to be grown there the following season, there will be more wheat than if the soil is plowed in any of the months in autumn or winter. Our reasons for this affirmation will be given at some future time.

I have observed in many sections of our country, that those farmers who make and apply to their soil a good dressing of manure once in three or four years, succeed in raising about as good a crop of wheat, after barley or oats, as those who summer fallow their ground.

As soon as the barley or oats is removed from the field, plow the soil deep, cutting very narrow furrow slices. In order to do this job well, have a sharp plow point, and a short double-whiffletree, so that it will be easy to

adjust the plow to cut deep and narrow furrow slices.

When a plow is adjusted to cut a furrow slice only four or five inches wide, a single team will draw it ten or twelve inches deep, as easily as they would were it to run only six inches deep, and cut a foot or more wide. Thorough pulverization is a very important consideration in preparing the soil for a crop of wheat.

Now, if a crop of winter wheat is to be grown, about the tenth or fifteenth of September the soil should be plowed again, and a thin coat of manure spread evenly over the entire surface and well harrowed in.

But the soil must be well prepared, and the top-dressing or compost must be all in readiness in August, and then, when the time arrives to put in the grain, if a farmer performs his part of the labor well, he may expect a good crop.

Let it be borne in mind that wheat needs a little good manure in order to produce a fair crop. Take up the stable floor, and hoe out every nook and corner of the barn yard, and apply such scrapings as a top-dressing for wheat.

Securing Straw.

I have observed that in almost every part of the country, many farmers who raise grain, such as oats, barley and wheat, are accustomed to thrash their grain as soon as it is practicable —and many times when it is very inconvenient, on account of the pressure of other farm labor —and throw their straw in a pile, where most of it is worthless, except for manure.

Good straw is very valuable in wintering stock, aside from the nourishment which it furnishes them. If a farmer has a large crop of grain, and no stock to consume the straw, if the straw be properly secured so as to be fresh and palatable next winter, it would be a profitable investment to save his straw and purchase a flock of sheep—even were it necessary to borrow money for such a purpose —which could be kept well on straw, a little grain, and an occasional feeding of cornstalks and hay. In addition to this consideration, the large burden of straw would be converted into the best of manure, which would tell a large story next season, in a good crop of Indian corn.

When farmers will persist in thrashing their grain in August, let the straw be stacked in a farmer-like manner, or, what is better, let it be secured in a long rick, carried up high and narrow, and well topped out. Then, after it has settled, let it be raked off neatly, so as to turn as many of the straws downwards as possible, which will carry off the rain far better than they will when a rick or stack has not been raked.

The raking should be done when the top of the rick is wet, as the straws will remain straight up and down the rick, whereas, when they are dry, they are so elastic that they will point every way.

Another way to secure straw, which is practised in many parts of the country, is to cover the rick with a large canvass after the top has been raked off.

Another good way—which I have practised in former years—is to build a rick of straw about fourteen feet wide, and carry the sides up perpendicularly, and then finish the top like a building with a roof that slants only one way, and then cover it with boards to carry off the rain.

A thousand feet of fence boards sixteen feet long, will cover a rick fourteen feet wide and fifty feet long, and batten the cracks, and would save a rick of straw almost as well as if it were in the barn.

When straw is secured in this manner, a few boards can be removed at a time, and one end of the rick can be cut off without exposing the entire rick to snow and storms of rain.

Another good way is to stack grain on each side of the barn doors, and run the straw as the grain is thrashed, into the barn. A great many farmers who grow grain adopt this manner of securing their straw.

But the *best* way, according to my notions of agricultural engineering, is to defer thrashing grain until late in autumn or winter, when the labors of the field are not so pressing as in August.

Topping Corn or Cutting it by the Ground.

By topping corn before it is ripe you prevent the corn from receiving that portion of the elaborated nutritive sap which it would have received from the stalks and leaves cut off, had they not been separated from the corn. On the other hand, by cutting corn by the ground before the leaves and stalks become dry, and the corn fully ripe, and setting it in shocks as soon as cut, the circulation of the sape continues, until the stalks become dry, and the corn improves in the shock. The same thing is observed in wheat, by cutting it before the kernel is hard, and placing it in shocks before it wilts, the wheat improves in the shock and will make more flour, and of a better quality than if it was allowed to stand until the kernel was hard.

We have two objects in view when we cut corn by the ground. Namely, the preservation of the corn and stalks from frost, which frequently occurs before the corn is ripe, and spoils corn and stalks. Whereas, if corn is cut by the ground before the frost strikes it, both may be saved and be of a good quality.

The corn grown in this section, of country is not so large in stalk or ear as that grown further south; the stalks being smaller, make better fodder, and are excellent for milch cows, producing an increase of milk of the richest quality for butter-making, and the corn weighs more by the bushel than the southren corn.

I have no doubt but that corn cut by the ground before it is fully ripe may not be quite as heavy, but if it is well cured in the shock it will be equal in quality, and the small loss sustained in the weight will be trifling when compared with the loss of the corn, and the stalks for fodder when the frost strikes it before it is ripe. Surely if there should be no frost until the corn was fully ripe, the corn would be good, but the stalks would be dry and of little value. Finally, to sum up the whole matter, there is a certain state or condition at which corn may be cut by the ground, and the diminution in the weight of the corn will bear

no comparison to the loss of the fodder, if the corn was struck with frost or allowed to stand until it was fully ripe, and the stalks, if well saved, will amply pay all the cost of cultivation.

I once planted two acres of corn, a part of it on the 8th, and part on the 10th of June. It being so late in planting, I expected it would be destroyed by frost. About the middle of September there was a slight frost, but not so severe as to materially damage the corn, and fearing there would be a more severe frost I immediately cut the corn by the ground and shocked it. The corn at this time was what we term glazed, and it ripened well in the shock, produced forty bushels of shelled corn to the acre, and the stalks proved to be excellent fodder and the corn was of so good a quality that I had no difficulty in selecting the best of seed from it. At another time I had corn struck with frost before it was cut, that was equally as good before the frost came, and both corn and stalks were spoiled.

The subject of the value of cornstalks for fodder has been extensively discussed in the columns of the COUNTRY GENTLEMAN some advocating the cutting of them for fodder, others the feeding without cutting, and some have considered them of little value in any form. Stalks cut and well saved at a proper time, are excellent for feeding cattle, and those cut after they become dry and hard, or frost bitten and badly saved, are of little value, the best way you can fix them. I do not think it will pay the cost of cutting them for feeding.

The Potato Rot and its Prevention.

I take the liberty of making a few remarks on the potato disease and my method of saving potatoes when the rot has made its appearance. Divers opinions have been advanced relative to the cause of the potato rot, but I have heard no reason assigned that was satisfactory to me, except that of atmospheric influence, which we have no remedy to counteract.

Truly an excess of moisture (when the disease is present,) will cause a decomposition of the potato, but this is not the cause of what we term the potato disease. As soon as we discover the leaves and stalks of potatoes become suddenly wilted and black, when there as been no frost to cause it, we may rest assured the disease is present, and I believe the sooner the potatoes are dug after this appearance the more sound ones you will have, and the more that are partially affected may be saved for feeding purposes.

It is the deleterious sap of the diseased leaves and stalk circulating to the potato that causes it to rot: cut off the communication and you arrest its progress. If partially affected potatoes are separated from the sound ones and spread thin upon the floor of some out-building, they will become dry and keep well for some time, and may be fed to good advantage in fattening cattle. I had over 200 bushels of this description, one season, which I fed out for the above mentioned purpose, and saved what otherwise would have been a total loss. The better way is to commence feeding the unsound potatoes as soon as you begin to dig.

I have noticed that some potatoes appear sound except a number of white specks on the surface, and on cutting them I found dark colored streaks extending through the potato, showing decidedly that the potato was diseased; such potatoes if deposited in a heap would shortly ferment and rot. The reason why so many potatoes rot in the cellar is because so little care is taken in selecting all that are unsound. Again, I have observed that when the leaves and stalks of potatoes were *suddenly* and *totally* killed by disease, that very few potatoes became rotten, the circulation of the deleterious sap being entirely arrested. The method I pursue when I find my potatoes diseased is to dig them as soon as possible (in fair weather if practicable,) and sort out all the unsound ones I can discover while picking them up; and deposit the sound ones on the ground in a long narrow heap in the form of a roof and then cover them with straw laid on lengthwise from the ground to the top of the heap, for the purpose of protecting them from wet in case of rain, on and put sufficient cart to prevent from freezing. If there should be severe frost, let them lie a few days, and then uncover and carefully sort and put into the cellar, and keep your cellar cool until the frost becomes so severe that there may be danger of freezing in the cellar, then close up for winter. I have never suffered any loss from potatoes rotting in the cellar since I have used the above mentioned means to prevent it.

Grass Lands Seeding and Manuring.

The re-seeding of grass land by plowing it just after a crop of hay has been taken off, and sowing the seed on the inverted sward, has been practiced more or less in this vicinity for several years, and appears to be gaining favor. There is much land that is more profitable for grass than anything else, and the mode alluded to admits of a continuation of that crop without intermission. The first crop after seeding is somewhat later, but seldom fails to amount to a fair yield, if properly treated.

The present is a favorable season for this mode of re-seeding grass lands. The moisture of the ground from frequent rains, renders it easy to be plowed, and at the same time favors the rapid decomposition of the sward, which affords nourishment to the new crop. The seed will germinate readily, and the young grass will be pushed forward, obtaining strength of root to secure it against injury by frost.

In the preparation of the ground it is quite important to roll it heavily, after it is plowed, and before the seed is sown. The advantages of this are two-fold: 1. The edges of the furrows, and all other points which appear above the general surface, should be so compressed that the old grass will not be likely to start, and that the ground may be made level. 2. Grass, like wheat, requires a pretty firm soil. A little light earth for the seed to vegetate in, is necessary. After the ground has been sufficiently rolled, a very light harrow will loosen enough of it to make a seed-bed.

Unless the ground is very rich it well be advisable to apply manure of some kind at the time of sowing. Precisely what manure can be applied to the best advantage, will depend

on the particular circumstances which surround the farmer. If he has common barn or yard manure at hand, so well rotted that it will crumble down fine, a few loads to the acre, spread evenly and harrowed in, will start the young grass, ensure a good sward, and a good crop the following season. If such manure cannot be had, superphosphate of lime, ground bones or ashes, may be used. But if experience has not already proved the economy of using the latter manures on the kind of land, and for the purpose indicated, it will be advisable to apply them on a somewhat limited scale, and in such a way that the exact effect of them may be known.

The top-dressing of sward is a matter of importance. Experience has amply proved that some land may be kept permanently in grass by this means. Much has been said in regard to the best time for top-dressing grass lands. Farmers who have had considerable acquaintance with the subject, say they prefer making the application on mowing lands soon after a crop has been taken off, provided the weather is moist. It is not often that such weather occurs here at the season alluded to; it is generally dry, and the manure, if spread, is liable to lie some time without producing much effect. But this year the case is different. The abundant moisture in the ground causes the grass to start rapidly where a crop of hay has been taken; so that manure spread on the surface would not only be kept moist, but it would soon become embedded in a growth of green grass, and, if tolerably fine, the sward would become netted above it.

Objections to top-dressing probably still lurk in the minds of some farmers—especially to the surface application of manure for a considerable length of time previous to the growth of the crop it is particularly intended to benefit. Hence it may be urged by some, that to spread manure in summer or autumn for the benefit of the grass crop of the following season, would render it liable to be wasted. It is contended that the manure is liable to be washed away, to have its strength reached through the soil, and dissipated in the air.

In regard to the first of these objections, it may be remarked, that slopes of such declivity as to render common farm manure, spread on them, liable to be washed off, are unsuitable for top-dressing, except it be with saline manures, the properties of which might be at once soaked into the soil. As to the alleged loss by leaching, it is only on quite porous soils that this would be likely to occur, and such are not those for which top-dressing is recommended. This mode of manuring is only adapted to moist lands which are capable of supporting a constantly green and vigorous turf. Of course they are not porous and dry, but contain sufficient clay to make them retentive of moisture, and also to possess a strong affinity for the more valuable elements of manures. It is true that the experiments of Professor Voelcker prove that it is possible to leach potash and other manurial matters from soil containing a fair proportion of clay, but these results were only obtained when a *very large* quantity of liquid was applied. The examination of drainage water by Professor Way, showed that under the ordinary rainfall, soils of sufficient tenacity to require draining, retain their fertilizing elements, or that the water at least extracts but a trifling amount. With very loose soils the case would probably be different.

In regard to the waste of manures by evaporation,—a point which has been much discussed, and on which difference of opinion still exists,—it is sufficient to say, that it is not intended to advise the application of manures by top-dressing under circumstances where such a result would be likely to ensue. It is not intended that the manure shall be dried up, or exposed to extremes of wetness and dryness. It is well known that moist earth possesses a very strong affinity for manures, and in ordinary cases, grass-land which it is advisable to top-dress will be sufficiently moist to prevent the exhalation of any fertilizing elements.—*Boston Cultivator.*

Summer Manures.

It has become a common practice among New England farmers to plow sward land and lay it to grass in September, without cultivating a crop upon it; and when the autumnal months are mild and moist, this course is certainly successful, if the land is properly dressed with fine, rich compost. More land would be treated in this way than there is, if the farmer could always command the manure which is indispensable, if satisfactory results are expected.

The winter stock of manure is usually exhausted on the crops planted in the spring, so that the only resource is to that which has accumulated through the summer, and what can be done as an auxiliary help by the specific fertilizers. Some persons have attempted to re-seed sward land by the use of guano, bone-dust, ashes, lime or superphosphates, but we have never known the result favorable under such circumstances. The seeds come sparingly, and when up, do not grow vigorously. But wherever there is a little well-rotted manure, a particle of muck saturatid with urine or potash in some form, or a speck of rich, clayey loam, the seeds will find and cling to it tenaciously, and throw out their roots freely, which soon pass through it and down into the firmer soil. This is what they like, and should have, in order to return to us profitable crops.

The effort to obtain the largest amount of this material should never cease—not even during hoeing or the hurrying season of haying. Every available thing should be laid under contribution, and especially all the green stuff that can be collected, such as weeds, coarse grasses, and, in many pastures, brakes, and the young growth of bushes. In addition to these the droppings of the cattle, whether tied up or not, should be covered three or four times a week, or once each day would be better. When a system like this is put into practice, and steadily persisted in, the farmer will often find himself amply supplied with the necessary means of laying down his old fields to grass, and of covering them once more with the most abundant and paying crops.

The truth is, we let our grass lands run too

long. We mow them year after year and get a ton of hay per acre, when the land, under a higher state of culture, is capable of yielding three tons to the acre! Would it not be cheaper to allow some of it to lie idle, or grow up to wood, than to have so much in hand?

In order to have the summer manure in proper condition for re-seeding, it must be collected into heaps and passed through a slight fermentation, such as we have described in an article in this number of the paper, in reply to the queries of a correspondent about destroying the vitality of the seeds of weeds which find their way into the manure heaps.

It is of vital importance to the farmer, never to relax his efforts in making manure. They should be systematic, not spasmodic, crowding in the material this week in undue proportion, and withholding it entirely the next. Where system is observed, and the various materials are judiciously supplied, the heap will grow in magnificent proportions, and if properly reduced from its long and crude, to a short and saponaceous condition, will amply repay the cost with more than compound interest for all the labor he has expended upon it.

Will the farmer allow us to suggest, once more, the importance to him of attending to the manure heaps in the summer, while materials are more abundant than at other seasons, and while the hot weather will rapidly reduce them to their best condition. Let us suggest, also, that muck is the *great* basis upon which his operations must mainly rest. It is, in reality, "the mother of the meal chest." Without its aid we scarcely know what course to suggest; but with it in abundance, and judiciously used, there is hardly a limit to the productiveness of our good soils.

FARM ENGINEERING.

An engineer in the military art,—where the word originated, I believe,—is a person skilled in mathematics and mechanics; one who forms plans of work, both of offence and defence, marking out the grounds for fortifications, &c.

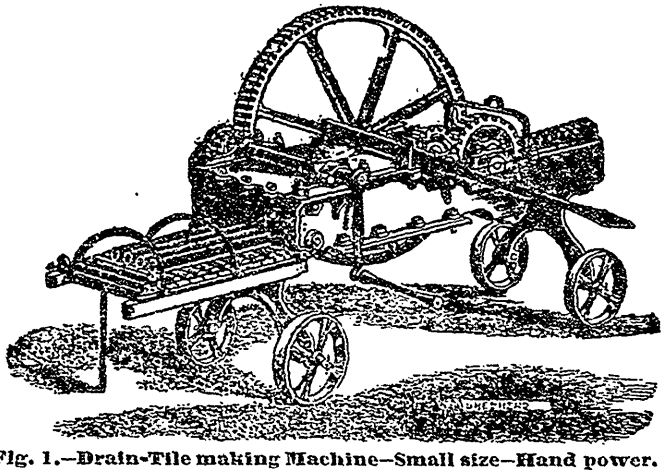


Fig. 1.—Drain-Tile making Machine—Small size—Hand power.

When this skill was afterwards applied to the delineating plans and superintending the construction of our public works, such as canals, railroads, &c., the title title of civil engineer was given to it.

Now that the farmer is becoming alive to his interests, he, too, claims an engineer; he has enemies to battle with; he has works both of offence and defence, to construct. He need not, however, very often, go outside of himself, for this engineering. No true farmer, with a mind alive to his business, but has it within himself, if he choose to apply it. Man's ambition says, Let us erect this wilderness into a fruitful field; let us make upon it a fit habitation; and it is the engineer in the man that is called upon to do it.

Location of Buildings.

A good location of our buildings, and their proper construction, are the first considerations requiring the engineer. In this latitude, we spend a considerable portion of our lives in these buildings. Everything we do is in some way connected with them; they are our outer bodies; the bodies of our bodies; by them our degree of civilization may be judged. Everything dear to us in life is connected with them; in a word, they are our homes. Youth, manhood, old age, are bound to them by ties as dear as life itself. A house is built for a lifetime. How important that we do not plan it hastily.

No rules can be given for location or construction by which all can be governed. I will give a few hints, however, that may generally apply:

A position as nearly central as possible should be chosen, that the land we work upon may be conveniently near; a healthy location, as far as possible from miasmatic swamps, yet not too high upon a hill; a convenience to water, where a good well can be dug; a running brook is also of great use to both house and barn, especially so in lime localities, where the well water is hard. Then the relative position of our buildings should not be lightly passed over, as it is a matter of great convenience to have the barn near enough to the house to be

connected by a shed or other building. Yet I think there are considerations that are against this plan that more than balance this convenience. There is danger of greater loss in case of fire; our olfactories may sometimes be unpleasantly excited by too close connection; the barn and yard are nurseries for myriads of flies and mosquitoes, who soon find their way to the dining room, and frequently take away the pleasures of a good dinner, by presenting bills! It is important that the sleeping-room of the one having charge of the barn should command a view of it, and be sufficiently near to hear the bellowing of the cattle in case of trouble.

Landscape.

There is another consideration, I think, often neglected; we are all, by nature, gifted with a love of the beautiful.

"A thing of beauty is a joy for ever."

And what more beautiful to us than a fine landscape? This pleasure in life was given us as a blessing; let us consider it in the location of our buildings.

A second consideration is, the dividing our land into suitable lots to meet our several necessities. It is curious to look over the farms in almost any part of the country, and see what might be called the want of engineering. Our forefathers were straight-forward, stern, resolute, without shadow of turning, as men, and it is a little strange that they should have handed down to us their streets and fences in such a crooked and wavering condition. One might think they had an ardent love for geometry, and had attempted to represent upon their farms every possible shape mentioned within the leaves of Euclid, and even a good many other shapes that you might search Euclid in vain for. Look at the line of our fences, and you see not only the pot-hooks and trammels of our grandmothers, but every variety of deviation from a straight line represented.

The question arises in my mind, What is the need of all this irregularity? It is a fact beyond question, that a straight line is the shortest that can be drawn between two points; i

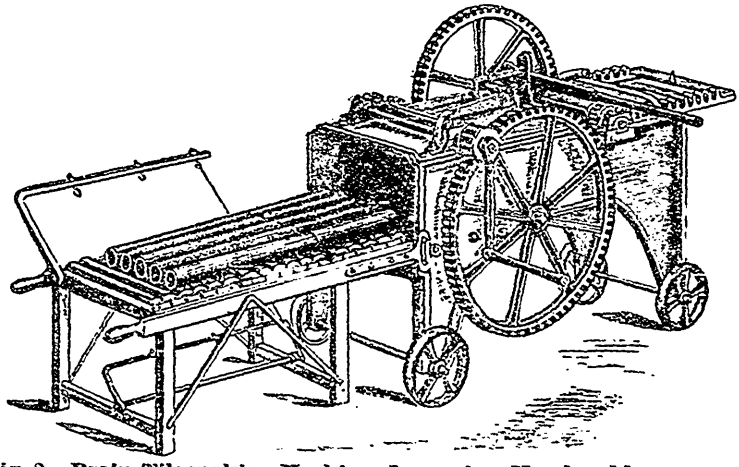


Fig. 2.—Drain-Tile making Machine—Large size—Hand and horse power.

a wall is to be built between two points, why not have it a straight one and save labour? I can see but one reason why this should not be done, and that is, that the longer the wall is the more stones it will take to build it. This might be a sufficient inducement to the farmers in some of our neighbouring town to take pot-hooks as patterns, but I think no member of the Concord Farmer's Club need adopt it, as a better use can be found for the surplus stones one may find upon his farm. The unevenness of the surface and the sinuosities of the streams may sometimes force us into these irregularities, but such are exceptions.

For economy in labour, not only should our lines be straight, but all the angles, right angles. Who that has ever plowed an irregularly shaped piece but has seen this? Take a triangular shaped piece, for instance; you commence by plowing around it, and everything goes on well for a time, but before you finish, instead of spending your time in plowing, you devote it to turning the team around; this holds comparatively true of any deviation from a rectangle.

But, I hear somebody say, it is too late for us to talk about these things; our farms are as they were handed down to us; the fences are already built; true, but we have a chance every year to improve them; the crooked walls can be made straight, when we relay them; and it will, in many cases, be a saving of labour to change and improve the shape of our lots.

Land Measurement.

A third consideration, and one, perhaps, requiring a little engineering that the farmer may not be able to do himself, is the measurement of the land. If a man owns a farm, it is a gratification to know how many acres and rods it contains. This alone would, naturally enough, induce him to have it measured; but, it seems to me, there are other inducements besides this, not only should it be measured, and a plan drawn of the whole, but each lot should be measured. Every farmer before he

commences his work in the spring, looks his farm over attentively, and decides which fields he will plow and which lay down; to what particular kind of grain, grass, or root crop each piece shall be devoted; how much manure he will apply, and how much seed. Before deciding these several things, judiciously, he must know the area of each lot.

In the late autumn, when he sits down and looks over the result of his summer's labour, how can he judge if his crops are up to the average, above it, or below, unless he can tell from how many acres a certain number of bushels of whatever it may be was taken?

No man having the interests of farming at heart but wishes to try experiments. It has been truly said, "It is only by experiments that progress in any branch of agriculture can be accomplished. Any one that accomplishes an experiment, and accurately reports it, advances the science and practice of agriculture." How can these experiments be accurately reported, or how can one judge of them himself, unless the land is carefully measured?

Reclaiming Lands.

A fifth consideration requiring the engineer in the man, is in reclaiming lands—bringing them from a cold, barren state, into one of fertility.

Water is one of the great necessities of life, both in plants and animals; it goes to make up a large portion of either; yet the farmer often finds it in the way of his improvements. This matter has, of late, in this country, been brought a good deal to our notice; a great deal has been said and written upon the subject, yet few of us fully appreciate its importance.

It has been ascertained, by careful observation, that more water falls upon the surface of the ground during the year than is needed for the growth of plants; this, in lands where i

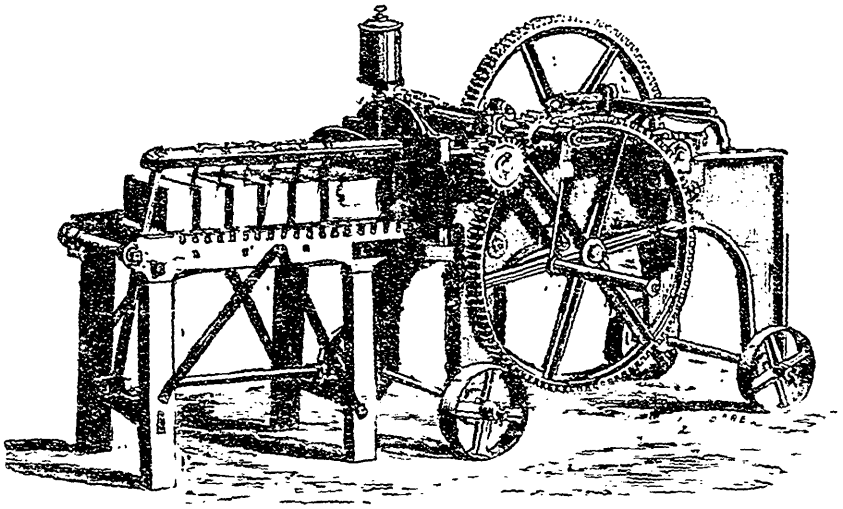


Fig. 3.—Drain-Tile and Brick making Machine—Horse power.

cannot pass down through the subsoil, must be in some way removed by artificial means, or it will prove an injury to our crops.

Draining is a process of agriculture which, if well done, needs no repeating. It is the first step necessary in order to avail ourselves of improved modes of agriculture. We have a great deal of land—and the best we have, if properly drained—upon which the bestowal of any amount of labour and manure is useless unless it is first drained. We may plough deeply, and subsoil in vain, if the land is "water-logged;" the seeds will rot instead of germinating; the roots cannot penetrate to a sufficient depth to get nourishment or to sustain a drought. The land is sour and cold, and the grass that does manage to grow upon it is not at all palatable or nutritious to our stock, and in winter the land freezes much quicker and deeper.

Water is the only exception in nature, I believe, to the law that matter becomes more dense by cold and expands by heat. Water is most dense at about forty degrees above zero, and expands both ways from this point. If land is saturated with water in winter the water as it freezes expands and causes the ground to "heave." Small trees are often in this way thrown out of the ground, and many of our biennial and perennial crops injured, or entirely ruined, or "winter-killed" in this way. The land does not get suitably dry for cultivation till very late in the season, if at all, and thus our now too short season is rendered still shorter. Water passes from undrained lands almost entirely by evaporation. This is a refrigerative process, as any one can see by holding his wet hand in the wind. We often hear farmers speak of land as cold, and for this reason it is considered almost worthless. The land is cold, but not of itself. Place a man exposed to a stiff wind, with wet garments, and he will be cold; the heat of the sun is expended in evaporating the water, and in this way the heat becomes latent. Exchange the man's wet garments for dry ones, and he is

comfortable ; draw the water from cold lands and we warm them; the sun's rays will then penetrate them ; the air circulate in them, and seeds will sprout and plants grow. Crops will start sooner, come forward more rapidly, be more fully developed and better matured. The roots can sink deeper, having a greater space to collect nourishment from, and are better protected from drought.

During the spring and early summer the roots are kept from going down by chilling contact with cold water. When drought comes on the water recedes, but it is then too late for the roots to follow it; they are confined to a narrow space upon the surface of the soil, and like the seeds sown upon stony ground, they are soon scorched and wither away.

Draining in another way prevents drought. In connection with proper cultivation the soil becomes more finely pulverized, and capillary attraction acts with most power in smallest spaces. A finely pulverized soil the better draws up the moisture, and the better holds a sufficient quantity to sustain plants through a severe drought.

If these statements are true, and I have sufficient proof that they are, how much there is in draining to call forth the engineering faculties and energies of the farmer. If by a little engineering he can make two spires of grass grow where one grew before, how richly is he rewarded.

It is admitted, I believe, upon all hands, that the most valuable land we have is the swamp or meadow land, that is so situated that it can be drained. Of the draining of these lands no one can doubt of the advantage derived. The only question that can arise, perhaps, is as to the depth of draining. I do not believe that swamps can be so deeply drained as to injure

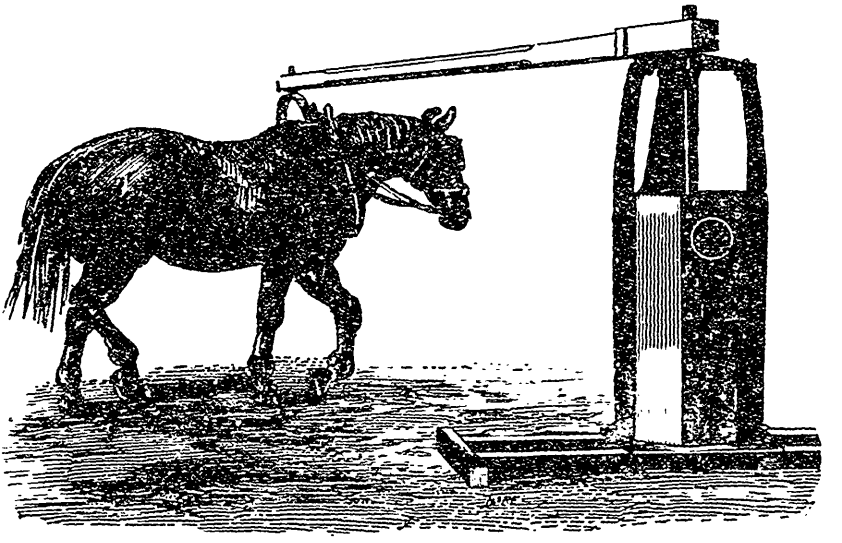


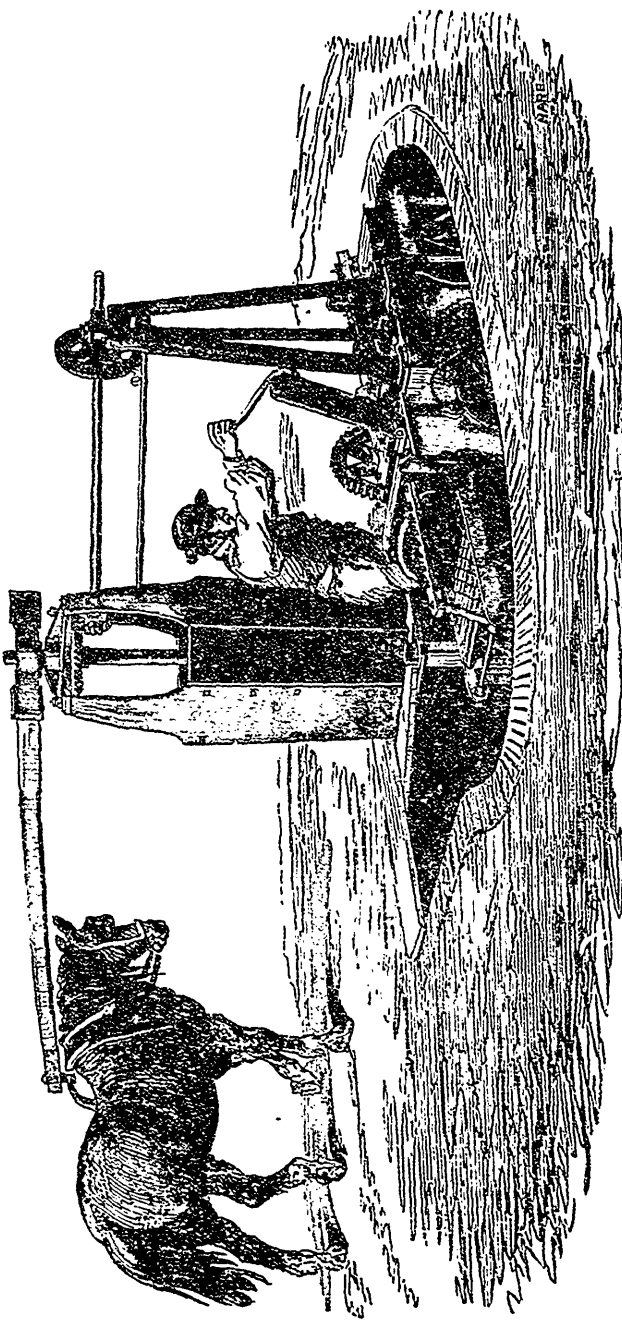
Fig. 4.—Clay Puddling Machine—Horse power.

them, although it is unnecessary, perhaps, to carry the water line to more than three feet below the surface. I have no doubt that deep draining will render the top dry and springy for a time; but it will soon settle, and with the addition of a little sand or gravel it will soon become sufficiently solid for any crop. The soil of our swamps is made up mostly of partly decomposed vegetable matter, but not in a condition to be taken up by the roots of plants; when the water is removed, this becomes for a time spongy; but it soon settles, decomposition goes on more rapidly, and a fine, rich, compost soil is the result; while saturated with water it can never decompose.

Besides being but slightly decomposed, the soil of our swamps contains an acid that must be removed before plants will thrive in it; this explains why lime and ashes are used with so much advantage upon such lands; they destroy the acidity, besides helping to decompose the mud. By removing the water both these results are attained, and to a much greater depth; decomposition commences at once, and by it the acid is destroyed.

In no instance have drain tiles proved their utility to better advantage than for reclaiming savannas. No doubt heavy clays have been a very successfully drained and benefited by the process; but, in the case of savannas more especially has the use of drain tiles been attended with the most striking results. These tiles, up to a late period, have been imported from England even with a duty of 10 per cent, which has been removed during the last session of parliament. A Company for the Manufacture of drain tiles has been formed since in the county of Missisquoi and has obtained a very practical result by offering for sale 1¼ inch tiles at $4.80 cents the thousand feet. But the freight is so expensive that it is recommended to any one who is anxious of draining extensively to manufacture the tiles on the farm. We give cuts of tile-draining machines of the best

description worked by hand Fig. 1 and 2 or by horse power Figure 3. These machine can be used equally to advantage for the making of bricks as shown in Figure 3. Again the clay can be prepared by the Puddling Machine Fig. 4. The Figure 5 shows the Puddling and tile-draining machines worked by the same horse. All these machines will be on Exhibition



No. 5.—Puddling, Drain-Tile and Brick making Machines combined.

at the Provincial Agricultural Depot, and a catalogue of prizes will be published with full particulars about the way of using such implements to best advantage.

Irrigation of Meadows.

If a farmer possesses more land than he can cultivate well, and has irrigated meadows, it is often best to keep them as such, at least till he

can find no other land as capable of being improved. Irrigated meadow lands are of great advantage to farmers when kept as such; they are as never failing springs, from which he can draw the wherewithal to keep the rest of his farm from wearing out. Hay can be taken from them, year after year, without impoverishing them. Let us see how it is that the farmer is able thus continually to draw from this bank without sometimes making a deposit.

There is a stream running through it made up by a number of smaller streams. During a heavy rain every acre of our upland is washed, more or less; the muddy water, laden with those things which make plants grow, finds its way into the stream, and as the stream is high, and crooked and narrow in some places, winding from this side of the meadow to that, the water, hurrying along, is dashed out upon the meadows at every turn; in spreading out it becomes comparatively quiet, and here the mud and water part company: the mud settles upon the soil, while the water continues upon its journey to the ocean. In this way our meadows are kept fertile; and in fertilizing the upland they but pay a debt they owe to them.

In straightening these crooked streams, I think the farmer is guilty of a little too much engineering. Through the straight, wide ditch that Mr. Thrifty has engineered, the water rushes without turning to the right or left, and the next neighbour down stream gets the benefit of the deposit that would otherwise have been left upon his own meadow. If a farmer has not enough other land to cultivate, and wishes to dry his meadow, then straighten the stream, by all means, but not otherwise.

But the strongest defence an engineer can plan for the farmer must be built within himself, and by himself alone. The only sure protection against want, the true guarantee of success in farming, that which covers all that has been said upon the point, is, that the farmer enter into the business with energy. Not satisfied with plodding on in the old path, however good it may be, followed by his father and grandfather before him, without looking to the right or left for improvements; not satisfied with confining his literary pursuits to the reading of the farmer's almanac, or an old newspaper borrowed of a neighbour; not satisfied with half a crop, year after year, upon land that is capable of bearing a full one; he profits by the experience of others, as found in the numerous books and papers now published upon agriculture. He meets with other farmers at farmers' clubs, and in this way receives the benefit of the experiments accomplished in the various sections of country, or upon the different farms in the vicinity. These experiments may not be applicable to his land, but by considering them carefully, he acquires a knowledge of agriculture that cannot, in the end, fail to make farming with him a success.

A farmer's business is the cultivation of the soil, yet I see no reason why he may not also cutivate his mind. I see no reason why he may not spend his leisure time in study. No business offers better chances for the study of the natural sciences, and no one offers a richer reward than is offered to the farmer, if he study them and put the knowledge he thus attains into practice. The reason the farmer has discovered no new benefit from chemistry, is that he has not studied it himself; he is satisfied with what is told him by some professor entirely ignorant of the practice of farming, and he generally finds his avdice and directions entirely impracticable. Study and practice must go together in order to ensure success.

The time is not far distant, I believe, when this will be better seen and believed by the farmer than it now is, and agriculture become, in reality, what it now claims to be, a science.

CATTLE DEPARTMENT.

Care of Milch Cows.

The *Boston Cultivator*, after recommending proper care and food for cows says:

"If there is animal which policy would dictate the good treatment of, it is the milch cow. It should be remembered that it is only the food she consumes beyond what is required to support the natural waste of the system, that can afford surplus in the way of milk. Hence the food which would barely support two cows and leave nothing for the owner, if eaten by one cow, would enable her to return the value of one-half of it in milk. So that the advice of a close observer to a dairyman, to sell one-half of his cows to increase his produce of butter and cheese, had reason at the bottom of it. Cows should be well fed and sheltered; in fact, they should be kept in all respects in the condition that is well expressed by the word 'comfortable."

The Art of Catching Horses.

A correspondent of the *Valley Farmer* truly remarks that there are few things more aggravating than to be in a hurry to go to some place, and have great trouble to catch a horse. I have sometimes made the assertion that a horse which I raise will never be hard to catch, unless some one else spoils him. The way I manage is to keep them gentle from colts, handling them as often as convenient. When young horses are running to grass, give them salt occasionally, and let them fondle about you, making as little show as possible of *trying* to get hold of them. There is nothing surer to spoil a horse forever than to run as if trying to hem him in, and yelling at him authoritatively, or scolding; he can see, just as well as you know, that he is out of your reach. To put on the cap sheaf, whip him severely for causing trouble, and my word for it, the next time you want to catch him he "will not listen to the voice of your charming, charm you never so wisely."

Horses learn a great deal by signs. In beginning to teach them to be caught, go toward them on the near side, slowly and cautiously, making no demonstrations at all. If the animal begins to walk off, stop and whistle, or otherwise manifest indifference, until he becomes quiet again, then approach as before. When you are so close as to be confident he will not escape you, speak kindly, and hold up one hand, ready to touch him on the withers, and thence pass it along the neck until you can get hold of his head, but do not seize him

with a grab, as this tends to excite fear afterwards. By practising this course, using the sign, viz., holding up the hand when you are a little further away each time, a horse may be taught to stop and be caught, even when in considerable glee, (playing) simply by holding up the hand and using some familiar phrase, such as *whoa boy*, &c. By way of caution, however, watch his actions and *intentions* closely during his tutoring, and if at any time or from any cause, you see that he is going to run, do not by any means say anything or hold up your hand, as the sign given and disobeyed a few times, will almost inevitably prevent your making anything out of it in future.

Fannie's Flock of Sheep.

Ed, Rural New-Yorker :—In my last I said I would tell you about my flock of sheep. Not because I have anything astonishing or miraculous to disclose, do I do so, but simply because I think rural women should be represented in the Rural. Now Mr. Editor you will not laugh at me will you ?

In the spring of 1859 my husband purchased a sheep, for which he paid $4.25, and presented her to me. In June following, was taken from Bettie's smooth, round back, a snowy fleece weighing 5¾ lbs. at which time she was the mother of two ewe lambs. The transaction, tabulated would stand thus:

FIRST SHEARING.

Wool 5¾ lbs., at 42 cts.,	$2 41
Two lambs at $2	4 00
Bettie, valued at	2 50
Total	$8 91

SECOND SHEARING, 1860.

Wool from three sheep, 17¼ lbs., 36 cts.,	$6 21
Two lambs, at $2	4 00
Three old sheep, at $2 50,	7 50
Total	$17 71

THIRD SHEARING, 1861.

Wool from five sheep, 29 lbs., at 30 cts.,	$7 50
Four lambs, at $2	8 00
Five old sheep, at $2.50,	12 50
Total	$28 00

FOURTH SHEARING IN JUNE, 1862.

Wool from nine sheep, 37 lbs., at 44 cts.,	$16 28
Three lambs, at $2	6 00
Nine old sheep, at $2.50	22 50
Total	$44 78

Several lambs were lost last spring, by reason of a drenching rain which occurred in the night, while the flock were in a back pasture.

Almost any good farmer or sheep-grower could beat this, I suppose; but can *you*, rural *ladies?* If so, let us hear from you.

Ladies, (*sotto voce,*) if any of you find difficulty in the way of procuring "pin money," just get your husband to procure for you a sheep or a pig or a half dozen of fowls, over which you shall have exclusive ownership, and see how soon you will have all you wish.

HORTICULTURAL DEPARTMENT.

If the weather should be propitious this month all gardens will be lavish of their floral treasures. Roses have not yet ceased to bloom. Many shrubs and herbaceous plants are still in bloom, and most annuals, particularly those which have been forwarded in hot-beds, are beginning to flower. Bulbous plants, having finished their bloom, are now decaying, and will soon disappear or be removed.

The active work of the month will consist mostly of the care of the lawn, weeding and hoeing the borders, proper attention to tying up climbers and tall-growing plants, removing decayed flowers and leaves, and some attention to the walks.

The lawn will not need as frequent mowings as in the earlier months, as the growth of the grass will not be nearly so rapid during the hot, dry days of this month as in the moister and cooler days of spring and early summer.

The evil effects of drouth may be averted in a great measure by keeping the borders constantly hoed and raked, being careful to do this after heavy rains, as the soil becomes very compact and impervious to air and dew by the action of a hot sun upon it after showers. Watering by hand should not be resorted to if it be possible to avoid it, for apart from the labour of watering sufficiently even a small garden, is the fact that each watering assists in baking the soil, rendering it necessary to expend much time in removing its effects. Whenever plants are really suffering, however, it will be found indispensable to give them water, which should be given in sufficient quantities to soak the ground thoroughly, so that it may not need it again immediately.

The necessity of neatness has been so often insisted upon in the floral column, that it need only be alluded to here "to stir up the pure mind by way of remembrance."

The Town Garden.

Water.—The first essential to success, our author considers a good supply of water, so that the foliage can be well washed, as often as may be necessary, and this in dusty towns, is nearly every evening.

Renewal of the Soil.—Many of our city gardens are failures, solely from the nature of the soil. A garden that has been in use for a score of years, dug each season only a few inches deep, and somewhat shaded, will become pasty, and almost poisonous to plants. This must be changed by deep digging, so as to turn up the fresh subsoil, by adding good fresh loam from the country, by the use of lime, or some other available means. We have often urged this matter upon the attention of our readers.

Dead Wood is declared to be destructive to city gardens. It rots in the soil, and produces a fungus growth. As this is a subject somewhat new, and as we have seen the ill effects of chip manure under similar circumstances, we give a leaf from the chapter on this subject. "In the country we prize rotten wood as a capital material in peat borders, and for the culture, &c., but in damp soils, near towns and everywhere in gardens confined by walls,

dead wood is a most destructive material. Bury a few dead sticks at the roots of a rose or lilac tree, and watch what follows—the tree will, in a few months, begin to languish, and at last will perish altogether. Take it up and examine the roots, and you will find that the dead sticks gave rise to the growth of fungus, which has covered them with white threads; these threads have taken hold of the living roots, and have utterly checked their vegetative power, and even the soil all round them is tinged of a ghastly blue, and would poison whatever might be planted in it. I have lately seen so many instances of the pernicious effects of decaying wood, that I would never more allow a single inch of dead stick to lie about anywhere, unless I knew that these underground fungi were unknown in the neighbourhood. Two winters ago, I had to remove the whole of the soil from a border 200 feet long, owing to the state it had been brought to by an old fence, the posts of which had rotted, and spread the fungi about to such an extent that entire cart-loads were removed, in which there was not a single spadeful of soil of its natural colour; it was uniformly tinged with a grayish blue, and smelt powerfully of toadstools. In such stuff as that nothing will grow, and trees and shrubs rapidly contract the disease about their roots, so as to become positively rotten from the collar downwards, and all the pruning, manuring, and watering that can be given them is so much labour and material wasted.

"With trees so affected, there is but one course,—to burn them. I have tried washing, scrubbing, painting their roots with lime and soot, and other plans which suggested themselves, but I never yet saw any tree or shrub that had become much contaminated with this fungus growth, recover sufficiently to be worth the labor expended on it. If touched only here and there, those parts must be cut away, and the tree planted in fresh soil; if much affected, burn it, and there end the vexation. As to the fungus itself, it rapidly perishes on exposure to the air. It can exist only underground; therefore, a thorough exposure of the soil in which it has spread will speedily kill it, and if, on the dressing of the ground in autumn, or early in the year, a few barrow-loads of such stuff have to be taken out, it may be used to fill up hollows on lawns, or laid in heaps somewhere out of the way, for the sun to purify it.

Garden Walks.—No garden can look well without neat walks, and no walk can be neat unless well made and drained. For keeping down weeds, or rather grass, which will appear at the edges of the best constructed walks, because the earth will wash upon it from the grass, there is nothing like salt. But the making of walks is so important a matter, that we give the author's remarks entire:—

"Walks should be so made as to be hard and dry all the year round, and unless well drained and with a good foundation, this is impossible. A mere surfacing of gravel on a soft bottom may do very well for summer wear, and even then will be continually broken up by worms; but during continued rains, and all through the winter, every footmark will leave a hole, and it will be impossible to traverse it without getting the feet plastered with mud. In small gardens there is no better place for a pipe-drain than under the main walk. The drain should be laid at from two to three feet deep, according to the level of the outlet. In making a walk, let the bottom be taken out and the whole of the loam removed to the depth of a foot. Then lay down six inches of whatever hard rubbish can be got—such as factory clinkers, builders' rubbish, &c.,—and over this spread a layer of old mortar or lime rubbish and coal ashes, mixed together, quite to the level at which the walk is to remain. Give the whole a good rolling, and leave it to settle. If made in the autumn, the wheeling during winter-work will tend to consolidate it, and before spring will have sunk so as to allow of two or three inches gravel. With proper rolling the walk will sink the first summer as as to make another coat of gravel requisite, and if this is laid down when the garden is in its full autumn splendor, the appearance of the scene will be much improved, and a thoroughly good path insured for the winter. The plentiful use of lime, whenever it can be had cheap, is a good preventive of worms, which play sad havoc with walks imperfectly made. To keep a walk in order, let the roller be used liberally after a rain; and in spring, when weeds first make their appearance, get them out at once by hand-picking; if allowed to get strong, there is often no remedy but turning the walk and raking the weeds out from among the gravel. In small gardens it is but a little labor to clear away all the weeds by using a pointed trowel when the gravel is wet with rain, and then giving a good rolling to close up the holes.

Garden Seats.

The garden may be laid out with care and taste, and be planted with the choicest trees and shrubs, yet if destitute of convenient seats, it lacks a feature which gives an air of quiet comfort and ease to the whole scene. The garden is for pleasure and ease; it is in fact the summer parlor; and the real parlor is of no use in the summer season, where the garden is what it should be, except as a shelter from a sudden shower. Place in the garden, then, seats at all convenient points—under the shade of the trees, and on the lawn, at points where a good view of the grounds or the surrounding country can be obtained. This we advise not only for large places, but even for small gardens of a quarter of an acre or less.

In some cases and situations it would be well to build a summer-house or arbor, with sufficient roofing to afford shade. This is particularly necessary in new places, before the trees are sufficiently grown to afford proper shade and shelter. But the more simply everything of this kind is done, the better. There should be no attempt at anything very fine. This may be well enough in some of the gardens of Europe, where everything is in keeping; but in our places, the more plain and unpretending the better. Rustic work, if well made, always looks well. A very pretty seat can be formed around even a small tree.

Propagation of Currants and Gooseberries.

I wish to increase my currant bushes. How shall I proceed to do it from cuttings, and in what time of the year. I have a few of the Houghton Gooseberry bushes, and like them so well I wish to increase them. How and when can I do it and succeed? These berries do not mildew. But the English varieties are all black and lost. Bushels of them are on the bushes, good for nothing.

To propagate the currant, take off cuttings of the yearly shoots six inches to a foot long, cut close to the old wood, and plant early in the spring, two-thirds of the length in the earth, which should be solidly packed about them. Most of them will grow and make good plants. The cuttings may be taken off very early in spring, or the previous autumn, and kept right in damp moss in a cellar during the winter. Gooseberries may be treated in the same way, or they may be layered. Thick bushy currants and gooseberries, with young vigorous sprouts, with the earth banked up about them part way up the stems, will throw out roots into this earth, and may be afterwards separated into rooted plants, and trimmed for setting out.

Summer Pruning.

All who have given attention to hardy shrubs know how unsightly the prevaling fashion of winter shearing—for we cannot dignify the practice by calling it pruning—renders the bushes; and yet all feel the want of some method of keeping them within bounds, and in a somewhat cultivated form. If the strong shoots are thinned out now, all this trouble is obviated. The same remarks apply to street trees, and all others that it is desired to keep low and bushy to the base.

Hedges must be served in the same way. Trim off—regarding a due conical shape—all strong top shoots, and suffer the weaker and lower ones to grow as widely and freely as they will.

Plants set against walls and piazzas frequently suffer from want of water at this season, when even ground near is quite wet. Draw away the soil around each plant so as to form a basin; fill in with a bucket full of water, allow it time to soak gradually away, and when the surface has dried a little, draw in loosely the soil over it, and it will do without water for some weeks. This applies to all plants wanting water through the season. If water is merely poured on the surface, it is made more compact by the weight of water, and the harder the soil becomes, the easier it dries; and the result is, the more water you give the more it wanted.

The time is coming when transplanted of the past fall and spring will suffer more than during any other part of the season. If they show a vigorous growth of young wood, no danger need be apprehended, as it indicates that the roots are active, and can supply all the moisture foliage calls for; but if no growth has been made, no roots have formed, and the leaves are living for the most part on the wood and bark, the hot, drying weather will tell with injurious effect on such trees. This is generally first shown by the peeling off of the bark on the south-western side of the tree,—the most dying aspect: and when such exhaustion appears probable, much relief may be afforded by cutting back some of the branches, syringing with water occasionally, shading the trees where practicable, or wrapping the trunk in hay-bands, or shading the south-west with boughs of boards.

Chrysanthemums should be examined, and if the shoots thrown up are thickly together, some of them should be rooted out. If the flower shoots are layered into four or six inch pots, they make very pretty dwarf plants, that are well adapted to neatly ornament a room or small conservatory, where larger plants would be objectionable.

Fuchsias in pots should have the coolest position of the flower garden assigned to them. They usually suffer much from Red Spider, which make their leaves drop. The various remedies we have so often recommended should be applied. Frequent heavy syringings are particularly grateful to the Fuchsia.

In most kinds of soil the keeping the surface loose by hoeing and raking in dry weather will be an excellent method of keeping the main body cool and moist,—admitting the air, which is a good non-conductor. In soils however, which are deficient in loam, and in which sand prevails to a great extent, frequent stirrings have a drying tendency and a mulching of short grass, or decaying vegetable matter of any kind will be found very useful around transplanted trees, shrubs, and other things.

DOMESTIC ECONOMY.

Rules for Making Grape Wine.

Very many are the inquiries we receive for some good and sure method of making grape and currant wine. With the exception of the manufacture of a little occasionally for domestic use, from grapes and small fruits, we have no experience that will warrant us in giving an opinion with a great deal of confidence. For making currant wine, a few weeks since we gave the method of an experienced and successful manufacturer, and we now give the following rules for the manufacture of grape wine, communicated to the *Vigneron* of France, a journal expressly devoted to the wine-growing interest, by M. DE BADO, the president of an agricultural society, and an extensive proprietor and wine-grower at Weinheim, in the Grand Duchy of Baden. The author says, "if wine growers will strictly observe these prescriptions, without permitting themselves to be turned aside by local usuages, they will obtain beautiful and good wines.

1. The grapes should not be gathered until they have arrived at complete maturity, that is to say, when they do not grow sweeter, in a sensible degree. If the weather is good, they may be allowed to hang some time after this, for the purpose of giving the watery parts of the fruit time to evaporate. This increases considerably the strength and sweetness of the wine. Black grapes intended for red wine should not be allowed to get too ripe, as if they do, they injure the color of the wine.

2. The vessels should be clean, and, above all, should not have contained sour wine. Care

should also be taken that nothing should be allowed to fall into the must, which might cause acidity during the fermentation.

3. The white grapes should be put into a tub and pressed as quickly as possible, with the stems on. If obliged to wait before pressing the must, it is best to take out, at least, a portion of the stems which it contains, so that they shall not taste of it. The must of weak and mucilaginous wines ought to be allowed to ferment some days, with the stems, so that the tannin which they coutain will assist in the precipitation of the mucilaginous matter. For good wines, the mash, residuum, of the grape, should never be pressed, as the last juce which comes from the press usually contains a great deal of acid and but little sugar.

4. For the sharp wines of inferior quality, and for sweet and mucilaginous wines, it is indispensible to put the must into open tubs, and to leave it there for several days. There forms during this time a layer or stratum of a dirty brown color, which contains a great part of the mucilage, yeast and acid rejected by the must, and which should be taken off with care every time it forms, so as to remove all those substances which effect the taste of the wine, cause fermentation, and do a great deal of mischief.

5. Care should be taken not to put the must into casks which are dirty, or which have been fumed with sulphur. There are some wine growers who think that the fumes of sulphur applied to casks, preserve the sweetness of the wine, and there are ignorant purchasers who permit themselves to be cheated as to the quality of the wine, by the sugar which the unfinished fermentation has left in it without decomposing it. But the following summer these wines are found to be muddy, and ferment often with great force, become sour, and are often completely spoiled. The wine, then should be placed in casks which have not been fumed, and no obstacle to fermentation should be opposed nor should it be arrested by the fumes of sulphur. There is no exception to this rule, saae for those autumns which are usually warm and which cause fears that the fermentation will be too strong. In such a case, the vessels may be fumed with sulphur.

6. The fermentation of red wine should be treated differently to that of white. The must of black grapes may remain twenty-four hours with the stems mixed with it, so that the tannin contained in them may communicate itself with the must. At the end of that time, the stems and the seeds should be separated by means of a seive, and the must should be poured into upon vessels, which should be lightly covered during the fermentation, should not be allowed to exceed 15 degs. of Reaumur, (65¾ degs. Fahrenheit,) in order to prevent the spirit from escaping. Every three or four hours the fermenting mass should be stirred, so as to prevent it from souring.

7. At the end of fifteen or twenty days, when all action had ceased, and the skins have yielded their coloring matter to the must, it should be put under the press and strongly squeezed, so that all the coloring matter shall be extracted. The wine is then placed into casks not fumed; and if it is desired to increase the capacity for tannin, some of the seeds, which should be separate by a seive from the mash, should be added to it.

8. If the weather is cold, the openings to the cellars should be closed, so that the fermentation may meet with no interruption. Persons should never enter the cellars until they have been tested for carbonic acid by a light. The carbonic acid may be driven from the cellars by opening all the issues, by lighting a fire on the stairway, by throwing hot water into them and by scattering freshly slaked lime into them. During the fermentation, the bung-hole should be closed with vine-leaves, or by a little bag filled with sand—the object being to prevent the air from entering at the same time that the carbonic acid is permitted to escape.

9. Towards Christmas the clarification of the wine is about completed, and the yeast, which has become insoluble during the fermentation, is precipitated. Four weeks after the commencement of the fermentation, the casks, which should not be quite filled up at first, become completely full.

10. The racking, or drawing off from the less at Christmas, is very important and necessary. There always remains in the wine, after the first fermentation, a certain quantity of soluble leaven, and if this is not scattered, and the wine still contains undecomposed sugar, the liquid will become turbid, it will ferment again, and possibly be spoiled. In the first racking, towards the commencement of the year, care should be taken to expose the wine as much as possible to contact with the air, in which case, the oxygen of the atmosphere precipitates the insoluble leaven, and the liquid clarifies completely, so that the second racking may be retarded until the end of April, there being no further fear of fermentation.

11. The following autumn another racking should take place, after which the wine may be considered as completely made. In drawing off, great care should be taken not to mix the portion of the wine at the bottom of the cask, which is still turbid, with the clear part which is above. The turbid part should be placed in a separate vessel, and submitted to a new racking before it is added to the other.

Packing Eggs for Long Journeys.

The only safe way of packing eggs is—1st.—Get a large hamper box—put on the direction. card before packing—make holes for screwing the lid on; let there be no hammer used, but only screws and screw-driver. 2nd. Procure a box or hamper of such capacity that, when placed inside, you will have three or four inches space each way. Get some hay, which pull to pieces, separating to some extent, then a lot of old newspapers, cut up into lengths. To proceed (we suppose you have got the eggs) put each into the paper, twisting the ends of the paper sideways like a lady's curl wrapt up in an ordinary curling paper, thus: egg, thin end downward; paper; place some hay in the box then a layer of eggs in paper, then hay, and so on until the box is full; screw the lid on, put some hay in a box, then in another box, and all round, and at top, and fasten down. If screws

such as are used as stair-rods, were fastened into the four corners of the smaller box, and then a string tied from them to the four corners of the other box, all might be safer; also, if the large box, when filled, were swung in like way on board ship; but I do not think this is absolutely necessary, though advisable. The object of using the paper, is, it keeps out all dust, and the ends act as springs, as does also the hay. Bran and corn are bad, as there is much dust in both, and fresh air is kept away from the eggs; but the greatest fault is, they and the eggs pack into so solid a mass that there is not enough elasticity, and the consequence is the constant jars, so to speak, break the delicate membrane suspending the yoke in the shell and the egg is "killed." Perhaps the following hint may be of use in the manner of packing eggs for long distances; the Dutch pack the plover's eggs for the English markets in strong wooden boxes with the husks of buckwheat, and we seldom have much breakage after the roughest passages and rough handling in transmission. They begin by covering the bottom of the box with a thick layer of husk, and so on till the box is nearly full, then fill in with husk, and pretty tightly putting on the lid. With the exception of an accident now and then, we don't have more than five in the hundred broken on the average throughout the season.

COMMERCIAL REVIEW.

Season and Crops in Canada.

We have passed through a period the last three or four months, of extraordinary weather. The large quantity of snow that has fallen during the winter went off with little or no rain. Spring opened late with occasionally a very low temperature, and somewhat severe frost has now and then occured up to the middle of June. May was the driest month experienced here for many years. A severe drought has consequently been spread over the greater portion of the province, and neighboring States. Fortunately in some sections refreshing rains have fallen during the last fortnight, and we should hope that there are but few localities that have not in some degree been thereby benefited. In some districts the crops have suffered irretrievably, and cannot be expected to realize an average, while in others, owing to better soil and culture and earlier showers, things wear a more promising appearance. The hay crop, generally, must inevitably be short, and the season has not been favorable to the sowing and germinating of turnips, carrots, mangles, &c., extensive breadths of which have been put in; and however late this has been done, if the weather should from this time prove favorable, good returns may be expected. In this way the certain and great deficiency of hay may, to a great degree, be compensated. We have heard of some farmers sowing Indian Corn and Hungarian Grass with this view, and no doubt they will reap the benefits of it next winter in the better sustentation of their cattle. In a season of drought and cold like that we have been experiencing, the difference in the appearance of the crops on well and badly managed land is most striking. We observed the other day on a naturally good, but an extremely heavy soil, two adjoining fields in winter wheat; one had been thoroughly underdrained and deeply cultivated; the other had not partaken of these ameliorating agencies, and the consequence is, that while the crop on the former looks far better than could be anticipated, considering the season, and promises at present, to be highly remunerative; the latter must prove, however favorable the weather may yet be, *all but a total failure!*

Yield of Grain in England.

The *Mark Lane Express* gives a table comprising the average yield per acre, of wheat barley, oats, beans and peas, for thirty-eight counties, in England, prepared from returns received from correspondents of that paper. The average of the cereal grains mentioned are as follows:

Wheat	29 bushels.
Barley,	37¾ "
Oats	46¼ "

The lowest average of wheat in any county returned, is 22¾ bushels per acre, in Devonshire, and the highest 34¼ bushels in Lancashire. The Lowest average of barley is 29 bushels per acre, in Shorpshire, and the highest 44 bushels, in Northamptom. The lowest average of oats is 34¾ bushels in West-moreland, and the highest 59¼ in Cambridgeshire.

The beans mentioned are a kind not much cultivated in this country. The average yield is 32¼ bushels per acre. The average yield of peas is 30 bushels per acre.

—We have received from several different localities in Western New York wheat heads covered with an insect which many fear is a new enemy to the wheat plant. The insect is a species of plant louse, and we doubt whether it will cause any material injury to the crop. It is the Grain Aphis illustrated and described n our last number.—*Ibid.*

The Season, Crops, &c.—The weather of the past week, like that of the preceding, has been very favorable—warm, with sufficient rain. Most crops are growing and maturing rapidly. Wheat is looking unusually fine, and promises a bountiful harvest. Corn is gaining rapidly, and there is more hope of a crop. Grass has grown and thickened apace, and will be much heavier, in many localitie than was anticipated two weeks ago. Th crop will be increased by aliowing it to stand as long as safety will permit. Our crop reports from the surrounding country are all favorable, and we congratulate farmers upon their prospects.

The violet grows low, and covers itself with its own tears, and of all flowers yields the sweetest fragrance. Such is humility.

END OF THE FIRST VOLUME.