

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- Coloured covers/
Couverture de couleur
- Covers damaged/
Couverture endommagée
- Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée
- Cover title missing/
Le titre de couverture manque
- Coloured maps/
Cartes géographiques en couleur
- Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)
- Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur
- Bound with other material/
Relié avec d'autres documents
- Tight binding may cause shadows or distortion along interior margin/
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure
- Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

- Coloured pages/
Pages de couleur
- Pages damaged/
Pages endommagées
- Pages restored and/or laminated/
Pages restaurées et/ou pelliculées
- Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées
- Pages detached/
Pages détachées
- Showthrough/
Transparence
- Quality of print varies/
Qualité inégale de l'impression
- Continuous pagination/
Pagination continue
- Includes index(es)/
Comprend un (des) index

Title on header taken from:/
Le titre de l'en-tête provient:

- Title page of issue/
Page de titre de la livraison
- Caption of issue/
Titre de départ de la livraison
- Masthead/
Générique (périodiques) de la livraison

- Additional comments:/ **Wrinkled pages may film slightly out of focus.**
Commentaires supplémentaires:

This item is filmed at the reduction ratio checked below/
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	14X	18X	22X	26X	30X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12X	16X	20X	24X	28X	32X

AGRICULTURAL REVIEW.

DECEMBER.

CONTENTS—**Editorial Department.**—Agriculture as a pursuit—Example in Agriculture—Homes and People—Education of the Farmer—Rules for making Farming profitable—Correspondence—Tan Bark as a Manure—Natura's Barometer.—**Our Rambles.**—Soulanges Agricultural Exhibition—The Cattle—The Productions—The Dinner—Rigaud Agricultural Exhibition—The Cattle—The Productions—The Dinner—Suggestions—The Standard Weights of Grain.—**Farm Operations.**—Monthly Suggestions—Farm—Agricultural Reading—Barns—Cellars—Dairy—Eaves—Fencing stuff—Fodder—Frost—Fuel—Granary—Harness—Ice—Impliments—Manure—Roads and Paths—Timber—Thorough Pulverisation of the Soil—The Philosophy of Ploughing—Fall Ploughing—Thorough Pulverisation impracticable without Under Drainage—Preserving Tools from Rust—Cutting Timber and Wood—Rooting Hemp and Flax—Quality and quantity of Seed—Drilling Wheat—Cultivation of Roots—Improvement of Pasture—Seaweed as a Manure—Mulching.—**Breeder's Department.**—Monthly Suggestions—Cattle—Horses—Sheep—Swine—Poultry—Apiary—Rules for Breeding—Is the Pig a Grazer?—Winter management of Breeding Ewes—Ox Teams and Horse Teams—Unquiet Milch Cows—Disease in the Udder of a Cow—Inflammation of the Bowels of a Mare—Making Butter—Cheese Factories—Hints on Poultry keeping—Experimenting in Bees.—**Engineering Department.**—Hints on Building—Have you a Manure Shed?—A \$3,000 Smoke House—Improved Patent Washing, Wringing, and Mangling Machine—Trial of Mowing Machines at Fishkill—What do we Drain for?—Economy of Fences—Making Board Fences—Materials for Fencing.—**Horticultural Department.**—Monthly Suggestions—Orchard and Nursery—Kitchen and Fruit Garden—Flower Garden and Lawns—Hothouse and Conservatory—Grapery and Orchard House—Plants in Rooms—Culture of Bulbs—Culture of Hyacinths in Pots—Ever-blooming Roses—To Prepare Trees for Planting—Facts about Apple Trees—Keeping Pears—Culture of Window Plants—Preserving Flowers in Sand—Protection for Fruit Trees—Renovating an Old Tree—Low-headed Trees and Shelter.—**Domestic Economy.**—Sewing Machines—Method of Preserving Fruit—The way to make an Omelet—Sponge Cake—Fruit Cake—Ice Cream—Tomato Catsup—Molasses Biscuit—Coffee Cake—A Cure for Enlarged Tonsils—Cooking Egg Plant—A Wonderful Invention.

EDITORIAL DEPARTMENT.

AGRICULTURE AS A PURSUIT



AGRICULTURE was the first occupation of man. Many of the most distinguished men, in every age of the world, have been cultivators of the soil. They thought it no dishonour to obey the Divine injunction, and earn

their daily bread by the sweat of their brow. Some of the ancient nations esteemed agriculture as the most honourable of pursuits. Indeed, it is the foundation of all other pursuits. Were it not for the produce of the soil, there would be no commerce, no intercourse between nations, ships would rot at their docks, merchants would have to leave their counting rooms, and the whole human family would soon experience a day as dark as the one Lord Byron's

imagination saw.

Agriculture spreads the table from which we obtain nourishment, to strengthen these weak and decaying bodies. The manufacturer cannot flourish, without the aid of the farmer. Every new wheel which is set in motion depends upon the farmer for the raw material to manufacture into cloth. Where the cultivation of the soil is held in low estimation, we see no thriving cities, no centres of commerce or trade, no railroads or telegraphs, no civilized society; nothing but a low, degraded race of barbarians. No nation can be prosperous and wealthy, without the development of agricultural resources. The agricultural classes are the sovereigns of our country, and will control its political destinies in future ages.

How many young men we see, who act as though they thought it beneath their dignity to till the soil and earn their daily bread! They seem to think that everlasting disgrace would come upon them, if they should be seen hold of the plow or hoe! So they look with scorn upon the farmer's lot, and die in the poor-house.

How many people there are, who think that the ignorant ought to cultivate the soil, and the more learned follow other pursuits. It is a great mistake. Agriculture is a science; and ought to be studied just as much as any other science, if we wish to be successful farmers. A few more brains with the muscles, would improve the soil very much.

Some complain that it is unpleasant to cultivate the soil. I do not agree with that class of persons. I delight, with a good team and plow, on a beautiful spring morning, when the merry bird sings sweetly upon the sunny hill sides, and all nature seems alive with music, to go forth into the field, and turn the furrows over, and view Nature in her most beautiful aspect. The surrounding scenery points me upward to Nature's God, and fills my heart with gratitude and praise to the giver of every good and perfect gift. There is no class of people in the world who enjoy life so well as independent farmers. The man who owns the land which he cultivates, (perhaps it has cost him many years of hard labour, or it may be it is the old homestead, where his father lived before him, and his heart is bound to it by a thousand sacred ties,) is truly in a position to enjoy life's sweetest blessings.

EXAMPLE IN AGRICULTURE.

"If men are to be made intelligent," says Henry Ward Beecher, "give them specimens of intelligence." And he illustrates this influence of example as follows:

Let a man go into a village where the houses are all going to decay, where the fences are all tumbling down, and where no pains are taken with trees and flowers, and build a neat house, and enclose his grounds with a good fence, and tastefully decorate his yard with comely trees and beautiful flowers, and his example will be a blessing to the place. It will not be three years before there will be twenty neat houses, with good fences, and yards decorated with trees and flowers, as the result of his judicious outlay of means. The taste of the whole village will be educated and improved by the influence that he will exert through the instru-

mentality of the advantages which he possesses over them.

We have observed the same thing in agriculture. When a thorough practical farmer goes into a neighbourhood of "worn out" farms, and engages in the work of reclaiming and improving his new purchase, his success is sure to awaken a spirit of inquiry, and his example can but exert an improving influence upon all who witness or hear of it. He is seen to grow better crops than his neighbors on a soil which has been comparatively sterile heretofore, and the methods pursued are sought out by those around him. It is found that he does not grow crop after crop of wheat, corn or grass on the same field, but he grows good crops of these products upon different fields in a series of years, entering at once on a system of rotation. He introduces new and improved varieties of grains and seeds, the products of which are seen at a glance to be better than those commonly grown—at least they command a better price in market. The same is true of his orchard and garden. Better fruits and finer vegetables are introduced, such as at once attract the attention of the observer. The improved breeds of live stock with their better care and feeding, cannot fail to gain the notice of all around him. With improved plows and other implements of tillage he accomplishes a more thorough cultivation of the soil, giving a deep and mellow seed bed, insuring the crops against the excess of drouth or moisture, and bringing abundant crops despite "the season" so unreasonably complained of by the careless farmer. But as the real basis of improvement, he is particularly careful in making and saving manure, seeking in every way to increase the fertility of his soil—to feed his crops, that they may produce large and profitable returns for his care and labor. An example of clean culture is also given, and it is seen how much more the soil can do for the farmer's crop if no self-sown intruding weeds are allowed to rob it of its proper sustenance.

These improvements, and many others we might particularize, as remarked before, exert an influence on the farms of those who witness or hear of them. Their owners may cavil for awhile, but the unmistakable signs of prosperity—of the paying nature of the new system of management—will generally influence the most incredulous into some sort of an imitation, which is nearly always followed by better returns, encouraging further progress—and thus the work goes on until the whole neighborhood shows the influence of the example. In this way, and by the constantly recurring lessons of an enlarged experience, a better system of culture has been in part introduced, and thus also diffused and extended.

Those who learn by hearsay, we remarked, are also influenced. The agricultural fair has its part in this teaching; but its great apostle is the newspaper, filled in large part by the writings of experienced and skilful farmers, who can not only tell how to work profitable results, but draw their illustrations from their own experience. Though no period in the history of agriculture has been without its examples of productive farming—at no period, on the

broad acres tilled by American industry, have so many bright spots shone out to gladden the hearts and encourage the hands of the friends of improvement. As much room as there evidently is for advancement, a comparison of farming now with that of even ten years ago, shows marked progress. May it go on until *thorough work* shall make our land team with golden harvests, with the finest flocks and herds in the world, with peace, plenty and universal liberty and intelligence.

HOMES AND PEOPLE.

A man's home is a truthful index of himself. With his house, his yard and his fields, he publishes his autobiography for the world to read.

When we pass buildings which are neat and tasteful, with vines hiding all ungraceful angles, and flowers all about; when we hear the music of the mowing machine in the meadow, and the sewing machine in the parlor, we know just what sort of people we shall find—industrious, cheerful, and generous, poor in purse, it may be, but rich in heart treasure.

Up street a little way is a frigid looking house, well built and well painted. There are fruit trees and a vegetable garden behind it; but in front the unfenced "lawn" slopes in nature's roughness to the road. In one corner, a little patch of ground is spaded, and a few consumptive-looking sweet-peas and asters are striving to bloom, perhaps in competition with the heliotropes and geraniums in the window above. Who needs an intimate acquaintance with the proprietors thereof, to be convinced that the woman alone has a tender, loving heart, and a taste for the beautiful, and that she has no sympathy from her husband in her efforts to make the "wilderness blossom as the rose?"

Something of the inside atmosphere we may learn from the quantity of sunlight which is admitted. Happy faces and dark rooms seldom go in company, (except in "fly-time.")

From my window I can see a low, unpainted building—the roof is unpainted, as perhaps it ought to be the remainder I "guess at," for it is entirely hidden by tall lilac bushes. I never looked inside, but I know: it is dark, and gloomy and still. One summer morning as Abbie and I were passing, we spied two blush roses outside the rickety fence, and with no thought of trespassing, we stooped to pick them. The lilac bushes parted, (there must be widows behind them!) a gray head surmounted with a black cap appeared, and a harsh voice called out, "Here, gals, [let alone o' those roses!] We "skedrdldd!" But what better could we expect, where there was no sunshine? Somewhere, however, in her desert heart there was a green oasis, for she cared to save her roses. And they, poor things, were trying to escape her and her shadows, seeking the common highway, where sunlight and somebody would smile upon them.

Let in the good sunshine. God only knows how we need it now, in our homes and in our hearts, while such great shadows of grief hang over us, and in nearly every household the hourly prayer is, "O, save my soldier!" "God

said, let there be light!" And there is light now for us, free and overflowing, if

"While the west winds play
We throw the windows of our souls
Wide open to the day."

MARGIE.

EDUCATION OF THE FARMER.

The following extract is from Mr. Greeley's late address before the Vermont State Agricultural Society:

No man can afford to bring up his children in ignorance of the principles and facts which underlie successful farming. I do not know that this truth is accepted by the great body of your farmers; if not, I must try and make it so. I hear complaints that our clever farmer's sons dislike their fathers' vocation, and I am not surprised that it is so. The father has unconsciously taught them to despise it as the least intellectual and most stolid of all possible pursuits. He never brought home a book that treats attractively, wisely, enthusiastically of Agriculture. He has, as a general rule, never considered an agricultural journal worth taking. He has not deemed it important that they should be instructed in the natural sciences which underlie and elucidate his own vocation. He never made the latest improvements and discoveries in aid of agriculture the subject of inquiry, of study, and of fire-side discussion. In his daily life and thought, farming is as dreary and mindless a drudgery as it can be to a horse in a bark-mill. How, then, can he expect his sons, if they have any aspirations beyond hog and hominy, to like farming? He has given them every possible negative reason to detest it.

Now I do not hold that every man, or even every farmer's son should be a farmer. There are other pursuits equally important, laudable, honorable. But I do contend that every farmer should instruct and train his children, that they shall at least respect his vocation, though they should not follow it, and understand its laws and processes so thoroughly that they will never forget them. I would have every farmer's son feel that, if defeated in his chosen pursuit—law, medicine, trade, mechanics, or whatever it may be—he can, at any moment, return to the vocation of his youth, and earn therein an honorable and adequate subsistence. He is morally certain to prove more upright and independent in whatever pursuit, if he enters it with well grounded confidence in his ability to live without it. But I still more urgently insist that each farmer shall so honor and esteem his own vocation, shall so render it and respect it as an intellectual and liberal pursuit, that his better educated and mentally developed sons shall not despise and reject it as fit only for oxen.

In the absence of any better plan for agricultural information, we highly approve of Agricultural Colleges, but chiefly as normal schools for preparing lecturers. Many years ago we lectured upon agriculture in various parts of the country, and time enough has since elapsed to enable us to judge of the advantages arising

from popular lectures on that subject. Farmers' sons if educated at Colleges, do not always return to the farm; like the students at West Point, many of whom never join the army, but find a means for turning their education to other account.

One hundred lecturers paid by the state, could deliver a course of lectures every year in every county, and in almost all the larger townships. Select these lecturers from the best pupils of the colleges, after they have graduated and had five years practice on the farm, and we believe that a less expenditure would disseminate a greater amount of agricultural information, than by any other means at an equal cost. It is not only necessary to instruct youth, but middle-aged farmers. There will not be a sufficient number of colleges in a century, to furnish an educated farmer for each county, while by the lecturing system a million of men may have the improved systems placed before them each year. If necessary, let the lecturers submit the points of their lectures to a board of censors, or any other check which may be deemed proper; it should be remembered that farmers, unlike mechanics, are kept at home, and the discoveries of others cannot reach them, unless carried to their very neighborhoods.

We remember well our first lecture at Somerville, New Jersey, sixteen years ago; at that time there was not a single acre in that neighborhood holding drain tile. Mr. Cornel and Mr. Campbell were the first to adopt our views, and now, in that town, more than a million of tiles are manufactured annually for the use of farmers. In the whole state of New Jersey there was but one sub-soil plow, and that was on our own farm. We carried a model of this all over the state, and now there are thousands in use, and many foundries manufacturing them. It is all very well to suppose that the truths of agriculture may be printed and thus disseminated, but experience proves the advantage of oral description, with opportunities of questioning the lecturer. Several of our friends and pupils have since been similarly engaged, and the experience of all leads to the same conclusions. Everywhere lecturers produce results which cannot otherwise be so readily achieved; the excitement of the lecture room gives an anecdotal value to the facts here stated; the occasion causes farmers to compare notes, and every new truth finds some ambitious experimenter willing to put it in practice.

Lecturers would naturally collect much information, which would be disseminated elsewhere, and thus they would spread new facts, as birds do seeds. We cannot wait for the results of colleges; all that now exist are entirely insufficient to cause any wide-spread enthusiasm, and then, too, farmers are afraid of them.

The agricultural press may do much, but the lecturer can render new truths more effective and more immediate in their application. It need not be feared that errors will be disseminated, for lecturers will soon learn that they must go prepared to fully sustain all they offer, for farmers are a thinking class, and will

pass nothing by without presenting all the objections within their knowledge. In fact, agriculture is deserving of all the means being applied which are now active, and as much more as can be devised; the learned, and those to be improved, should meet more intimately.

In Germany many of the walled grounds have on their inside all the improved implements, while outside these walls, and close along side, may be seen a plow made of a crooked stick, and without even an iron shoe. These plowmen cannot be talked at over the walls; the instructors must come out and go among them. Germany is not alone in this particular, and every means should be devised to remedy the evil.

RULES FOR MAKING FARMING PROFITABLE.

One whose conclusions have been founded upon experience, thus writes to the *Prairie Farmer*.

1. Buy no more land than there is capital enough to pay for, with one-third more surplus. A small farm, free from debt, with plenty of means to stock it, enrich it, and carry on its work, will yield more than a large one, encumbered with debt, conducted feebly in every part, with bad fences, poor implements, bony animals, weedy fields, and thin crops.

2. Lay out the fields in the best order, so as to admit of a systematic rotation, and to give ready access to every field at all times, without passing through other fields if possible.

3. Provide good fences, and necessary gates, and valuable time will not be lost in driving out intruding animals, nor crops lost by these depredations.

4. Furnish good farm buildings to secure properly the crops, and also to afford a good shelter for animals.

5. Select the best animals in purchasing, and secure the *very best* the country affords to breed from. Also select the best implements that can be procured at reasonable prices.

6 Bring the soil into good condition, and keep it so by a judicious rotation.

TAN BARK AS A MANURE.

To the Editor of the *Lower Canada Agriculturist*.

Sir,—The columns of your Journal being ever open to give and receive all information that pertains to the advancement of Agricultural improvement, I am induced to ask the opinion of the Journal upon the following question:

Having an opportunity of procuring a quantity of waste tanner's bark, which is the easiest way to convert it into an active manure.

I understand that tanner's bark has been used extensively by several farmers to great advantage, after preparing it in some particular way. Perhaps composting with farm-yard manure would prove most beneficial. But if it could be used at once and applied in a fresh state to our various crops, a great deal of extra work and trouble might be avoided.

By answering the above in your next issue you will much

Oblidge, Yours truly,
A Subscriber.

Messrs. Editors:—I have observed various statements as to the nature and value of spent tan-bark applied to crops or tillage land. Having made some experiments in a small way, bearing on the question, I will give the results.

On the 1st of July I sowed broadcast, on good alluvial soil, well-pulverized carrots, ruta-bagas and cabbage. I covered them with three-fourths of an inch of tan bark, quite fresh from the tannery. The growth was good, and crop as large as the season would allow.

I also planted potatoes in the same way, covering with four to six inches of fresh tan bark. They had no other care, the weeds not growing. The crop was fair under the circumstances—indicating no bad effect from the tannic acid of the covering.

I also raised good corn where tan was mixed with the soil in the proportion of one to four.

From these facts I have not hesitated to use it freely as an absorbent in my stables. My cows are bedded with it to a depth of three or four inches. It is hoed back into the drop as fast as it becomes wet. It then becomes thoroughly mixed with the manure, making about double the bulk. It is daily loaded into a cart and hauled to the fields, where it is deposited in heaps.

The great advantages I get are a more perfect distribution of the manure in spreading—economy in getting all the manurial qualities on to the ground—neatness of stables, and saving all the trouble in plowing, drilling in seeds, and cultivating, when coarse straw manure is used, as it must be, or one year lost in rotting it.

Dried muck is undoubtedly the best. But I can't get it; and it is much more expensive in procuring and hauling, where tan is within reach.

My land is alluvial, a little inclined to be heavy, and I anticipate good results from the light, open nature of the tan.

I procure my supply (about 150 loads) in dry weather, and place in the bottom of a bay, convenient for use. Frost only crusts over the top, giving no trouble.

NATURAL BAROMETER.

The spider says an eminent naturalist, is almost universally regarded with disgust and abhorrence; yet, after all, it is one of the most interesting, if not the most useful of the insect tribe. Since the days of Robert Bruct, it has been celebrated as a model of perseverance while in industry and ingenuity it has no rival among insects. But the most extraordinary fact in the natural history of this insect, is the remarkable presentiment it appears to have of an approaching change in the weather. Barometers, at best, only foretell the state of the weather with certainty for about twenty-four hours, and they are very frequently fallible guides particularly when they point to *settled fair*. But we may be sure that the weather will be fine twelve or fourteen days, when the spider makes the principal threads of its web very long. This insect which is one of the most economical animals, does not commence a work requiring such a great length of threads

which it draws out of its body, unless the state of the atmosphere indicates with certainty that this great expenditure will not be made in vain. Let the weather be ever so bad, we may conclude with certainty that it will soon change to be settled fair when we see the spi-

der repair the damages which his web has received. It is obvious how important this infallible indication of the state of the weather must be in many instances, particularly to the agriculturist.

OUR RAMBLES.

SOULANGES AGRICULTURAL EXHIBITION.



OW it is not our intention to enter in the particulars of each class, but merely to give the impressions made on our minds by its appearance with some observations thereon, according to date. Soulanges will take precedence.

The class of stud horses was very large and good; there were twelve on the ground. In making our remarks on this very important class we must do our duty although it be a painful one. Much dissatisfaction was created by one of the judges, being an exhibitor. This is wrong in every sense of the word; human nature is not perfect enough to allow a man to judge his own article. Again, unsound horses were allowed in the ring and took prizes, which is a very bad practice, for every breeder must or ought to know that like breeds like and that important blemishes such as ringbone and spasms of all sorts become hereditary. Mares and colts were good; some very fine colts were on the ground; but the practice of judging by the colt alone we think not quite right; the mothers certainly ought to be taken in consideration. In the younger branches of the horse kind there were several good samples, but from the pastures being so bad this year they were, generally speaking, in rather poor condition.

The aged bulls were of an inferior description; some two years old were very nice and showed quite an improvement in blood, and it is a great pity that there is no effort made to continue this improvement. The cows were no great things, but there were some heifers on the ground of quite a good grade. It is much to be regretted that they cannot be matched with some pure blood. The sheep were far superior to those exhibited last year, and we must depart from our rule of not particularizing as to mention the very fine ram shown by Mr. John Currie, which would have done credit to any Provincial show. Some good swine were exhibited, but rather few. The imple-

ments were entirely of country manufacture, and did great credit to their makers, particularly the iron harrows. We now enter the shed and such a heterogeneous mass of articles no person ever saw. No order, no classification, butter, needle-work, vegetables, cloth, crochet-work, boots and shoes, daubs of paintings and embroidery were all heaped together in the greatest confusion, and it was impossible to give a correct judgment even if the judges had been willing. These Solons excluded all the higher class butter because it was in stone crocks, and the best sugar for not being in the usual black lumps, but nicely manufactured into muscovado. We cannot say which were the greater, their ignorance or want of fairness, and we have been credibly informed that many of the articles were not produced in the county but purchased elsewhere and exhibited as the parties' own manufacture. Independent of this roguish practice a large share of the articles had no business at an *Agricultural* show. As to the paintings, if it was intended to foster art, it could never be done by encouraging such as were produced. The style might suit a Sandwich Islander or a native of Caffre Land. We think the government allowance was never intended to be applied in encouraging the production of such trumpery as was here exhibited. The object of the grant is to foster a better system of cultivation and to improve the stock in the country. Were it intended to cultivate the taste and elevate the character of our farmers' daughters, surely the numerous convents and model schools so liberally scattered over the country, would be a better means to the end; but to judge by the elegant appearance and polite manners of our Canadian girls, one could not wish for much improvement. If they knew how to make butter and cheese as well as they understand the art of dressing, it might be better for their fathers and husbands.

With reference to the growing crops, of course we could form no opinion, but were told that they were so fine, with the exception of hay, that the judges had great difficulty in pronouncing their award. But here again that most reprehensible practice of some of the judges being exhibitors was the cause of much complaint, and although expressly contrary to the act is a common practice in many societies.

And now to dinner! was the cry, and it was furnished in rather a wholesale style. Sixty covers for the committee and friends, and fifteen reserved. We think the course pursued is not a proper one. The landlord furnishing the dinner subscribed fifteen dollars, the government allowance to meet subscriptions is three

for one, so they hand the sixty dollars to the man and he furnishes a certain number of meals and quantity of wine agreed upon for in fact, forty-five dollars. Now, that a judge should have his dinner is quite correct, but that there should be such a lavish carouse out of the funds of the Province we cannot approve. But it was a cheering sight to see such a vast crowd collected and all taking an interest in the proceedings of the day, and we wish them success in their onward march of improvement if they will only correct some errors.

RIGAUD AGRICULTURAL EXHIBITION.

Now we travel to Regault, To accomplish this, we pass through what we can call by no other name than an ocean of grain. Flats for miles spread out before the eye; waving with the yellow harvest. When we say miles it is no exaggeration. Nine and ten miles square, are often visible from some elevated point. The soil is mostly of a rich clay, with a deep black vegetable mold on the top; nothing can be richer. The only draw-back is drainage, and this the farmers are fast accomplishing, but mysterious are the ways of the Almighty. The whole extent of this rich picture, and the hopes of the husbandmen have been withered by a chilling blast from the icy north: Everything is ruined by frost. One man told us that he had sowed sixty bushels of wheat, and should not reap one, and such, is the fate of most all these industrious men. When we said everything, we should have excepted oats and barley, most of them were ripe before the frost. Wheat and peas suffered most, and these being the principal crops, the farmers will suffer to an extent few can conceive. They are a frugal race, and will bear more privation, and say nothing about it, than any other people in the world. We pray God to let the bitter winter be light on them. After a night spent with our hospitable friend, Parks, we proceeded the following morning to the show at Regault; here we found the arrangements most admirable. No confusion, every class by itself, and in excellent order; but as human nature is not perfect, there were some things to find fault with, but they will come in their turn, so we proceed to fill up our notes.

Stud Horses,—rather few, and not of a superior class. Mares and Colts,—a very large and fine lot. Here the mare is taken into consideration, as well as the colt, a good and proper arrangement.

The show of working horses was the finest we ever saw, at a country exhibition, fourteen span were on the ground, and some splendid teams were amongst them. Aged bulls were good, but nothing to speak of. We are glad to see that they are fast being replaced by a very fine young stock. Some splendid 2 year old bulls were on the ground, and also very superior spring calves. But in this class there ought to be an alteration. The bull and heifer calves are shown together of course, the bull calves being largest always take the prize. Cows, generally speaking, in poor condition, one or two pretty well bred. The working oxen, very good for this northern country, we wish our farmers would employ them more

than they do; they are more easily fed, and strengthen a team at little cost.

The sheep were not quite what we expected from the reputation of that part of the country, but there were some very nice. We think the farmers have been dealing too much with the butchers, and sold too many of their choice lambs. The shod:—*Herc* all was in excellent order. The articles butter and cheese, were in great force, and of a superior quality. They were divided into two classes, English and French. Sorry to say, it was necessary. Oh ye Canadian daughters and wives, why is this? There is no earthly reason why a French Canadian woman should not make as good butter as an English woman; and we sincerely hope, that before long you will not allow this stigma to rest on you. The blankets were fit for a royal bride. Soft, thick, warm, and as white as snow. The flannel was also very good, and the cloth, but the specimens were few and small. We were glad to see that very little trumpery was exhibited, but were sorry to see that no implements were allowed. This is a very bad sign for improvement. No growing crops on the list, surely there can be nothing more important than the state of the fields. Any man can produce a bag of good grain by hand-picking, but the cultivation must be good, for it to show well in the ear, and improved cultivation is the great end, to be sought after by all Agricultural Societies. Again, there was no ploughing match:—Do the young men of Regault, plow so well that they have nothing to learn? The crooked furrows, narrow lands, that we saw, left the impression on our minds that there was great need of it. There were so few judges that it took a long time to go over all that was exhibited, and there was much complaint that no English speaking person was amongst the number. Here we shall close our remarks with the observation, that the hospitality of Regault was as meagre as that of Soulange was *too lavish*. The honest sun-browned face of the farmer was not seen at their Board. Broad-cloth ate and drank, but home-spun went empty away.

We should wish to draw the attention of our readers to these discrepancies existing in the two counties. It would be far better if a general system could be followed; this will be a difficult matter where the changing of Directors so often is the common practice. Just as the old Directors are becoming acquainted with the working of the act, they are replaced by a new set as green as they first were; and by the time they have acquired a little practical knowledge out they go and so on. To remedy this evil we think the Board of Agriculture should lay down a few rules to be followed by the County Societies and recommend the encouragement of the most important departments of farming.

We would wish to see more uniformity in the manner of conducting the business, not that the board should tie down country societies to a servile adoption of all its rules, but advise the following of certain fixed principles such as to encourage the perfecting of all animals from a rabbit to a Durham Bull, the advancement of practical and scientific farming, and as

ploughing is the foundation it should never be neglected. The foundation of junior classes is a great means to this end. Young lads are more eager to learn and throw their whole soul into what they undertake more than men do. No where are the farmers, operations and his success and failure so well tested as in the crops on the ground. A man is ashamed to lead the Judges through a dirty field to look at a clean one and will try to have everything look well on the day of inspection. Therefore, some much more is gained by judging the crops while growing than in the Bag.

Would it not be a great benefit to the farmer if the Board would take some action to stop the roginsh manure of burging grain now in practice. The Legislator has fixed the weights of grain say Oats 34 lbs, Barley 48 lbs. Now

buyers all insist that Oats shall be 40 lbs. The farmers give into them for once at market they cannot take their grain back, and so it is with Barley 50 lbs. Fifty-six are commonly demanded of the farmer. Were these weights necessary to meet the requirements of a foreign market there would be some excuse, but the fact are not so, the United States Standards are 32 lbs. for Oats 48 lbs. for Barley; so a nice profit these large speculators make out of our poor farmers, in fact their cargos sent to the States overrun one bushels and eight pounds for every seven bushels they ship here.

Parliament in England has made it " compulsory on buyer and seller to adhere to the legal standard. Why should it not do so here!

CULTIVATOR.

Soulange, Nov. 1862.

FARM OPERATIONS.



MONTHLY SUGGESTIONS.

[A glance over a table like the following will generally call to mind some piece of work that would otherwise be forgotten or neglected. The calendar, will, of course, be much more full during the season of active field and garden work.]

Farm.

Winter is the Farmer's seed-time for ideas. When the labors of the year press, and the mind is oppressed with the daily and hourly details of farm work, and the management of hands, many an idea occurs to one which he must wait until Winter to develop and inform himself upon. His mind may then be freshly enriched from books and contact with other minds, and is in a fit state for the profitable development of the thought-germs gathered during his season of labor.

Agricultural Reading.

Place at least one good farmer's paper, better three or four, upon your centre table in the sitting room. Encourage every member of the

family to read. Keep a pleasant fire, bright light and quiet there, so that every one may read who will. The little it costs will be a most profitable investment. Buy rather those books which treat thoroughly of one subject, than those which profess to contain a little of almost everything in small compass.

Barns.

Protect roots against frost, if you have them stored in the barn cellar. Pack the hydrant in straw horse manure, which is best done by placing a headless barrel around it and then filling that. Look out for slippery spots in the cattle walks, and especially near gates or door-ways; cover the ice with earth or ashes, but never put on salt unless you move in all. Now, if ever, should everything be in its place and the whole barn neat and clean.

Collars.

Air well on warm moist days. Keep clean and watch the appearance of fresh rat holes, all of which close with broken bottles and cement mortar.

Dairy.

Color winter butter with carrots fed to the cows.

Eaves and Eave-spouts.

Clear off leaves, etc., on thawing days, if not done, see that the cistern may not lack water.

Fencing stuff.

Get out, and haul when you have good sledged, at least a third more than you can use.

Fodder.

Cut up coarse fodder, wet it, salt it, sprinkle enough oil-meal or ship-stuff on to give it flavor, and let it stand, stirring occasionally till well soaked and mixed. All kinds of stock will eat it. Use no wortless fodder except in the manure heap.

Frost.

Sprinkle a handful or two of salt around posts likely to be heaved by the frost, picking

out the ice to the ground, in a little groove close to the post. Whatever is frozen and liable to injury by frost, thaw very slowly; put vegetables or apples into *ice cold* water.

Fuel.

Cut fuel without stint, and be ready to haul what is cut as soon as there is fair sledding.

Granary.

Thrash and get all grain into an airy, dry, rat proof granary as soon as possible. Many a farmer loses enough grain by rats and mice to winter a horse. Mice and rats multiply rapidly if they have anything to live upon—employ all help to get rid of them. A cat is an excellent thing in the barn, but keep her out of the granary unless she is well behaved. Corn keeps best on the ear; if it is to be fed out this winter, *shell* it as soon as you please if you are to keep it into the summer leave it on the ear.

Harnesses.

After being wet, wipe and oil them thoroughly before they are dry. Have all harnesses overhauled, and put in good order.

Ice.

Get out ice in the coldest weather, for then it is dry. Set the cakes on their edges and if possible pack them in the ice house in early morning when the temperature is near or below zero. The first formed ice is the best.

Implements.

Think up what new ones you want, and find out which are the best kinds.

Manure.

Make it under cover. Do not let it freeze, even if it can be helped. This is the manure harvest and as much should be gathered as possible. Compost with muck or earth. Save all the liquid manure, and everything about the house or barn that has the principle of decay in it. Keep the manure heap moist, compact and level. If it touches the outside of any building clear it away at once.

Market produce as soon as there is good sleighing or hard roads; prices are now somewhat remunerative. Look up various kinds of manufacturers' waste leather chips, &c., for return loads. Sell grain by sample, warranted with the privilege of delivering it at your own time, if you can do so.

Roads and paths.

Open the roads after snow storms. Out upon the man who lets his neighbors open his road for him! A snow plow for one or two horses after every snow should draw its furrows 4 feet wide through the whole neighborhood, and thus neighborly intercourse will be established, the children go to school, and the women can get out to the prayer meeting, which otherwise might not be for several days.

Timber, Wood Lots.

Do not cut trees so as to leave tall stumps. Cut with reference to young and growing trees. If you have timber or bark to draw out from swampy ground, employ the first opportunity after the ice will bear your team.

Tools if not greased will be likely to rust; attend to this, and repairs they may need. Make up a lot of rake teeth, and other things which you will need next spring or summer.

THOROUGH PULVERIZATION OF THE SOIL.

As a general rule farmers are not yet fully awake to the importance of having the entire soil reduced to a fine powder. Hard lumps of earth, even when they are full of grain-producing substances, are of but little more value in producing a crop than the same amount of stones. The roots of plants cannot enter hard lumps of earth, and before such lumps can be of any real benefit to plants, they must be broken down, mechanically, with some implement, or be dissolved by rain.

In order to appreciate the importance of thorough pulverization of the soil, we need to have a little spattering of the theory of "vegetable nutrition."

How do plants grow? How does the hard soil and dry manure become changed into plants of any kind? These are important questions which every farmer should understand well: and then he would be able to appreciate the importance of more complete and thorough pulverization of every kind of soil.

No soil or manure can promote the growth of a plant—except mechanically—until after it has been dissolved by rain or water, and reduced to a liquid. Dry earth or dry manure cannot enter the roots of plants. Roots of grain, grass and trees feed upon nothing but liquid or fluid. When we apply bone-dust to plants, rain-water must first dissolve the little fragments of bone, and carry them along where they will be taken up by the thousand mouths in the little roots of the plants. So with the hard soil, and hard lumps of earth, they must be reduced to a fine powder by some mechanical operation, and then the rain will dissolve the fine particles, thus forming a fluid, which is the food of plants.

When the soil is very lumpy the atmosphere has but a small surface, comparatively, to act upon; therefore plants grow slowly where the entire soil is one complete clod, or is little else but lumps.

These few thoughts lead us to discuss in a practical point of view,

The Philosophy of Ploughing.

Were we to interrogate a thousand farmers, "Why do you plow?" the answer would probably be, "For the purpose of rendering the soil more mellow and porous."

This is correct as far as it goes, but the chief object is to reduce the soil to its greatest degree of fineness, or comminution of particles, *mechanically*, so that the rain, or water applied by hand, may readily change the elements of fertility in the soil from a solid to a fluid, in which state only those elements are available as food for plants of any or every kind. Therefore by reducing the soil very fine, by some mechanical operation, such as plowing, its solidity is in a measure overcome or destroyed, and the roots of plants find little hindrance in ramifying throughout the entire mass that has been broken up. And if the roots and little spongioles occupy the entire soil, the ten thousand mouths of these roots are ever open to drink in those substances, which will promote the growth of the plant. On the contrary, if a large proportion of the soil is in the form of

lumps, or is turned over in furrow slices of one unbroken mass, the soil is not in the best, nor even in good condition to promote the growth of those plants that occupy it.

Now the idea is in plowing to use those plows that will break up the solidity of the soil most thoroughly and effectually. Turning the soil upside down, as if it were a huge slab of earth, does not accomplish the desired purpose, as its solidity is not destroyed, except in a very limited degree.

Every observing farmer knows that when calcareous and aluminous soils are not too dry, nor too wet, if they are plowed with a kind of plow that leaves the furrowslice on its edge, the pulverization will be about as thorough and complete as it can be made with a common plow; whereas, if such soil be plowed when there is only a little too much moisture, or not quite enough, pulverization is only partially effected, and consequently it is not possible that the crop should be as great as it would be had the pulverization been more complete.

These thoughts lead us to speak of

Fall Plowing as one of the most effectual means for thorough pulverization.

After a soil has been broken up, it soon commences to run together again, and to set, very much as mortar does, which has been made of lime and sand; and to assume a solid and almost organized form. In this process almost every particle of the soil that has been plowed is moved, more or less; and much of the soil is separated and moved several inches from those parts, with which it has long been in contact. This operation is effected by rain and sunshine. As a matter of course, this change in the position of the particles of the entire soil, does much towards securing thorough pulverization.

Frost-freezing and thawing of a soil, exerts a very important influence in securing the complete pulverization of all soils. But when a soil has been plowed several months before the time of frost, it becomes consolidated, and the frost will not exert half the influence, in its more thorough pulverization, that it would were it but recently plowed.

For this reason, plowing early in autumn—where thorough pulverization is the chief object—will not be as effectual as late plowing, or even plowing in the winter. If the rains and frosts of winter can be in operation, when a soil is running together, after it has been plowed, the pulverization will be more thorough and complete than it would be under any other circumstances. And more than this, the more complete the pulverization is, the longer that soil will remain mellow and porous; and consequently, the greater will be the available amount of fertilizing matter in that soil, which will promote the growth of crops.

Thorough pulverization impracticable without under-draining.

Where there is an excess of water in the soil, the particles run together so readily, and set, like mortar, that the most thorough comminution of the soil, by any mechanical process, will be of but little advantage to a crop, when compared with the benefits arising from the same pulverization, when there is just mois-

ture enough to cause such soils to pulverize easily, and remain so for a long time.

There is little or no danger of rendering a clayey soil too dry by thorough underdraining, as it will retain by absorption all the moisture that is required for the healthy growth of plants, even directly above the drains. Therefore, if the superabundant moisture is removed in under drains, and our heavy soils plowed well, as they ought to be, late in autumn, and then plowed again the following spring, the pulverization will be most thorough and complete; and the crops of grain will be increased many times, to double the amount which they have been accustomed to produce.

The first step then towards thorough pulverization of our heavy calcareous and aluminous soils, will be *underdraining*. The second operation will be fall-plowing, followed by plowing in the spring or summer, when there is just moisture enough in the soil to cause it to crumble well as it is plowed. And the third process will be, *manuring*.

All of these things combined will constitute a renovating system of agriculture; and will render the soil more productive from year to year, and at the same time will require less labor to cultivate a given crop.

4. Early in the progress of my experiments, I thought it very desirable to secure the means of as near a perfect inspection of the bees in the hive as could be secured.

To secure the above objects, I have so prepared my hives and boxes as to give ready ingress to them: and boxes in sufficient size and number occupying the upper and side chambers to double the capacity of the hive, giving with the boxes about 4,000 cubic inches. With this room, at the commencement of the season, there is but little danger of swarming, and no bees cluster outside of the hive. The whole find employment, in hive, boxes or field; and thus, by storing most of the honey, save that necessary for the brood, in the boxes, they are filled in the early part of the season, the second object is secured; the honey is the early gathered and best. Whether an average of 37 lbs. every season of white clover honey from every June swarm, and 20 lbs. from each July swarm, would meet the anticipations of skilful apiarians, I do not know; but it has been somewhat gratifying to me in my ignorance, feeling my way along by experiment. Starting without bees, my swarms have been purchased, and have paid the expense of the purchase by the first year's honey.

To secure the increase of colonies if desired, when desired I have so prepared my hive as to secure at will, with trifling trouble, an equal division of the swarm, comb, brood, and honey.

I have secured the fourth object, inspection of the swarms, by glass covered by doors front and rear, by an inclined adjustable bottom-board, and by glass boxes, thus subjecting to inspection almost the whole work.

Preserving tools from rust.

No farm tool or implement, any part of which is of rubbed or polished iron, should be put away without first thoroughly cleaning. It will not only last longer when kept clean

and bright, but will be more convenient and efficient in using. A hoe or a spade cast aside covered with earth, will become rusted, and be scarcely fit to use. The mould-board of a plow should be always bright. To leave one in the furrow, exposed to the weather, and where it will inevitably become covered with a thick coat of rust, is a miserable practice. But in damp climates or damp seasons of the year bright tools will sometimes become rusted after housing. In such cases a coating of some suitable substance should be rubbed over them, if laid aside for any length of time. A good and cheap coating for this purpose is grafting wax, softened by an admixture of an equal part or more of lard. Beeswax is good, but rather too hard and too expensive. Add to it four times as much lard and twice as much rosin, and the mixture will be a good one. Or, three parts of lard and one of rosin, will answer a good purpose. The lard should of course be fresh, any portion of salt attracting moisture. The mixture should be melted; and if the tool could be heated as hot as boiling water, all the better. Much hotter than this the temper might be injured if of steel. Put on as thin a coat as practicable to prevent waste, and rub with a cloth. All polished metal, when examined with a microscope, is found to be covered with scratches and furrows, and it is these furrows that retain the mixture and preserve the coating securely until used again.

CUTTING TIMBER AND WOOD.

The durability of timber, all admit, is more or less influenced by the time of cutting, but all are not so well agreed what is the best time. Every farmer must have observed that chestnut rails in his fences, in some instances, remain entirely sound for many years; that there seems but little difference in the durability of the sap, or outer part of the tree, and the heart or inner part. All becomes hard. The bark, in time comes off, but shows no decay or worm-holes. In other instances, the sap soon becomes rotten and abounds in worms, and the whole of the rail soon perishes.

So of shingles. In some lots the sap will last well; in others, the first shower will show a difference of appearance, and after a few months it will let the water through the roof.

Walnut and beech timber sometimes become worm eaten (powder post,) in a few months. Other specimens will lie with them and remain untouched for years. In this market a load of wood will be offered, beech, birch, or maple, with split surfaces and ends bright and free from mildew, corroborating the assurance of the owner that it has been cut but a few months, and that it was piled immediately where it had a fair exposure to the sun and air; and yet when you handle it you find it light; when you saw and split it you will find it changed in texture and color, and its elasticity all gone. In the fire it passes away rapidly with but little blaze and but little heat. Other lots of the same species of wood, cut an equal length of time and seasoned under the same circumstances, and showing no better on the surface, will be

found much heavier on handling, unchanged in structure and color, and highly elastic as the saw and axe expose fresh surfaces, and giving a bright, lively fire when you burn it; and worth from a quart: to a third, and sometimes a half more than the first lot. These are all familiar instances, and all depend on the season when the trees are cut. If we are correct in ascribing such results to the time of cutting the timber, it is a question of very great importance, "What is the best time?"

We are not very confident of our ability to answer the question, but will make one or two suggestions, and leave it for the present, asking for facts from the observation of our readers.

In the first place, it seems in some way connected with the sap in the wood at the time of cutting. We should like to see the results of a series of experiments, showing the difference in amount of sap in the same species of wood of equal age and thrift, at different seasons of the year. We think the least would be found when the tree was in full leaf. We know that wood-land cut over at this time gives but few sprouts, and that if you wish to destroy bushes, this is the time to cut them; while if you wish to remove the timber from a piece of ground and have it grown up again, the winter is the time to do this. The tapping of the maple in early spring shows that there is a large amount of sap wintered in the tree, both body and roots; Let a person cut a green and a dry tree at this season, and he will find, by comparison that there is a vast amount of sap frozen up in the interstices of the green wood. As the leaf is developed, the sap ceases to flow from a wounded place; and when the leaf is perfected, both on the old twigs and those of the present year's growth, and the growth of new wood is completed for the season, there is an exhaustion of activity. Cut the tree and it sends up, if any, a few sickly sprouts. The timber, on the other hand, dries quickly, and we think it more durable. We leave the subject for the present, hoping to hear from others.

ROOFING HEMP AND FLAX.

This is a subject of much importance, just now, to our farmers who have raised crops of flax and hemp this season. There are two methods employed for rotting hemp, viz., dew-rotting and water-rotting. By the first method the plants are spread thinly and evenly upon the ground about the middle of October, Clean sward is preferable for the operations, and from six to ten weeks are required to complete them. The plants are occasionally carefully turned, and their condition is determined by taking up a handful and breaking them in the hand. When the shive or woody pith is found to separate easily from the lint, the process is considered complete. Warm wet weather hastens the rotting operation, the object of which is to induce the action whereby the woody separates from the fibrous part of the plant. When the rotting is completed, the plans are again bound in bundles and stacked until they are required to be scutched. Dew rotting generally injures the strength of

the fibre more than water rotting, therefore the latter is held to be the better, although the most troublesome system. The method pursued by E. S. Cox, an extensive hemp cultivator of Sangamon county, Ill., is set forth in the transactions of the State Agricultural Society and quoted with commendation as follows, by the *Prairie Farmer*. In describing his method, Mr. Cox says:—For the purpose of water-rotting hemp I have excavations made in the ground into which are built six framed vats 90 feet long by 9 feet wide and six feet deep, the tops being on a level with the ground. These vats are constructed of 36 by 8-inch stills laid cross-wise at each end of which upright 6 by 8-inch posts are mortised and keyed, and stayed at the top by an occasional cross timber. The bottoms, ends and sides are planked with 2-inch oak timber and ship-caulked. The bundles of hemp laid crosswise the vats, which are filled to the top. Four strings of planks or rails are placed lengthwise the vats, across the hemp, over which again cross timbers are placed and confined at each end under cap pieces projecting from the top of the vat. Thus is the hemp firmly confined under the water. The vats are then filled with water from a cistern arranged for the purpose, and the hemp is completely submerged, the water rising six inches above it. The water for rotting the hemp, by means of three very powerful suction or force pumps, is drawn from a creek near by through cast-iron pipes into a framed, planked and caulked cistern, 59 feet long by 15 wide and 6 feet deep, constructed above and at the end of the vats. This cistern, by the action of the pumps, can always be kept filled with water which can settle and become clear and be let into the vats at pleasure.

The pumps and machinery for dressing the hemp are propelled by a steam engine, the escape steam of which is admitted into iron pipes laid at the base of the vats, and the heat thus communicated raises the temperature of the water in the vat to 90° Fah, with this temperature hemp rotted in five to seven days, the glutinous or cementing matter which fastens the lint to the stalk being dissolved by the process of fermentation, and the filaments of the wood becoming concrete and brittle are easily broken and separated from the lint. At this time all fermentation has ceased, and the water is unpleasantly stagnant. The water is now let off through plug holes at the end near the bottom of the vat and passes off through a ditch into the creek. The hemp in a few hours is drained ready for throwing out. The confining timbers being first removed the bundles of hemp are then easily thrown out, two men emptying a vat in one half day, each vat holding stalk to make one tun of lint.

By this method of water rotting the business can be carried on every month in the year, in winter as well as in the summer, as the water can be kept of a uniform temperature by means of steam. The workmen are protected from wet by oil cloths. The business is not unpleasant or unhealthy.

From the vats the hemp is hauled in carts to the drying grounds, where it is set up in shocks of three or four hundred each—a band being

tied around the blossom ends to keep them from falling down, the old bands are cut and the stalks are well spread, the butts to the ground inclining outward. As soon as thoroughly dry it is bound in large bundles and secured in the store sheds ready for breaking.

For rotting flax similar vats may be employed. There are but few farmers however, who can afford to use a steam engine, therefore all those who may have the convenience of running streams near their farms, should connect their flax pits with a stream in such a manner that the fresh water may be admitted at pleasure. Many experienced flax growers in Ireland prefer to sink their flax pits in yellow clay beds. They assert that the clay absorbs the oil of the plant and also imparts a beautiful cream color to the flax, which enhances its value. These flax pits should be filled to within six or eight inches of the top, and soft water should alone be used. It is of no consequence whether the top or root end is downward; and a slanting position is best for it. We may here remark that the same water should not be used twice the same season, and a great economy is effected by the pits or vats being so constructed that the water from them could be made to flow over the same or other fields, thus restoring to the soil almost all the constituents it took from it. It requires to be covered securely with sods and other material to keep it under the water and to exclude the air during the fermentation. The rotting process will usually occupy from six to nine days or perhaps longer. The rule for testing it is quite simple: remove a portion of the covering, take up a little of it, and if found, on examination, the fibre or skin separates easily from the extraneous vegetable matter or pith, it is then fit to be taken up and spread to dry. The flax should be evenly laid on a clean grass field in equal layers, and care should be taken to keep the roots all evenly together through all its operations and prevent it from mingling, which injures it both to the farmer and spinner. The drying will occupy but a few days on the grass in good weather if the rotting has been properly done. It should then be lifted off and stacked in a very dry condition for at least a fortnight, when it will be ready for scutching, which may be done either by the hand or by machinery.

The scutching operation is simple, and may be performed during winter and at the convenience of the flax grower. Its object is merely to separate the pith from the fiber. From the previous action of the steeping and drying the pith becomes rotten and breaks easily by being passed through rollers having a fluted surface working on each other like cogs. This machine may be either cast metal or hard wood; if of the latter, it can be driven by a man, and attended by boys. The cost of this machine should not exceed five dollars, and is very useful when the scutching is done by hand a stout boy may clean forty pounds for market in a day.

A correspondent of the Montreal *Herald* mentions a discovery in the mode of preparing flax, which seems equally applicable to the Northern and elevated portions of the United States and Canada. He observes:—It has been discover-

ed that in Lower Canada we can prepare our flax for the mill with very little trouble or expense, by a mode which answers as well as steeping, and that is, to spread the flax on a meadow in December, and allow it to remain on the ground till April. The winter snow rots it effectually, and when the snow goes off in April, you will find your flax clean and dry ready for carting to the scutch mill, without any expense worth mentioning.

QUALITY AND QUANTITY OF SEEDS.

This is an important subject, and deserves the attention and careful consideration of every farmer. No one can be a successful farmer who is careless or indifferent about the quality or the quantity of seed he uses. The subject is twofold, implying good seed, and a sufficient quantity. On this subject there is a great diversity of opinion and practice. Some appear to be quite indifferent with regard to the quality of their seed, whether it be good, plump, ripe seed of the right kind, or directly the opposite, poor, shrivelled, unripe seed of a worthless character. They do not seem to care what the quality of their seed is, provided it will vegetate, and it does not cost them a high price. Others appear to be quite indifferent with regard to the quantity of seed they use, whether too much or too little. In some instances they use more than is necessary; and in others they do not use seed enough.

With regard to the quality of seed, but little need be said to put every one on his guard. It is not always easy to tell good seed from bad; but a discrimination ought always to be made; and bad seed should be rejected, or what after examination is thought to be bad. By bad seed I mean seed of doubtful appearance and character—seed wanting in vitality and vegetative power—and seed whose productions are of an inferior quality. All such seed should be carefully rejected; and none but good, bright, plump, perfect seed should be used. Good seed, the very best, is none too good, and is always the most profitable, because the most productive.

They who raise their own seed can easily tell the difference between good and bad seed; and if they continue to use poor seed, or poor kinds of seed, the fault and loss are their own. But they who purchase their seed at the country seed stores have no certain means of telling whether the seed be good or bad, or of the right kind, but are obliged to rely on the honesty and fidelity of others; because the seed all comes done up in small papers, less than a small table spoonful in each, and is sold at five cents a paper, which, at that price, ought to be good seed, but frequently turns out to be bad. In this case, the individual loss in money is not much, but the loss in labour in preparing and manuring the ground and in sowing the seed, and the loss in time in waiting for the seed to vegetate till it is too late to sow again, greatly increase the amount of loss. These remarks apply particularly to garden seeds, and, with certain limitations, to all other kinds of seed. The best, the earliest, the ripest, should in every instance be selected; for it is

a law in the vegetable, as well as in the animal kingdom, that "like produces like," so that if we wish to secure the continuation of good crops, we must sow and plant good seed.

But other conditions are necessary to produce good crops beside the use of good seed of the right kind. There must be also a sufficient quantity of seed, neither too much nor too little; and it should be used at the proper time and in a proper manner. To tell exactly what this quantity is, in every instance, on different kinds of soil, and at different seasons of the year, whether sowed in the autumn or the spring, early or late, is no easy matter. It is sufficient to say, that a less quantity of seed is required to sow an acre, when sowed early, than when sowed late, because the seed has more time to vegetate, to take root, to spread over the ground, and to put forth additional shoots. It is believed that we do not generally sow enough seed of the cereal kinds, such as wheat, rye, oats, and barley. We do not sow as much as the English do, and they always have the larger crop. It is very evident that we do not sow grass seed enough, nor a sufficient variety of seed. This is especially the case on new land that has been recently cleared and burned over. If we do not sow enough seed on such land, the loss is very great; because the condition of the land is such that we cannot plough and sow again, but are obliged to let the land run to waste on account of the stumps and roots.

The case is somewhat different in planting corn and potatoes, because we generally use too much seed. When we plant a large but late kind of corn, we almost always use too much seed, and plant too near together; and the consequence is that in our climate the corn does not get ripe before it is overtaken by the frost. The smaller and earlier kinds of corn may be planted nearer together, and with more kernels in a hill. In planting potatoes we generally use too much seed, whether we plant the great or the small, the cut or the uncut; and, as a natural consequence, we have a large crop of small vines and of small potatoes. This is especially the case when we plant small potatoes without cutting, putting two or three in a hill. To obviate the necessity of using too much seed, I usually select the fairest and best potatoes, instead of the largest or smallest, and plant as early as our climate will admit. I cut the potatoes lengthwise, so as to divide the seed end, and put but one piece in a hill a foot and a half apart. I always plant them with the cut side up, and throw on them a spoonful of ground plaster to preserve the life and vigor of the potato. The juice or nutriment of the potato is necessary to the support of the young plant. This the plaster absorbs and preserves as it exudes from the cut potatoes. I afterwards threw upon each hill a handful of ashes; and, at the time of hoeing, I threw upon the vines of each hill another spoonful of plaster. And without using any manure, I never fail to have good potatoes, and perfectly free from the rot, when I plant early enough. All the earlier kinds of potatoes escape the rot entirely, because the tops are all dead before the season of the rot arrives.

DRILLING WHEAT.

A. Linton, of Chester county, Pa., makes the following remarks in the American Agriculturist:—

To say anything advocating the use of the drill in sowing wheat in this section of the country, would be as superfluous as to discuss the excellence of anthracite for fuel, or the utility of steam for a motive power. The use of the wheat drill is so nearly universal here, on all land where it can be used, that the sight of a field sown in the old-fashioned broadcast way is a rare occurrence.

The advantages of drilling wheat may be very briefly stated as follows: it distributes the seed more evenly over the ground than is generally done in broadcast sowing; the wheat is not so liable to be thrown out by the freezing and thawing that occurs here during the winter; the depth at which the seed is placed in the ground can be regulated to a certain extent, as the moisture or dryness of the soil may require, to insure its speedy germination. It takes less seed; the crops look better, and ripen more evenly than if sown in the old-fashioned way; and lastly, the use of the drill insures a more thorough preparation of the ground previous to seeding, being a good cultivator itself.

As to the points to be possessed by a good drill: It should apply the seed regularly and equally to the separate drill tubes. The grain, as it drops into them, should be plainly in view, that the operator may see at a glance that they are all working properly. It should not be liable to clog so as to prevent the regular flow of the seed. It should have an index to mark the quantity of ground sown, and a fixture enabling the user to regulate the amount of seed per acre. There should be a contrivance to raise all the drill tubes off the ground when turning; each should work independently of the others, and be so attached that its angle of inclination with the ground may be altered to regulate depth. The drills should be eight inches apart (some prefer nine), and eight in number. A good seed sower should be attached, so that grass-seed may be sown at the same time the wheat is.—These points are possessed by all drills of recent manufacture used here, though there are many different mechanical contrivances to secure these ends.

CULTIVATION OF ROOTS.

It is not easy to say precisely how far every farmer should engage in root-culture. It seems to be generally agreed that where the best hay is worth only eight to ten dollars a ton the substitution of roots for it is not expedient—the relative amount of nutriment in proportion to cost being the standard. But it does not follow that even in such a case, roots may not be used advantageously to a certain extent, especially in reference to promoting the health of animals. It is the practice of some good farmers in the interior, who generally have an abundance of the best hay, to give their cattle, sheep, and young horses a moderate feed of some kind of roots as often as twice a week during the winter season, and they say the

effect on the thrift of the stock is very obvious. It is generally believed that our severe winters form an obstacle to the profitable cultivation and feeding of roots, and it probably is so, yet the farmers of Canada pursue this system more extensively than is common among the farmers of the States. In the State of Maine, the Board of Agriculture at its late session passed a resolution, the purport of which was, that the extension of root-culture in the State would advance the interests of the farmers.

But in the neighbourhood of large cities hay is worth twice as much per ton as the prices we have named for the interior. Besides this, there is a demand in such localities for roots to be consumed by animals kept in the cities. Hence there is the inducement to cultivate both as a substitute for hay to some extent on the farm and as an article to be sold.

The question, what kind of roots shall be cultivated? will be answered differently, according to circumstances. Carrots are used in great quantities for feeding horses in the cities, and in some places they have for years been grown for sale in considerable quantities, and are deemed one of the most profitable crops—the prices being usually from ten to twelve dollars per ton. This is probably more than they are worth to consume at home, except to such an extent as they may be required for promoting the health of stock. But this point need not trouble the farmer so long as the crop can be sold at a satisfactory price.

But where the article is to be consumed on the farm, the question to be considered is, what will afford the most benefit in proportion to cost. Many farmers believe that the common flat or English turnip is preferable to any other root, in this view. Its proportion of nutriment is low compared with some other roots, but it is produced at much less cost. It can be grown as an after crop on grain and hay stubbles, or where early peas or potatoes grew; or the seed may be scattered among Indian corn at the last hoeing, and the crop left to itself till it is time to secure it for the winter. But it is eat turnips when first offered them, but will in most cases eat them after some trial. A man in this vicinity fed out several hundred bushels of flat turnips last winter to horses of various ages. Among them were two colts, a year old this spring. They were allowed half a peck of turnips each per day, and became very fond of them, kept in fine order, and grew rapidly. When the turnips were gone, it was impossible to keep up the condition of the colts without grain, though better hay was given.

The turnip, in different varieties, has been the principal root cultivated in England for stock feeding, until within a few years. It has latterly given place in some degree to other roots, chiefly on account of defects called "fingers and toes," which have much injured the tubers, and lessened the value of the crop. It is believed by those who have devoted most study to the subject, to be caused by an insect. Different varieties of the beet have been substituted for the turnip in field culture, the most common being that class which by the French is called mangel wurtzel, and by the English, for shortness, called mangolds. There is the

long—formerly called the scarcity beet, and root of scarcity—the red globe, the yellow globe, &c. The former generally produces most bulk to the same extent of land, but is less solid and does not keep as well as the globes. Either kind, however, will retain its valuable qualities longer than any kind of turnip. Not only is this true, but the beet root is actually improved in quality by several months' keeping. In the fall and first of winter it tends to scour cattle and to cause them to void too much urine. For these reasons the English and Scotch farmers prefer not to use it till towards spring, when it seems to have ripened, and to have lost in a great degree its cathartic and diuretic properties, and is a wholesome and nutritious food for stock. While turnips remain good, however, it is frequently the practice to mix them with beets in about equal quantities for cattle. In this way it is said the turnips counteract the unfavourable tendencies of the beets.

It is the general testimony in England and Scotland, that the mangel wurzel will produce more milk than any other root, but that the milk is not so rich as that produced by the Swedish turnip or ruta бага, and still less rich than that produced by the carrot. An important advantage in some instances in favour of the cultivation of the mangel wurzel, particularly the globe varieties, is, that it will grow better on heavy soil than the turnip or carrot.

The Swedish turnip is the variety chiefly cultivated in England for winter use. It is well known here. The improved white French, called also the sweet German, and white ruta-baga, has been cultivated in some parts of this country for several years. It is the sweetest and best turnip for the table that we have ever met with, and keeps better than any other except the old French. It seems to be well adapted to field culture, though it may not yield as well as the Swede. Persons who have grown it, state that it is as hardy as any kind, and that they prefer it as a stock turnip to any other; that when fed to milch cows it produces a large quantity of rich milk, not at all tainted by the turnip flavour.

The kohl-rabi, or cabbage turnip, has been introduced into this country, and of late years its cultivation here is rather increasing. It possesses some advantages over the turnip, such as growing better on dry soils and in dry seasons, and in being exempt from the defect of "fingers and toes." It also keeps better. It has been cultivated to considerable extent for several years by General Sutton, of Salem, and we have seen the bulbs in his barn-cellar in the month of May perfectly sound. Whether it is as nutritious as the Swedish turnip is not, perhaps, settled, but some who have tried it say that the kohl-rabi is less likely to impart an unpleasant flavour to the milk.

The parsnip deserves more attention than it has generally received in this country, both as an article of human diet and for stock-feeding. On deep rich soils it will produce more weight than the carrot, and is more easily cultivated. Cattle are very fond of it, and it produces rich and the finest butter. In the

island of Jersey, so famous for butter, the cows seldom receive anything but parsnips in addition to grass and hay. They are generally eaten raw by swine, which thrive rapidly on them. The crop has some advantages in regard to keeping; it may be dug in the fall or left in the ground all winter. The top should be cut off so closely that it will not sprout, and this will insure the keeping of the roots and the retention of their proper flavour till late in the spring. If the top is allowed to grow, the root becomes bitter, the centre hard, and the whole unwholesome or even poisonous.

IMPROVEMENT OF PASTURES.

Although we have repeatedly spoken on this subject, extended observation assures us that much may still be said, before the owners of pasture-lands in this section are fully aroused to the importance of improving them. The decline in the produce of pastures, and the difficulty of maintaining the amount of live stocks which farms formerly supported, is a frequent topic of remark. Yet much less is done in regard to remedying the difficulty, than might be expected.

What are the reasons for this apparent neglect? They are probably various. In some instances the owners have no capital, either in the shape of money or labor, to invest in improvements. In other instances the owners are in doubt as to any means of improvement which can be made remunerative. There are cases, undoubtedly, where it is difficult to decide as to the expediency of attempting any improvement. The practicability of rendering the land more productive is not doubted, but the question—Will it pay? cannot in all cases be answered affirmatively.

The result of a proper examination of the subject is, that the improvement of pastures will pay in some cases, and will not in others. How shall we decide this matter? And having settled on the lots where improvement is expedient, what course or courses of operation will be found best? A farmer of close observation can form an opinion, to some extent, in reference to the expediency of attempting the renovation of any particular piece of land. He will know by the character of the soil whether it is retentive of moisture, or whether its composition and texture will allow water to pass rapidly through and also exhale from the surface, thus rendering vegetation liable to suffer from drought, and carrying off the soluble elements of manure. Pitch, pine or shrub oak lands are seldom good for grass, and are generally worth more for the growth of wood than for anything else. The white pine or Scotch larch will often grow well on them by artificial planting, after the natural growth had been subdued. But there will be some tracts of land in regard to which it is more difficult to decide whether they will be more profitable in grass or wood, and the question may not be susceptible of actual settlement short of a practical trial with a small portion which shall fairly represent the whole.

Where improvement is decided on, it will be

impossible to say, in all cases, what would be the best or most economical means. In some cases it may be advisable to plough the land, and in others the conditions of the land as to stones may render this operation impracticable or too expensive. In some cases drainage is the thing most needed, and in others mere top-dressing with some fertilizer will be found to give the best results in proportion to the expense. A few experiments, fairly made, but on so limited a scale that the cost would be comparatively trifling, might afford a safe guide in regard to the improvement which could be most advantageously adopted.

The attention of the writer has lately been called to various tracts, the owners of which are desirous of improving them if an economical course can be clearly pointed out. A great portion of this land is so stony that ploughing it is out of the question. Most of it is grown up more or less to bushes, and a considerable portion is too wet, as shown by the growth of plants which only flourish where there is too much water for those of a more nutritious character.

The first object in these cases should be to ascertain whether the bushes can be killed and grass be made to grow in their place, at such a rate as to remunerate the owner for the expense. In reference to these it may be suggested that a small piece be taken to begin with: let the bushes be cut close to the ground, in August. Sow on one portion plaster, on another plaster and wood ashes, on another ashes alone and on another superphosphate of lime—noting the cost of each to a given extent of land. Several, if not all of the substances mentioned, will probably start the grass more or less. If the ground is naturally inclined to make a good sward,—as will be shown by those spots not covered with bushes,—the grasses will probably be so much invigorated by the manures, that their growth will check the starting of the sprouts where the bushes were cut. This result will also be aided by the feeding of the stock, which, as the grass will be rendered sweeter and more nutritious by the dressing, will feed it closely, at the same time cropping the tender sprouts, more or less, and by tramping the soil favor the growth of grass and hinder the spread of the bushes. It may be necessary to sow grass-seed in some places.

Two years will probably afford a pretty good indication as to the result of the operation. It may be necessary to repeat the cutting of the bushes, to some extent. The relative effect of the different fertilizers will be obvious, and the farmer can form an opinion whether the application of any of them, or if any what one, can be made profitable.

Much of the land to which allusion has been made as needing drainage, is the slopes of hills, not boggy, but good, solid land, requiring only to be relieved of the superfluous water in the soil and subsoil, to have the quantity of its herbage doubled or quadrupled. On such tracts, a few drains might be dug to the depth of not less than two and a half feet, laid with stones or tile, according to convenience, as either will answer so far as required to test the effects of drainage. If the soil is compact,

especially if there is a "ere pan," as is frequently the case, the change in its character will be comparatively slow requiring two or three year for drains to produce their full effects. But in this period the effect on the quantity and quality of the grass will indicate whether this operation the likely to pay or not.

SEAWEED AS MANURE.

A correspondent of the Mark-Lane Express makes the following remarks in regard to the value of seaweed as manure:

The value of seaweed as a manure is most appreciated in the Channel Islands. Many of the agriculturists there use no other manure. The best drift-weeds appear to be torn up from the Atlantic, as they are found chiefly on the western coasts in Guernsey and Jersey. It is computed that about 30,000 loads of weed are annually obtained from the rocks and bays of Guernsey and the adjacent small island of Heln, valued at 2s. per load. The quantity collected at Jersey is fully as much. A great deal of drift-weed finds its way up the Channel, and is washed in and out of the numerous harbors, and thrown on the flat coasts. Many thousands of tons of seaweed are deposited annually on the coast of Sussex, but a small portion of which is utilized. The agricultural produce of the Isle of Thanet is said to have been tripled by this use of this manure, and the farms on the Lothian coast let for 20s. or 30s. more rent per acre when the tenants have a right of way to the sea-coast, where the weed is thrown ashore. Drift-weed is largely used in Ireland as the only manure for the potato crop, which requires a considerable supply of potash. The residual seaweed from the iodine factories in France is highly valued as a manure, and constantly carried a distance of 30 miles from the factory. The agriculture in the Western Islands is also enriched by this manure, and some of the tangle is brought into Oban by fishermen in boats, and sold at 1s. per load. On the southern coast of Fife, it is laid on the stubble at the rate of 20 cart-loads an acre, and ploughed in; the clover crop never fails, and this is a crop requiring much phosphate of magnesia, an important of seaweed ash. In the Isle of Lewis, 20 tons of seaweed are considered ample for a Scotch acre. The marine algae are valuable because the salts contained in them destroy foul weeds, hence cultivated fields on the sea-coast are almost free from these noxious plants that infest the lands of the interior. Seaweed is used extensively for manure on the Cornish coast, particularly near Penzance, for the growth of early potatoes, and the land in consequence brings almost fabulous prices.

MULCHING.

But if abundance of grassy weeds, litter, stable manure, or similar matters, can be obtained, the best plan is to mulch the plants deeply for at least three feet every way from the stem. Of this process, A. J. Downing says:—"Covering the soil in summer is, in this country,

one of the most valuable aids to good cultivation ever put in practice. The best mode of doing this is, by what is technically called *mulching*. This consists in spreading over the surface of the ground, so far as the roots of the tree or plant extend beneath it, a layer of tan-bark, saw-dust, barn yard litter, straw, salt hay sea weed, or the like, of sufficient thickness to maintain, as nearly as possible, a uniform state of temperature and moisture for the roots. From an experience of some years, we do not hesitate to say that mulching the surface of the ground over newly-planted trees, is not only far better than any after-watering, but that, if the layer is thick enough to keep the surface cool, it renders water wholly unnecessary. In the case of bearing fruit trees, especially the more delicate kinds, as dwarf pears, apricots, etc., mulching not only precludes the necessity of stirring the soil, by preventing weeds from growing, but it conduces so much more to the health of the tree, and the size and ex-

cellence of the fruit than any other practice in horticulture, that the more intelligent growers in the United States now consider it indispensable in this climate.

In addition to these lucid directions, we would only say that before applying mulch of any kind to a young vine, it will always be advisable to raise the soil around the stem to the depth to which it is intended to lay the mulch, so as to prevent any of the latter from coming in contact with the plant, as in this case it might be productive of evil.

Laterals are small shoots which spring from the axils of the leaves (the point which they join the shoot). As these laterals absorb much of the nutriment which would otherwise go to the increase of the stem, they should be carefully pinched out after they have made one or two leaves. If removed before they have made some growth, the bud at their base is very apt to *push* as it is called, (that is, to grow,) which should be avoided, if possible.

BREEDER'S DEPARTMENT.

MONTHLY SUGGESTIONS.



Cattle.

Feed no more than you keep well. Give good bedding to all. Keep milch cows and fattening cattle still; they need little or no exercise. Young stock and working oxen should spend some hours daily in the air unless it is very stormy, but when stabled, should be warm and comfortable. Never feed on the ground, but in racks. Cattle kept in yards, (a poor practice at best) should have roomy and warm sheds. Provide, if you can, lumps of rock salt for cattle to lick when they please, otherwise salt them once a week. If you suspect lice, rub a little unguentum (mercurial ointment) mixed with lard, behind the horns, and tie up for some days. Feed roots finely sliced; turnips first, beets, mangels, and ruta bagas by and by. Beef animals need the assiduous care of the *owner* now more than at any other season.

Horses.

Keep well shod and sharp. Be very careful to blanket horses when they are warm. Give liberal bedding, and the best of care to the breeding mares, taking special care that they do not fall in slippery weather, if long with

foal. Break colts, and subdue fractious colts or other horses by the Rarey method, when there is a foot of soft snow on the ground. Feed carrots in small quantities, 4 quarts a day to all classes of horses.

Sheep.

If sheep have good shelter they "know enough to come in when it rains." Never expose them, give them the range of a good large yard—not of the open field—fold them nights, let the bucks run with the ewes now for June lambs. Give fattening sheep most careful attention. Watch the first symptoms of disease.

Sink drains, &c., are apt to freeze up—prevent it.

Swine.

Fat hogs should have been killed and packed or marketed last month. If that job is still on your hands have it done with at once. Keep growing pigs at work in the manure heap—and encourage activity with an occasional handful of corn. Give breeding sows warm nests, plenty of litter, and good feed, but not of a fattening character. Send sows to the boar for May pigs.

Poultry.

Give them warm, dry, sunny, well white-washed quarters, clean straw in the nests, a good feed of grain once a day, and once a day boiled and mashed potatoes and scraps from the table, with occasionally "scraps" from the trying pot too, and *unchilled water*, or a trough of running water to drink and you will not lack eggs. Keep an ash box in one corner always dry and dusty, and throw in fresh ashes or lime now and then.

Apiary.

Bees properly housed, need but little attention; an occasional examination to see that all is right may be made, going among them quietly that they be not unnecessarily disturbed. If mice or rats have found their way into the room, it may be known by the combs having been nibbled. Traps temptingly baited,

seem to be the best remedy. It would be dangerous to use poison to destroy them, as it might be communicated to the honey. Stocks standing in the open air, when secure from the mice may be covered with snow through all the severe weather. It will effectually protect the bees from frost. If the hive is only partially covered, or a little around the bottom, it should be removed, keeping the air passages free. Ice, snow, or dead bees often accumulate about the entrance and smother the bees. In severe weather, allow the sun to strike the hive. When just moderate enough to tempt the bees out, and cool enough to chill them before they return, shade the hive by setting a wide board before it. When the day is very fine, allow them to fly, except in case of new fallen snow. If the frost at any time leaves the hive, it may be raised, and all dead bees and filth brushed out. When all is right, do not disturb them in severe weather.

RULES FOR BREEDING.

The Editor of the *American Stock Journal* gives his readers, in the August number of that periodical, a valuable paper upon breeding. He first asserts that every breeder, whether for the market or for use, should *breed for a definite purpose*. This he adds does not prohibit judicious crossing of the stock you possess with that which possesses the qualities you desire to transmit. His third rule is, "always cross with pure blood on one side." On this head he says:

"The great error committed by the thoughtless and unskilful breeder is, that seeing that a first cross is often an improvement, he fancies that a second cross, or breeding by cross breeds, must also give the same result. It is a mathematical view on the subject, at least, to infer that if the first cross gives a half-blood, the progeny of two half-bloods should be half-bloods. But, practically, this does not seem to be the result, for, although the first cross usually partakes quite perceptibly of the characteristics of both parents, it not unfrequently happens that the progeny of half-breeds is devoid of all uniformity, and entirely unreliable. This is particularly observable in swine. A cross of pure Suffolk with any mixed breed, will usually give an even litter of half-breeds, but a further cross with half-breeds often gives a miscellaneous lot of animals of little value. The pure blood seems to improve the first generation, but to loose somewhat of its impressive power for the future. There is in all cross-breeds a propensity to *take back* to some pure stock, and it is not unlikely in the cases we have mentioned, the progeny is only a reproduction of some breed whose characteristics have lain dormant for years. To keep down these old qualities, and perpetuate those that are valuable, we should use always pure blood on one side. In this way the progeny becomes purer and purer, until, in a few generations no trace of the cross is observable. We understand that the same is true of the human races, to some extent at least. The child of a negro and white is a mulatto, and so long as one parent is of either race pure, the progeny

is healthy and strong, but the children of mulattoes are usually feeble and various in complexion, taking back more or less toward a pure race, and in a few generations of such crosses the race becomes extinct through barrenness or disease. We have in mind one instance in which a gentleman who had taken much pains to introduce the North Devons into his neighbourhood, reared a bull from a pure Devon bull and a three-quarter Devon cow, the other quarter being Short Horn blood. The calf had every mark of a full-blood Devon of the true mahogany color, but his progeny were almost invariably marked with white, and disappointed their owners who at that time considered no Devons of pure blood unless of a uniform dark red. A pure blood Devon bull of that color, usually gives his color to his progeny, by any cow of mixed breed.

IS THE PIG A GRAZIER.

In replying to this query, the *Maine Farmer* remarks that if there is any one animal that is omnivorous,—that is, one that will live upon everything, and anything—fish, flesh, grain, or grass, it is the pig. He is carnivorous, granivorous, and graminivorous. We know that he will live, grow, and thrive in a butcher's yard, where he can get nothing but flesh and blood. And to the question whether he is a grazier, we can answer, yes. We have known the hog to live the year round and keep in pretty good order on grass in summer and clover hay in winter. The farmers in the Madawaska district, also in other sections of this State, and indeed throughout the Western and Southern States, turn their hogs out to *graze* as regularly as they do their cattle. Some of them keep them during the winter all or in part on clover hay. Our neighbor Kezer, of Winthrop, used to feed his store hogs on clover hay, crumbled or pounded fine with a flail, and they thrived well upon it.

A writer in the *Country Gentleman* last February gave an account of some clover hay fed swine, that were found to be in good condition. "I have seen," says he, "twenty-five shoats (September pigs) the present winter, which have been fed on clover hay alone, and they are in good flesh; in fact they are in better condition than the average of pigs wintered without good warm shelter, and fed upon grain. The clover fed these pigs was cut on the 4th of July, and secured without a drop of rain upon it, and of course very nutritious. The pigs, in addition, are supplied with warm, comfortable quarters, and have at all times access to warm, spring water. "He also adds: "I once had a neighbor who owned a noted sow, to which he never fed a mouthful of grain during winter, but kept her in a yard with his cattle, and she ate with them the hay and thrived upon it."

Hogs will, however, thrive best on a variety diet, and oftener a supply of good corn meal is found to be the best in this variety, making them very thrifty; but corn is not absolutely necessary to keep them in good store order. Foiled Potatoes, well mashed up with a hand full of oil cake, will prove a capital diet.

WINTER MANAGEMENT OF BREEDING EWES'

Commencing with that breed that is best adapted to your locality and wants—first, every fall weed your flock by throwing out the poorest ewes, and fat them, replacing them with selections from your ewe lambs; in so doing you will annually raise the value of your flock to a very great per cent: and unless you can resist tempting prices for your best breeders, you will not succeed in your vocation.

Breeding ewes should be kept in open sheds facing the south and east, and at the same time be protected from the searching winds from the north and west.

Separate them into yards of 25 each of coarse wools—35 of middle or 50 of fine wool.

Feed not less than three times a day—twice a day with hay, and once with grain; grain in straw, or roots, according to your facilities.

I feed my ewes twice a day with good hay, and once with unthrashed oats—(the straw, after being picked over in racks, goes for bedding the sheep,) at the rate of an average of one pint per day through the winter, commencing with a gill or half pint, and gradually increasing it as the ewes near their time of lambing, at which time it should reach a pint or more, according to the size, age and condition of the ewes.

I do not believe it pays to thrash, and much less to grind oats for sheep, unless it be for a few days in spring, when first turned to grass.

Twice a week I omit the oats, and in its room feed roots, (but in excessively cold weather feed their usual oats,) thereby preventing the stretches, which disease is comparatively unknown in England, on account of turnip feeding.

Formerly I lost from one to three per cent. of my sheep every winter with this disease, by reason of confining them on dry feed, but latterly have not had a case.

Oats is the best grain for breeding ewes, as it develops the frame-work of the lamb, or in other words is a bone and muscle growing feed, while corn or oil meal is best to fat sheep; and such food would grow in the undeveloped lamb an undue amount of fat, in proportion to the frame-work or bone and muscle of the lamb.

Lambs from ewes excessively fed on fat-growing food, will be deficient in bone and muscle, and literally leaded with fat at the expense of bone, muscle and wool, and not possessed of sufficient strength to ever stand.

The complaint of oats fed to breeding ewes, as injurious to their lambs, is "more cry than wool."

An acquaintance feeds a bushel of oats per day through the winter to 27 ewes with good success. This spring he raised from 20 of them, 32 lambs. If he had fed the same amount (not of measure, but amount of nutriment,) in oil meal, I would venture to say not one of the lambs would ever have got up, they would have been so loaded with fat, with weak bone, and comparatively no wool.

Sheep will habituate themselves to stay where they are fed; so feed in dry weather in the yard, where they can get exercise, pure

air, and the sun. The latter is as necessary for the health of an animal as it is for a plant. In stormy weather feed in racks, either stationary around the ends and back side of the sheds, or movable ones in the centre.

Salt should be constantly kept before the sheep, in a box nailed to one corner of the inner side of the sheep-shed; and if your sheep are ticky mix sulphur at the proportion of one-third to two-thirds salt, but good feeding is a sure preventive. Ticks will not thrive on fat sheep.

Keep your breeding ewes well bedded with straw; and by all means remove the manure from the sheds as often as there is a thaw in the winter, as the ammonia from sheep, and especially of horse manure, is positively injurious to them, and though disease may not appear in the ewes, yet it will count on their lambs.

We would earnestly recommend feeding at regular intervals. Order and regularity is as beneficial to the lower animals as to man.

Especially feed the ewes well while the ram is serving, so as to start a vigorous germ, and keep up that feed; or the growing germ, instead of growing with their growth and strengthening with their strength, will, when dropped, through possessed of good size, be deficient in vigor and vitality.

Use none but strong and healthy rams of good age, avoiding, if practicable, a ram lamb or an aged ram; and feed him liberally on nourishing and bone and muscle producing feed, but not excessively on fat-producing feed.

Separate the ewe from the ram after being served. From 25 to 40 ewes is enough for each ram.

I know of a case last season, where one ram was permitted to run with 110 ewes; the last flock of 25 lost 36 per cent of their lambs—they had not strength enough to get up, though from ewes strong and in good condition.

We could mention a party in an adjoining county, whose spirit of improvement for purchasing imported South-Downs we heartily commend, but who the first season permitted his ram to serve 200 ewes, thereby producing a family of Downs deficient in size and vigor, leading parties to suppose such breeding to be a fair representation of this deservedly popular breed of sheep; thereby seriously injuring the breeding of Downs in that section and surroundings for the next generation.

Seed animals of all kinds should, if practicable, be acclimated before being used. Last year I rented a ram imported the same season, and not one of the 25 ewes he had access to, proved in lamb by him, though elsewhere he had proved himself a sure getter. We learn that quite a per centage of the mares of this vicinity, served last season by a seed horse not acclimated, proved not in foal, though he was reliable elsewhere.

If you wish to have large and strong ewes, do not breed from them till they are two years old.

By all means select the best rams you can find, even if your unprogressive neighbors laugh at what may seem to them extravagance

Remember the price you pay for a good ram is not what he is worth for mutton and wool, as estimated by an unprogressive farmer; but for the present and prospective good he is capable of producing in your flock, according to the amount of purity of blood, or purity of breed, which you wish to infuse into your flock.

OX TEAMS AND HORSE TEAMS.

The *Massachusetts Plowman* has been making a comparative estimate of the value of horses and oxen. We extract as follows:—

It is generally agreed that horses travel faster than oxen, and that on a farm consisting of plains and destitute of rocks, a pair of horses will do more on the plow and harrow than a pair of oxen. Horses will work longer than oxen; that is, farm horses will last to work till twenty years old, but oxen should not be kept half so long, though some work till they are fourteen. But after admitting so much, we may be allowed to say a word or two in favor of the practice of keeping oxen. And first, as to the cost of the animals. Oxen of equal weight with the horses are bought for one half price. Oxen are worth something after they are worn out in work—horses are not. Oxen are not half so liable to disease as horses are. An insurer will ask four fold more for insuring the health of horses than of oxen. The gear for oxen costs less by half than that of horses. A wooden yoke lasts longer than leather harness, and it is put on and off in half the time. One chain answers for two oxen, but two horses must have four. Oxen are more patient than horses, and will carry a more even yoke. They start a load better than horses, particularly in a snow path, where the runners stick to the snow. Oxen may be entrusted with hired men at less risk than horses. They are soon taught to draw the plow, and are driven by the plowman without any reins. We have not a large proportion of farms without rocks and stumps, and where the land is rocky there is no comparison between oxen and horses. In regard to cost of keeping, there would be but little difference if both were kept on the same food. But many of our farmers keep oxen through the winter on coarse hay, straw and husks, which would not keep horses alive. Our own oxen (half-blood Devon,) never have any but cheap hay, husks, &c., through the winter, though they labor much of the time. When April comes they are kept on good hay, and they learn the difference between cheap and costly living. Oxen of the right breed are very readily fattened, and their beef is better than that of cows or young cattle, and brings more in the market.

UNQUIET MILCH COWS.

One of the greatest errors in overcoming cows that are unquiet while being milked, is to whip, beat, kick and brawl at them. This is generally done, and the cow becomes afraid or angry, and instead of becoming better, grows worse. Milch cows cannot be whipped or terrified into standing quietly and gently during

milking. They dislike to be milked, for they know that hard words and hard blows always attend the operation. They dread to see the milker, as a little urchin dreads to see the birch rod in the hands of the angry pedagogue when he expects to see it applied to his back. A cow, kindly and properly treated, is pleased to see the milker, gladly awaits his or her approach, and submits with pleasure to the operation of being milked. Every one having experience with cows knows this to be true. But the cow is opposed to a change of milkers; she soon becomes attached to one person who performs the operation, and does not willingly and freely give down her milk to another person; therefore, have one regular milker to certain cows, and bear in mind if you change milkers it is at the expense of a loss of milk and of an injury to the cow. All animals are appreciative of kind treatment and resent abusive treatment. It is their nature or instinct to do this. Therefore, if you would have them gentle and quiet, treat them gently and kindly. See that those who milk them can control themselves, govern their passions, speak low and kindly under any provocation, and soon the cows will learn that they are not going to be abused, and will submit to the operation. Milking should be performed at regular hours, not varying fifteen minutes from one day to the other. No talking or laughing should be permitted at the time, and it should be done as speedily as possible.

DISEASE IN THE UDDER OF A COW.

One of my cows has what I conceive to be pox over her teats, which makes her quite furious when milked. It is fully three weeks since they were observed to be ill, and still there is little if any improvement in them. I have used melted hog's lard for anointing them with after milking. Could you suggest anything better, or say how long they are likely to be ill?—A constant Reader.

[The fact of the pox remaining for fully three weeks renders it unlikely that your cow has the true cow-pox or *variola vaccinae*. In this disease, which is by no means so common as is supposed, hard pimply swellings about the size of a pea are found about the base of the teats; they increase in size, and in three or four days become soft, and filled with an amber-coloured lymph, which is apt to escape when the animal is milked, and conveyed through the medium of the milker's hands, is thus transferred to healthy cows. This lymph, coming in contact with the abraded human skin produces the vaccine pock, so familiar on the arms of children, and occasionally seen on the hands of dairy people. The symptoms of the complaint show themselves in cows six or seven days after the contact of the contagious lymph, and at their worst about four days later, and in a fortnight are nearly gone—the vesicles by that time having discharged their contents, and the tender abraded surfaces thus exposed being covered with a brown protecting crust. Gentle milking, bathing before and after the operation, and patience are usually the only treatment necessary. As you give no description

of the appearance and progress of the so-called pox, it is difficult to know what the disease in question may be. Several varieties of spurious pox affect the cow, of which the worst is known as the "white pox" cause large blisters and ulcerations, and being highly contagious, spreads both amongst the cows and on the hands of the milkers. The appropriate remedies consist in cleanliness, careful milking, and the occasional application of some mild astringent lotion, such as ten grains of sulphate of zinc, or acetate of lead, to an ounce of water. Hard indurated knots, of a size varying from a pea to a walnut, appear sometimes about the teats, become very annoying, and tender, especially during milking. After an irregular interval they suppurate, but rarely spread to the hands of the milkers, and depend upon inflammation of the cutaneous follicles abundantly distributed about the base of the teats. In serious cases the teats and the udder are so painful that the milk must be removed by a milk syphon, and the inflammation allayed by occasional hot fomentations. The application of a little oil, or glycerine, will also soothe—especially if used before and after milking. And, in a later stage, when cracks, sores, or ulcers remain, some such astringent as that already advised may prove useful. This query has unfortunately been mislaid, and thus escaped reply, for several weeks.—*VER. ED.*]

INFLAMMATION OF THE BOWELS OF A MARE.

A mare belonging to me took suddenly ill, and died in five hours illness about a week ago. She was put out to grass, appeared in perfect health and spirits about seven o'clock in the morning, but had not been half an hour out when she took ill, lying down and rolling about, got very much blown up, or distended, with gas. I sent for the veterinary surgeon, and gave her the usual colic draft, applied hot cloths over the bowels for about an hour, afterwards applied a mustard blister, which did no good, gave physic along with oil and turpentine, and injections, all of which proved of no avail and she died. When opened the large bowels were very much inflamed. The inflammation was chiefly confined to the lining membrane. There was, however, very little food in any part of the canal, except the stomach, which was very full, but not the least inflamed. Can you account for the inflammation being greatest where the food was least, and absent where the canal was overfilled with food? Do you think that there were any other remedies that might have been serviceable. A Subscriber.

[Your case is interesting, but by no means uncommon, and illustrates well the disordering effects of strange and unsuitable food, especially when too freely indulged in. The early hour of seven, at which the mare was turned out, whilst the grass was wet, and perhaps covered with hoar frost, has doubtless also much to do with the fatal result. Every one knows that wet grass, and especially wet clover is extremely apt to pass into a state of fermentation, and arrest the digestive functions of horses as well as cattle. To avoid hoven the careful grazier never turns his cows out to clover or even grass until the dew is dissipated.

A few mouthfuls of the wet food, especially when the animals are hungry and unused to it, often suffice to derange. It is not easy to explain why an overloaded stomach produces, as it is so apt to do, inflammation of the mucous membrane of the larger intestines. It mostly depends upon what is termed a reflex nervous influence. The stomach and bowels are, in other words, supplied by nerves from the same centres; and thus connected, they sympathise with each other. Everything that could be devised appears to have been done for the patient. Your veterinarian sensibly abstained from bleeding, which, except at the very outset of such cases, is of little use, and when employed after a few hours illness only expedites the fatal issue. With purgatives given in solution, fifteen drops of tincture of aconite is often useful—a second dose being repeated in two hours. The hot cloths coming out of boiling water and applied over the belly constitute the best external stimulants.—*VER. ED.*]

MAKING BUTTER.

A lady friend of mine, who keeps her butter until it is one year old, for the use of her own family, gives me the following information in relation to her method of making it:—

The cream is never allowed to remain on the milk until the milk becomes curdled, nor in the jar after skimming, until it becomes bitter. The cream is kept in a stone vessel, and so is the butter. After churning, the butter is thoroughly worked over, then set away for a few hours, when it is again worked over with a hard-wood mallet made for the purpose, until the buttermilk is entirely worked out. It is salted to taste while making; then put it into jars so solid as to exclude the air as far as possible. Here are three very essential points in butter making: have the cream sweet, work out every particle of the buttermilk, and pack so as to exclude the air.

CHEESE FACTORIES.

It has generally been thought by farmers that their business was an exception to nearly all others, inasmuch as they could not concentrate capital and by a division of labor cheapen the cost of production of articles manufactured upon the farm. The first successful effort was made a few years ago, in the manufacture of cheese. Large cheese, and things being equal, has always commanded a readier market and brought a better price than small, as everything is large or small by comparison, a cheese weighing eighty pounds and upwards, is called a large cheese, from forty to eighty pounds, a small cheese.

It is found that a cheese dairy under about thirty cows does not, as a general thing, pay. There are, however, a great many farmers who cannot keep so large a number of cows with profit. To obviate the difficulty of a small number, some farmers in a neighborhood who had the conveniences for a cheese dairy, and an established reputation as successful manufacturers, would take the milk of surrounding dairies and thereby produce large and saleable

cheese, at about the same cost to the individual farmer for making his own, and bringing in market from one to two cents per pound more than the small cheese. Cheese factories, of a large capacity, have sprung up in the great dairy regions of the State during the past two years, and may now be ranked among the permanent institutions of the land.

I visited, not long since, the latest one established, and was exceedingly interested in its operations. It was the same one at which the monster cheeses were made, which were exhibited at the late State Fair. Stopping over at Rome, a kind friend took me into his buggy and drove over to the establishment, which is situated in the town of Marcy, in Oneida county.

The buildings consist of a milk-house and press-room, and a curing house. In the milk or curd-house there are five cheese-vats of the capacity of 400 gallons each, and the milk is gaged and curd scalded by means of steam generated in an upright boiler of the capacity for a two-horse engine, though I saw none attached. A large vat runs upon a railway to the press-room, and into this vat the curd is emptied from the scalding vats and cooled, and salted, and run thence to the presses, four of which are ranged on each side of the track.

The curing-house, where the cheese is cured and stored till sold, is a wooden building, 167 feet long, by 27 wide, and two stories high. It is tight boarded or ceiled by matched boards and battened. It is not lathed or plastered inside—though subsequent examination of a private dairy-house, and general observation, satisfies me that it would be a decided improvement to so finish the inside.

On the upper floor is arranged eight rows of benches for cheese running the whole length of the room. Below are but seven, as more room is required for some extra large cheeses. The arrangement for curing and turning the cheese is very simple and worthy the adoption of all cheese-makers. It is patented, I understand, and must be seen to be fully appreciated. It cannot be expensive, and where cheese of any considerable size are manufactured will pay well to be adopted.

At this establishment they have had the milk of 901 cows through the season, and when I was there, none of the cheeses, or but few of them had been sold, and the building contained 850, averaging 250 pounds each. Among them were six that averaged 1,000 pounds each, and ten that averaged 700 lbs. A more beautiful sight in the cheese line I never saw before. The cleanliness of the establishment, and the uniform size and perfect appearance of the cheese, owing to the careful manner in which it had been handled, showed the perfection of the system, and the beneficial results derived from this division of labor. The milk is brought in from a circle of about five miles, twice daily, morning and evening. It is measured and an account kept with each contributor of the quantity. The factory does all the work till the cheese is boxed and delivered to the boat or cars, and charges one cent per pound. Each contributor furnishes his share of hogs and pays a weekly price for their care, and when

meal or other food is bought, only the price it costs at the factory is charged. The cheese being so uniform in size and make, brings the highest price in market, and had been contracted to an English firm in London, at eleven cents per pound, and a chance at the size. Private dairies were selling at nine cents, and some factories at ten cents, but this seemed to have been so skilfully managed that they took the highest figures in the market.

Thus the *stockholders* gained nearly or quite two cents per pound on their cheese, over those who manufactured their own. The experiment has been so successful, and is looked upon with so much favor that throughout the cheese dairying region cheese factories will become the rule rather than the exception. Already several are preparing for the next spring; one of at least 1,000 cows has already been formed. I see no good reason why butter dairies might not imitate the same example, and carry their cream to a central point where it could be properly manufactured. The butter would bring a much higher price, and if properly made, command a ready market.

In the flush of milk they employed five men and six girls, and the highest number of gallons for any one day was 2,140, and they obtain a pound of cheese from one gallon of milk, a fact rather questioned till the season is closed and the whole amount of cheese sold and milk footed up—though there is no doubt as to the fact that the larger the cheese the less milk in proportion. I think the gentlemen who carry on the factory are MESSRS. TANNER & WILLIAMS.—P.

HINTS ON POULTRY-KEEPING.

In cold or damp weather give nourishing food, and plenty of it; while in moult, the birds can scarcely be too highly fed. Amateurs, who themselves look after the wants of their stock, can best judge of their requirements, and will prefer making their own arrangements regarding a dietary table.

Never feed in haste, but watch the peculiarities of taste in your flock, and minister to them. One fowl may starve while the others revel in luxury. As with children, their likes and dislikes must be studied; and no one kind of food forced upon them, to their disgust, and consequent loss of condition and beauty.

Where young stock, for early market or summer exhibition, is desired, the breeding yards should be made up not later than November.

Avoid breeding from fowls related to each other. It is a baneful system, and results in small, delicate offspring, which easily falls a prey to roup, leg weakness, and all the ills that chickenhood is heir to.

Amateurs, who have limited accommodation, should keep only a few first-rate fowls, say a Dorking cock and two hens, two Cochins and two Brahma pootra hens. These latter lay all winter, sit soon, and bring out Dorking chickens much earlier than the Dorking hens themselves, which are tardy sitters.

The Cochins and Brahma eggs, being dark in color, are easily distinguished from those of the Dorkings. I would advise the Cochins eggs to

be used in the household, and a few of the Brahmas to be set. A cross between it and the Dorking makes an excellent bird for the table.

A few choice birds can be kept in this way at very small cost; only one house is required, and that of moderate dimensions. If the fowls are confined during any part of the day, they must have a yard similar to that already described. If they have absolute freedom they find many means of sustenance for themselves in the open fields or surrounding shrubberies, and will be, in a great measure, independent of the provision commissariat. It is impossible to lay down exact rules as to feeding: experience is the safest guide.

Poultry, if penned up, with only an occasional run, live in complete dependence on the food given, which must always be regulated by circumstances. It must be borne in mind that high feeding is conducive to laying, and the eggs will always pay for the grain consumed, if the yearly average price is taken.—*The Hen-wife*, by Mrs. F. Blair.

EXPERIMENTING IN BEES.

Two objects were particularly desirable to obtain:

1. The greatest amount of honey. It is not an object to keep a large number of bees if lit-

tle honey is secured, and one colony giving 37 lbs. annually, is worth more than twenty giving none, but simply living from year to year, unless there is market for the bees themselves. But twenty swarms giving 37 lbs. each, would give for the trifling outlay quite a handsome sum; and a hundred colonies would afford a handsome income.

2. The honey secured should be the earliest gathered, and best from white clover. Honey from white clover is as much pleasanter than honey from buckwheat, as maple syrup is pleasanter than West India molasses, and in market is priced accordingly.

3. An increase of colonies by the will of the proprietor, at a time best calculated to subserve the foregoing objects.

Domestic Economy.

QUEEN'S CAKE.—One lb. flour, one lb. sugar, one-half lb. butter, one lb. raisins, one gill wine, one gill brandy, one gill cream, one oz. mace, and four eggs.

NUMBER CAKE.—One cup of butter, one cup of milk, three cups of sugar, four cups of flour, five cups of eggs, and one teaspoonful of saleratus.

SODA SPONGE CAKE.—Three eggs, one cup of sugar, one cup of flour, one table spoonful of cream, one teaspoonful of cream tartar, one half teaspoonful of soda.

ENGINEERING DEPARTMENT.

HINTS ON BUILDING.



IN the May number of the *Farmer* I gave a few hints in regard to buying farms, wherein I stated that it was much cheaper to buy a farm with good buildings, than to buy one with poor, or no buildings, and then erect them. I say so still—but as a large share of the farms for sale have poor buildings, it is evident that somebody must build them—therefore, a few hints on that subject may not be inappropriate.

As older people are presumed to know all about these things, I make these remarks for the benefit of young farmers, many of whom already have farms with poor buildings, and others are daily coming into possession of such, by inheritance or otherwise. If every farmer who builds a house had a little knowledge of architecture, it would save thousands of miles of unnecessary travel for the housewife, and many useless regrets in after years.

In the first place do not build until you are able to build a good house; by which I do not mean an expensive, fancy house, for such is sadly out of place on a farm, but a neat, tasty and substantial one. Many a man has mortgaged his farm to build a large, fine house, to eclipse his neighbor, and had the sheriff sell house, farm and all, to pay his debts. In planning your house, keep this old saw in view, "A

little house well filled," &c., and then plan your house according to your needs, as a great deal of spare room in a farm-house is so much wanted. Before resolving to build, get some trusty house-builder to make an estimate of the cost of the house such as you require, then add as much more to it, and if your pile of money corresponds with that, go ahead.

In planning a house, convenience should be the ruling idea, and such an arrangement of the rooms as will permit the doing the most work with the least travel. The saving of twenty-five or fifty steps a day amounts to a great deal in a life time, and may add some years to the life of the house-keeper, and make her path through life much smoother. It is very much the fashion, now-a-days, to build a large house, and then build a small place, off back out of sight of the highway, to live in. Now, then, as the kitchen, or living-room, is the one the family occupies three-fourths of the time, it should be situated in the pleasantest part of the house, if possible. As the parlor is seldom used, except when we have company to entertain, it matters but little where it is placed, if it does not interfere with the arrangement of the other rooms.

One thing beware of, viz, small bedrooms. All rooms used for sleeping apartments should be large and airy. For this reason the chambers should be up square, and not low and sloping, as they are in all story and a half houses. It costs but little more to have the posts long enough to make the chambers square at the top, and the rooms are worth five times

as much as the old-fashioned, low chambers.

The pantry should be large enough to keep flour, meal and such things in, instead of keeping them in some out-building, or in the chambers, as most people used to do, thereby making a vast amount of unnecessary travel every time any of those articles are wanted for use. The cellar should be proof against three things: viz., rats and mice, frost and water. In order to guard against the first and last, after the cellar is dug, and before the wall is started, dig a trench one foot deep, and the width of the wall directly under where the wall is to stand, and fill it with powdered stone, and on this commence the wall, which should be lain in mortar from the bottom. To guard against frost, leave a small space in the centre of the wall for three feet from the top in which no mortar is put, and leave no stone reach through the wall in this three feet, and frost will not be very apt to get in.

The house should be located as near the well, or spring, as possible, or where the water can be brought near, or into the house.

No man ought to build a house without at the same time building a cistern. If he builds it at the same time he does the house, he is sure of it, and it will not cost as much as it would to make a separate job of it; and what is still worse, if he puts it off, it is very doubtful whether he ever has it. The best place for a cistern is in one corner of the cellar, as it requires no protection from frost, and no separate drain for the waste water, as it can go off in the cellar drain.

Especial attention should be given to the floors, in order to have them as smooth as possible, for the reason that most farm-house floors have to be mopped more or less, and every farmer's wife can tell how much easier a smooth floor mops than a rough one. Avoid all fancy mouldings in finishing off, as every crease and crevice are receptacles for dust and dirt, and increase the labour of cleaning the wood-work. Use none but seasoned lumber, and no poor material of any kind as a good article is always the cheapest, and then employ good workmen, keep your house painted, and if an accident befalls it, you will never have to build another house, unless you should live longer than most mankind. Another time I may speak of out-buildings. AGRICULTURIST.

HAVE YOU A MANURE SHED?

You have often seen remarks in the papers of the superior quality of manure made under cover. Has the thought occurred to you that you might make this article as well as your neighbors? You might easily run up a cheap shed, covered with boards or slabs, on each side of the barnyard. If you had these sheds, most of the manure would be dropped under them, and all the muck deposited there would be turned to the best account. There are few cattle that will not prefer a shed to the open air in stormy weather, even in the summer. If you have not put up these sheds, now is a good time to get the timber for them. By all means build a good substantial shed, if you have the timber upon your farm. It is not a very ex-

pensive affair when you are about it. The wood you have for the drawing. The bill for sawing will not be very heavy. The saw mill and shingles are not far distant. A few pounds of nails, and the carpenter for a day or two with your own help, will complete the job. Can't afford it? Well, dispense with the carpenter, then, and the nails, and build cheaper still. You can at least get some long poles for the ridge, and a good many shorter ones for the rafters, and make a skeleton roof. Now cover this with refuse straw or sea weed, thick enough to shed the rain, and you have a shed a great deal better than none.

A friend of ours has tried the difference the past season between manure made under cover and that made in the open yard. He spread equal quantities on equal areas of ground, and planted with corn. That there might be no unfairness he followed up the two plots of ground with the same cultivation. He did not have to wait until harvest to make up his mind that sheltered manure was good economy. The corn which he put in the manure made under cover was far more luxuriant to look upon, came on faster, and matured earlier, and the yield was about one-third more of good, sound corn.

He has since put up two manure sheds, and we think has begun a course of improvement that will not end with sheds. They are cheap affairs, but a good beginning. They will give him twenty cords of undiluted manure, instead of the same amount of washed and leached manure he has been accustomed to put on his land. He has begun to use muck and to gather up the droppings in the yard every morning, and put them under cover. The manure sheds will pay good interest. Let them be put up.

A \$3,000 SMOKE HOUSE,

We met an intelligent and economical gentleman at the State Fair at Rochester, who had just built a *three thousand dollar smoke house!* He was induced to do so for the following reasons: Finding, many years ago, that the habit of smoking tobacco was injuring his health, he discontinued the practice, although it cost him many a severe effort. He was subsequently encouraged, however, at the pecuniary saying it was constantly affecting. By an accurate arithmetical calculation, he ascertained that the daily cost of segars with annual interest, and compound interest, that is, with the interest, placed out again on interest would amount to over three thousand dollars in twenty years. Having already effected this saving, he concluded to build a handsome dwelling. His friends often inquiring, "How can you afford to build so good a house," he invariably answered, "This is my *smoke-house*—the amount I have saved in not puffing \$3,000 to the winds."

STICKING DOORS.

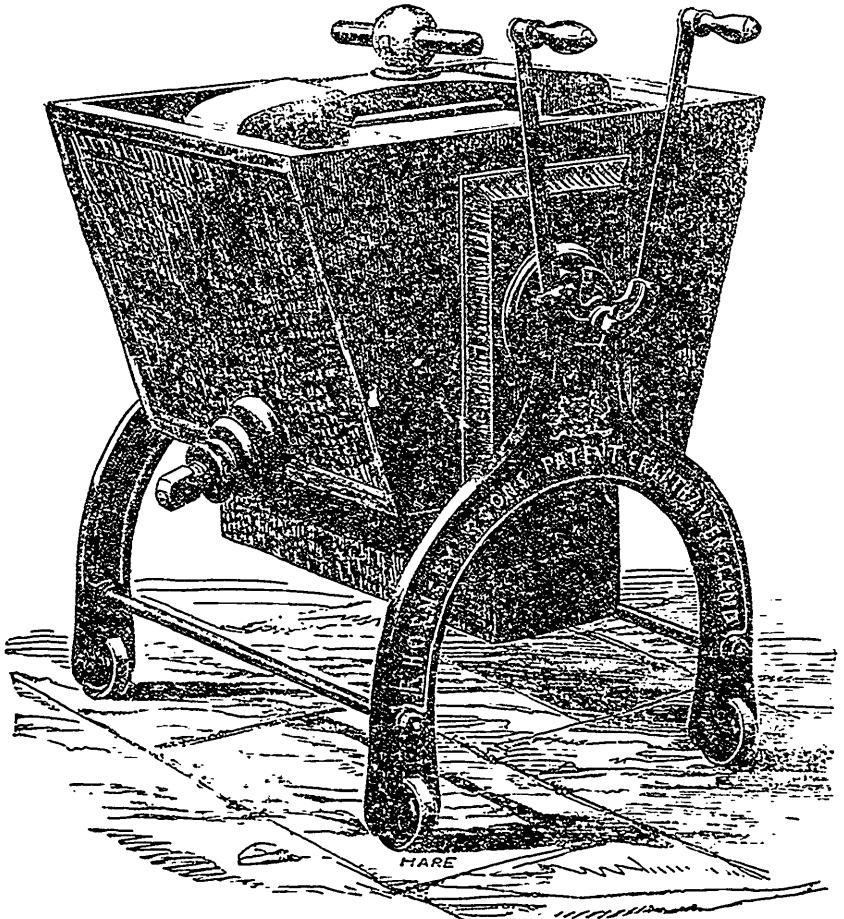
In the Co GENY for Sept 11th, "SUBSCRIBER" gives a remedy for *sticking doors*, which he thinks an improvement upon Small Hints' plan.

I think I can offer a suggestion that will be an improvement on both plans. Doors usually fit well enough when they are first put up, and if, in the course of their existence, they do stick, it is in ninety-one cases out of a hundred, the effect of sagging caused by the hinges wearing down.

Now if the owner of the offending door will get the tinman that he deals with, to cut some little washers, either of tin or of sheet iron, and put one or more of them on the rod that runs through the hinges, so as to make up for the loss by wearing, he will have cured the defect in the door without having taken all the paint off the edge.

IMPROVED PATENT WASHING, RINGING, AND MANGLING MACHINE.

Having for some time been satisfied that a really simple and effective Washing Machine was amongst the first domestic wants of the community, have devoted considerable attention to the subject, R. HORNSBY & SONS, have at length succeeded in perfecting a machine which they can unhesitatingly assert to be the best and most efficient, to wash thoroughly, quickly, without injury to the linen, with the least possible quantity of water, and at the least cost for fuel.



1.—Hornsby & Sons' Improved Patent Washing Machine.

The following is a brief description of the principle and action of the Machine.

The Washing Machine, which may be fitted either with or without the wringing and mangling apparatus, consists of a tub or vessel, of well seasoned wood, and first class workmanship, the inside of which is covered with ribs, and at the bottom of which is a Patented Hollow Bridge. The clothes, soap, and water, are prepared in the usual way and when the vessel

is charged it is swung backwards and forwards in such a manner as to bring the top quite perpendicular at every movement. By the action, some of the air and water rush to and fro between the spaces of the bridge, and inflate or spread the clothes, which are also rubbed against the bridge by the water pressing over and through them; the process being similar to that of hand-washing, viz.—rubbing the clothes both in and out of the water, submerging them

and by a sort of syringing action, removing every particle of dirt. On opening the vessel, the clothes are never found either rolled into a

mass or swimming on the surface, but always thoroughly open to the action of the water, which passes through the fabric of the clothes.

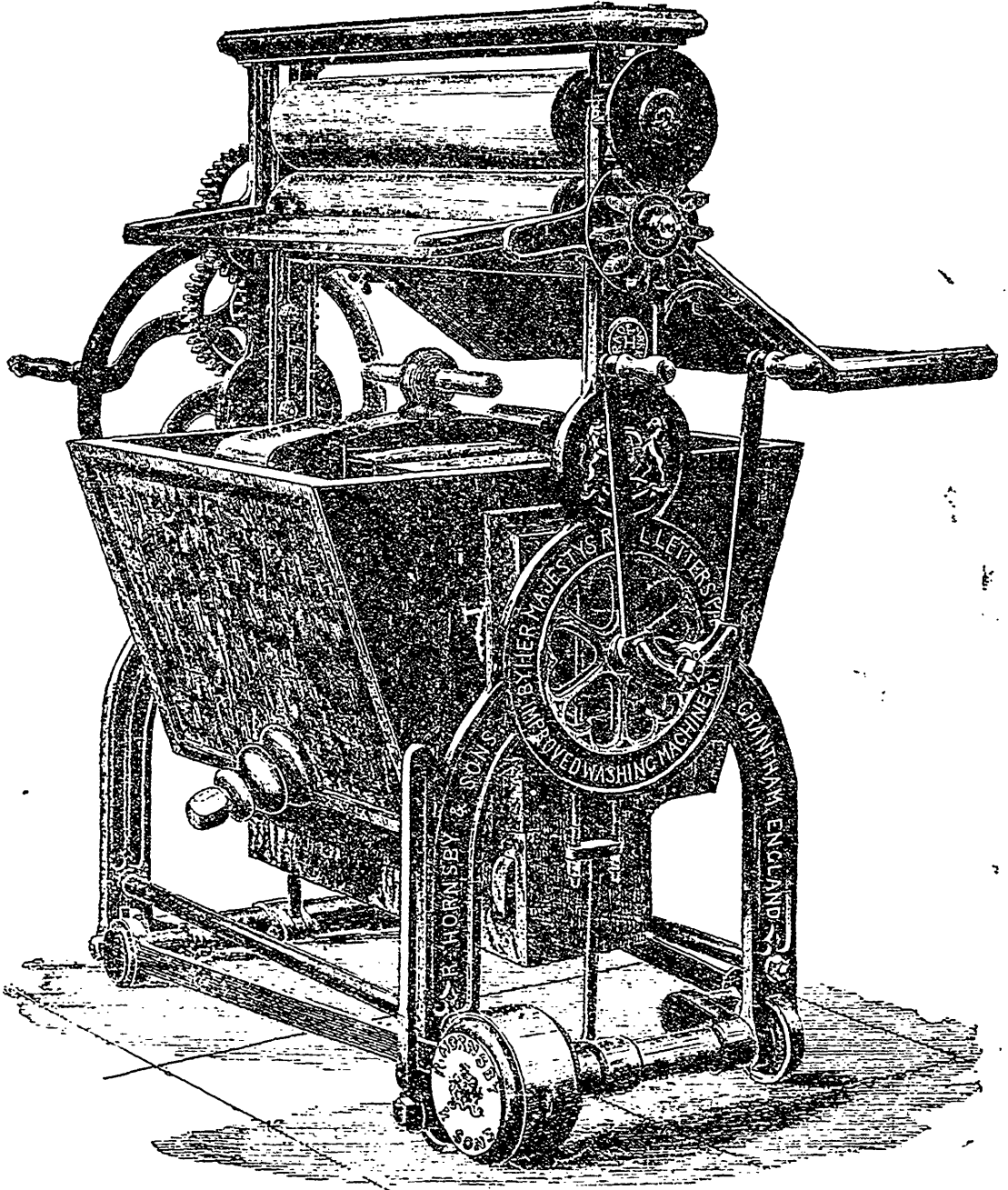


Fig. 2.—Hornsby & Sons' Improved Patent Washing, Wringing, and Eangling Machine, with Patent Self-Acting Lever and Weights.

The water is used as hot as possible; and as the tight lid confines the steam, clothes are subject to a thorough boiling and steaming during the washing operation. The Machine is

well got up, is very compact and portable, as well as convenient to use, and easy to work.

These Machines have been severely tested for a length of time, both at Hotels and in

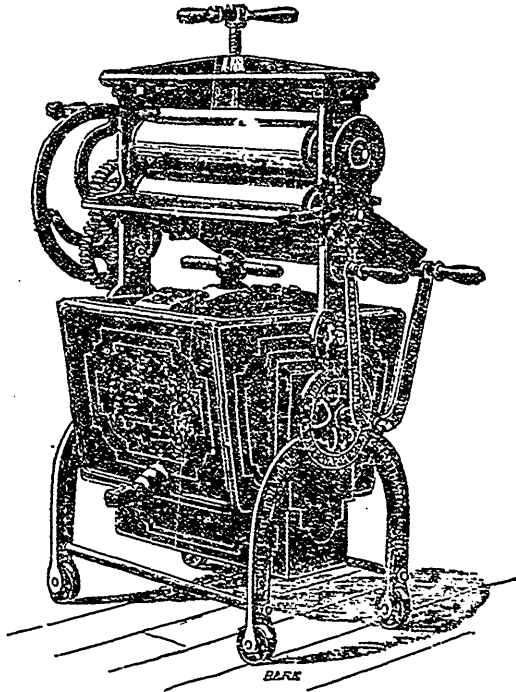
Private Families, and the results are such as to warrant R. H. and Sons insaying that nothing of more general utility has for a long time been brought before the public. The beautiful cleanliness and improved appearance of the linen when washed by them—the quickness with which a large and heavy wash can be got through without discomfort or annoyance—the great saving in the fire required—and the fact that articles, which the most careful hand washing would injure, are washed with perfect safety, and that clothes of every kind receive no damage in the process—are sufficient evidence that their Machine supplies the long-wanted desideratum, and must be adopted by almost every class.

The principal advantages of R. H. & Sons' Washing Machine may be briefly summed up as follows:—

First.—*It is thoroughly effective and perfect*

in operation. The Machine is really what it professes to be, and not a mere vessel in which the linen is swum, and therefore scarcely washed at all. This efficiency is attained by the improved form of the tub or vessel—the construction of the Patent Hollow Bridge, as before described, and by their Patent Double Handle, by which the machine is worked. This Handle—which will be seen in the engraving—gives TWICE THE MOTION to the Machine that is obtained in any other; and produces so violent a cleansing action, that the linen is thoroughly washed in an incredibly short time, without hand-rubbing.

Second.—*It is simple,* containing nothing that can by any possibility injure the most delicate article—requiring no management, and easily worked. The disadvantage of some Machines, in which it necessary to handle the linen, or to use some instrument to bring it



3.—Hornsby & Sons' Improved Patent Washing, Wringing, and Mangling Machine, with Improved Patent Wood Spring.

under the action of squeezing surfaces, or other appliances, and necessitating an open vessel, is entirely avoided. R. H. and Sons Machine requires only that the clothes shall be put into it and worked as directed without being touched until their removal. It is perfectly closed in, and steam tight (which is quite essential in a Washing Machine), so as to purify, bleach, and cleanse the clothes during the process.

Third.—*It is compact in arrangement,* occupying less room than any other—having the washing vessel placed immediately under the rollers, so that the water, in wringing, falls directly into it, and large articles are drawn out and

wrung without labour in lifting from the vessel to the rollers.

Fourth.—*It is fitted with an Improved Tub,* to be used in blueing or rinsing, which offers many advantages over similar appliances offered to the public. When performing either of the above operations, the lid of the washing vessel is removed and this tub fitted in its place under the rollers, to receive the blue or rinsing water which can then be taken away without interfering with the other portion of the Machine. It is of sufficient size to answer every purpose; does not form part of or lessen the size of the washing vessel; will be found useful for a variety of domestic purposes; and

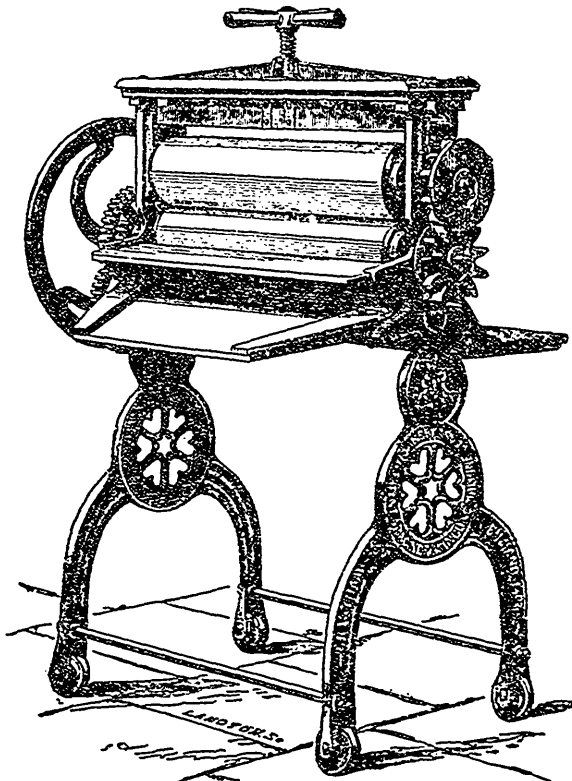
FIFTH.—It is fitted with an Improved Patent Lid, which prevents leakage when in motion, and, confining the air, steam, and water, gives them a full and very important action on the clothes.

SIXTH.—It is remarkably easy to work, having their Improved Patent Pendulous Motion, by which the tub is swung from side to side in working, with the least amount of power. The patent balance box underneath the tub is partly filled with sand, and assists the motion, causing the Machine to be readily worked by any ordinary domestic servant.

SEVENTH.—It is of first-class material and workmanship; every portion of both wood and iron work is as good as can be made; the rollers are well-seasoned sycamore or beech,

brass capped, and every part is finished with due regard to strength and durability.

By its Use, the whole of the washing of any family may be done without inconvenience, in an exceedingly short space of time, without extra assistance. A GREAT SAVING in fuel and in soap will be effected. The linen will be greatly improved by the bleaching action of the Machine, and will wear much longer than when subjected to the destructive friction of hand-rubbing. When the Combined Machine is used, the wear of the clothes will also be enhanced by the wringing being effected without the usual injury to the fabric; and the entire performance will be such as to render it an essential in every well-regulated and economically managed family.



4.—Hornsby & Sons' Improved Portable Wringing and Machine, with Patented Wood Spring.

Zinc Wash for Rooms.

Mix oxide of zinc with common size and apply it with a brush, like lime white-wash, to the ceiling of a room. After this apply a wash, in the same manner, of the chloride of zinc, which will combine with the oxide and form a smooth cement with a shining surface.

A NOVEL RAT-TRAP.

Take a mackerel or other barrel and fill it about one-half with water. Place a log on end in the water so that one end of it may just remain above the surface. Make the lid of the barrel a little too small to fit, and suspend it by two pins to the inside of the top of the bar-

rel, so that it will hang as if on a pivot and easily tip by touching either side. On this head, thus suspended, secure a piece of savoury meat. The first rat that scents it will, to get the meat, leap on the head of the barrel, which will tip, precipitating him into the water, and resume its position. The rat in the water will swim to the log, get on the end of it, and squeal vigorously. His cries will bring other rats, all of whom will be tilted into the water, and all of them fight for the only dry spot in it, viz: the end of the log. As only one rat can hold it, the victor will drown all the rest, and can in the morning be drowned himself. As many as twenty rats have been caught in one night.

TRIAL OF MOWING MACHINES AT FISHKILL.

A trial of mowing machines was held on Tuesday, June 17, on the farm of Isaac E. Cotheal, Esq., at Fishkill Village, about six miles east of Fishkill Station, on Hudson River railroad, at which eleven manufacturers of as many different machines, were present—also a very large concourse of farmers from the surrounding country. Taken altogether, the scene presented the appearance of a public holiday in field and village, as it really was.

The trial commenced at 10 o'clock, a. m., by drawing and staking off lots of about one-fourth of an acre for each machine, when each in turn cut their allotted portion of the field under the inspection of a local committee of arrangements, as well as that of several hundred farmers, all of whom seemed determined to inspect the work done and the working of the several machines, to their own satisfaction, which they did most thoroughly. The grass was quite light in portions of the field, and all was soft and tender; a portion had been overflowed by recent freshets, and on the whole it was such a test as tried well the machines. Each machine was required to do clean and good work, and which, without exception, was satisfactorily done, in that respect, to all present, there being little difference between the stubble left by all the machines, which difference seemed to be a little unevenness or irregularity in height of stubble, caused by the cutting works of some two or three machines vibrating up and down from the unevenness of the ground, and their stiff construction, while those which were hinged or jointed, so as to follow the surface of the ground, were free from such objections.

The machines were also thoroughly tested by driving fast and slow, and stopping and starting in the grass, and none failed to perform satisfactorily. Indeed, among all the numerous trials which have come under my observation this one embraced more meritorious and less objectionable machines than on any previous occasion.

These trials, to be understood and useful to those not present, should be managed and reported with the greatest care, so as to give a correct idea of the general character of the construction of each machine, as well as the capacity and price of the same, together with the dynamometrical results, and the last especially in an intelligible manner, which has never been attempted but once or twice to our recollection—once by the New York State Agricultural Society, at Geneva, 1852, and the United States Agricultural Society, at Syracuse, in 1857. The committee of arrangements at this trial deemed it inexpedient to make any formal report or awards as to superiority, as it would chiefly depend upon the differences of mechanical construction, embracing simplicity, durability, cost, portability, convenience of operation and repairs, and as a majority of them were so nearly balanced in their claims on these points of consideration, it must necessarily involve much labour and time for trials, and more than was then practicable to enable them to do justice to either themselves, the manufacturers, or the public, and therefore

they left only the dynamometer committee to make a report upon the drafts of the several machines, a copy of which is given below.

In order to appreciate the use or the results of a Dynamometer trial, it is *not sufficient* to report the one column of actual drafts indicated, as is usually done—indeed that would lead astray more than without its use altogether, especially where a spring instrument is used for the purpose, as was the case in this trial. The truthfulness of this will appear when it is considered that the draft indicated by the instrument is but the results of the attending circumstances, combining the working qualities of the mechanism of the machine, the capacity or width of the same, together with the speed of the machine while cutting. In short it is the result of two things—first the mechanical perfection and adaptation to the purpose, and secondly the amount

Result of the Trial of Mowing Machines at Fishkill Village, N. Y.

Name of Machine.	No. of Machine.	Length of swath cut.	Pl. In.	Width of Swath.	Time of cutting.	Draft in pounds.	Travel of horses per minute.	Square feet cut per minute.	Mechanical horse-power expended while cutting.	Mechanical horse-power expended per acre.	Mechanical horse-power expended for ten hours.	Time required to cut an acre.	M. S. A. P.	Acres per day of ten hours.	Pt.
Wood's Hoosic Falls, N. Y.	1	330	4	4	1.40	218	108	782	1.31	71.9	781	55	10	185	223
Buckeye, Poughkeepsie.	2	330	4	1 1/2	1.23	209	238	6 3/4	1.43	86.5	865	34	16	13	225
Union, Worcester, Mass.	3	330	4	4	1.27	247	232	9 3/4	1.74	81.5	1046	40	38	12	216
Gleaner, Poughkeepsie.	4	330	4	6	1.17	283	205	6 1/2	2.63	83	1529	32	45	18	60
Van Anden, Poughkeepsie.	5	330	4	6	1.15	295	234	1108	2.36	88.1	1410	37	21	16	9
Ohio, Auburn, N. Y.	6	330	4	8	1.18	245	204	1058	1.96	80.8	1176	41	40	14	87
Monitor, Hall's, Poughkeepsie.	7	330	4	8	1.18	247	250	8 1/2	1.96	80.8	1176	41	40	16	67
Union, Gales, Poughkeepsie	8	330	4	6	1.27	225	227	1064	1.69	71.8	1013	36	42	14	14
Monton, Brooklyn.	9	330	4	6	1.60	249	223	810	1.69	71.8	1013	36	42	11	33
Hubbard's, Troy.	10	330	4	6	1.23	193	180	720	1.23	65.6	720	64	30	11	12
Paine's, Troy.	11	330	4	6	1.30	193	180	720	1.23	65.6	720	64	30	9	10
						193	220	900	1.23	65.6	720	64	30	11	222

of work done. If one machine is moved at a higher velocity than another, it necessarily does more work, and consequently requires more propelling force to keep it in motion than the same width cut at a slower velocity. Again, a wider cutting machine will do more work than a narrow one, and require more force to keep it in motion; therefore, in reporting upon this portion of a trial, the cau-

ses and results are as absolutely requisite as the simple item of draft of the machine, to enable any understanding, or to make any comparison, and with that purpose the annexed table was made by the Dynamometer Committee.

For all trials to be mathematically correct, and to show their relative capacity and the force required, each machine should be drawn by one team, or with the same speed—which was not done at the above trial. A machine may move too slow to show its working capacity and draft—while if moved too fast the reverse is the result.

Nos. 1, 2, 3, 4, 5, 8, and 11, are forward cutting machines. Nos. 6, 7, 9, and 10 are back or rear cutting machines.

WHAT DO WE DRAIN FOR?

This question will be answered very differently by different farmers. The most common idea is that the object in draining is to carry off the surplus water. This idea is good enough as far as it goes, but it is but one of the many benefits derived from draining.

If a lighted candle be held at the outlet of a good tile drain, we will find that there is a very strong draught inward, and that the strength of this draught is proportionate to the length of the drain. Here then is a supply of air rushing up the drain, but what becomes of it? It passes out through the soil to the roots of the plants growing thereon. This supply of air from below causes the roots to run deep, and thus enables the plants to withstand a dry season.

It is a well established fact that any soil is greatly benefited by water passing through it; hence the benefit of rain. On drained land, the rain-water, instead of running off and washing away the soil, sinks readily, and as it opens a passage through the soil is followed by the air from above.

It seems to be a fixed idea that "it will not pay" to drain land on which the water does not stand after a rain; but in England, where draining has reached a high state of perfection, it has been found that any land may be much benefited by draining. In addition to the above mentioned benefits, the following may be enumerated:

It prevents the winter-killing of the crops, such as wheat and grass. Wheat and grass are often killed or injured during the winter by the water in the soil freezing and causing it to expand. This tears and injures the roots of the plants. Good drainage removes this water, and thus obviates the evil.

Draining is equivalent to lengthening the season, for the soil warms sooner in the spring, and does not part with its heat so soon in the autumn as undrained land. Thus, drained land can be worked without injury much sooner in the spring and much sooner after a wet spell, than undrained land.

We know that when water evaporates, it carries off a large amount of heat. In undrained land a large proportion of the water at or near the surface is evaporated, and robs the soil of a large amount of heat which should benefit the

crop. Where the land is drained, this water, instead of being evaporated near the surface is carried down through the soil, and discharged by the drain. After a shower, the water on the surface sinks to the drains, and is soon carried off, but by its passage through the soil, it opens the pores of the soil, and as soon as the water is gone, they are filled with air from the surface and from the drain. All soil contains various metallic salts which are injurious to vegetation; the air by coming in contact with these converts them into *oxides* which are either beneficial to or do not affect vegetation. The air has the power of decomposing any vegetable matter it may meet in its passage through the soil. A warm rain falling on a drained soil sinks through, and imparts its warmth to the soil.

Some would be disposed to think that it cannot be a good plan to remove the water from a dry soil during dry weather, but practice has proved that drained soils suffer much less from long-continued drouth than those which are not drained. This is easily accounted for: the air which passes along the drain is charged with a large amount of moisture, which it imparts to the soil while passing through it.

Many soils contain a portion of the sulphate of iron; the air coming in contact with this compound will impart to it an additional proportion of oxygen, and thus forms a peroxide of iron. The sulphate is injurious to vegetation, and the peroxide healthful.

It has been found by repeated experiments, made in England, that the cost of judicious draining is repaid every three or four years. The average cost of draining English land is about \$30 per acre. If this should increase the wheat crop but five bushels per acre, it would give an interest of 25 per cent. on the cost, or it would repay the outlay in four years. Draining is very beneficial in the North, where the seasons are short; for a crop on drained land will ripen ten or fourteen days sooner than one on undrained land. Another benefit of draining is improved health of the country; which is a very important consideration with AGRICULTURE, in *Germantown Telegraph*.

ECONOMY OF FENCES.

The question of fencing is attracting considerable attention. It is thought in some quarters that our cultivated fields are too much cut up, and that the expense of fences might be diminished one-half. In many localities the fences are built chiefly to get rid of the stone, and many a farm is weighed down with huge double wall, which would be useful only in case of invasion. In cold, bleak and windy situations, fences serve as a shelter and are thus a benefit to the crop. On level farms, where machines can be used, the fewer fences the better; as to the stones, better put them under than above ground. There are few farms that would not be benefited by the drainage effected by casting the stones regularly into ditches opened for the purpose each year as it became necessary to haul them off. These of course are not equal to tile drains, but they serve two purposes and are very useful. Probably half the stone fences on many farms had

better be sunk in this way. We know of scores of acres of wet swampy land, always late because wet, and of endless runs, where huge piles of stone lay in unsightly confusion on the borders and all about. If the ground were thoroughly ditched and the stones buried out of sight, there would be a fine mowing field, producing goods crops every year, and the land would be transformed in its nature. Where fences have to be made of wood, the farmer is not so likely to chop his fields too small: but even in this case it is well for him to consider if he cannot get along with less fencing. Often a division is made from pure fancy, with no necessity. When it comes to mending, consider if you cannot use a part to patch the rest. The two systems are exemplified in England and on the Continent. The fields in the former place are cut into small lots by hedges and ditches; in the latter vast expanses are without fences or other separation, it being cheaper to hire herdsmen or boys to tend cattle or sheep than to build fences. The subject is of some importance, especially when thought of in connection with drainage.

MAKING BOARD FENCES.

Board fences, and those of post and rails, are gradually displacing, in large portions of the country, the old crooked or worn fences. As the old rails decay they are removed and used for fire wood, and the remaining ones shortened or closed together, giving place to the new board fences, a portion of which are built yearly by many farmers to supply the deficiency. A common well made board fence, with durable posts, twenty to twenty-five years; but if whitewashed once in three to five years with fresh lime, and when the weather is dry and warm, the boards would probably continue at least thirty-five years. The posts will last more than twice as long in a gravelly soil with a good natural underdrainage, as in a heavy, wet soil with no drainage below. The amount of timber used in an old worm fence is about two and a half or three times as much as in a good strong board fence. That is, 1000 feet of boards and 50 posts will make at least 20 rods while 300 rails and about 90 stakes are needed for the same length of worm fence. The relative quantity will, of course, vary with the size of the rails on the one hand, and of the posts and amount of boards used on the other—but the above is nearly the average.

Our present remarks do not embrace the building of stone walls, the best of all farm fences where they can be obtained, and hedges a cheap necessity in other places. As much board fence is made in autumn, perhaps some of the following suggestions, which are not all new, may be useful to many.

Materials for Fencing.

A durable post is a matter of great importance. The red cedar and locust are the most enduring. The former is becoming very scarce; the latter might become abundant by attending to planting. In fifteen or twenty years one tree will usually make five or six posts and often more. The next best timber is swamp white oak, white cedar (*arbor vitæ*) common

white oak, red wheat beech, chestnut, &c. But whatever be the timber used, it is of great importance quickly seasoned after cutting, to prevent tendency to become sap-rotten; and it should be dry when set in the ground. Theory, as well as experiment, shows that posts set green decay much the soonest, on account of the long time required for them to season when placed in the earth, inducing partial decay. In all cases where the soil is not well drained, the post must be alternately soaked and dried, as wet and dry periods successively occur, and this rapidly hastens decay. Such soils should therefore always have a good underdrain directly under the fence, which will serve a two-fold purpose—that of draining the adjacent land as any other drain would do, and also of carrying off the falling rain before it can enter and soak the foot of the post. Ramming fine gravel immediately about it would allow the water to pass quickly down into the channel. If tile is used in the ditch, a few inches of stone should be placed over it, and on this the post be set. The cost of cutting such a ditch is but little more than that of digging a row of post holes.

A post so treated cannot become water-soaked, and would have in some degree the same advantage for durability that is possessed by timber always kept dry or under shelter, which is known to last centuries. One other point of treatment will complete is durability, namely, giving it two good coats of gas-tar over the part that is to be half a foot below the surface. The tar should be applied hot, and the wood exposed to the hot sun a few days before the second coat is applied. Oak or white cedar posts would doubtless last at least half a century treated as here recommended by draining and tarring. We have known the durability of pine increased at least ten-fold by the tar coating.

Split posts are always both stronger and more durable than sawed ones. They are not cut across the grain, and the water does not enter them so readily. They may be split and placed to season at once, but if drawn to a mill to be sawed, must often lie some weeks.

The posts should be set at least two and a half feet deep, and the earth beaten with an iron-shod rammer very hard about them, by adding very small portions at once while the hole is filling. Charring posts is nearly useless, the charcoal being porous and admitting water, which hastens decay inside.

Boards.

Pine is best; then hemlock. They should be a full inch thick, and it will be a matter of economy to have every board the same width. It is an almost universal practice to have wide boards at bottom, and of different degrees of narrowness towards the top. There appears to be no advantage whatever in this arrangement with a good deal of inconvenience in sawing and fitting the different width, and sometimes of waste in material. Narrow boards are better than wide ones, provided the stuff is not knotty, and the post are not too remote—four inches wide, and five boards high, (with the small ridge at bottom, yet to be described,) makes a neat fence. Four boards five or six

inches will do—in either case the fence will be about four inches above the ridge. The nearer the posts are together, the stronger will be the fence—seven feet is the greatest distance that should ever be adopted; six is better. When other wood than pine or hemlock is employed, such for example as elm, oak or beech,—the thickness of the boards should never exceed three-fourths of an inch; if thicker, the nails will not prevent them from warping or splitting as they season in the sun.

For nailing on the boards at proper distances, without the trouble of measuring and marking provide a gauge and having nailed the top board first, hang this upon it, when it will support each board in its exact position.

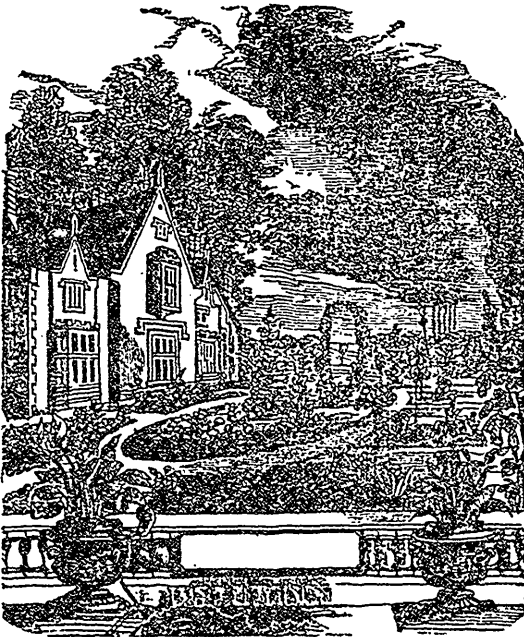
A cap-board always strengthens the fence, and prevents the upper boards from becoming broken; and where unruly animals are feared, a top board nailed on each side of the post surmounted by a cap, will render it nearly as strong as a solid timber top. In order to make the ends of the cap fit together perfectly, at the same to adjust them most easily and quickly, make them lay an inch or two partly nail the upper one down, and then saw both off with the one cut, a little sloping, and they will make a perfect joint. The degree of slope, though one board should be exactly the thickness of the cut.

It is usual to make the boards *break joints*—that is, for every alternate tier to meet at the

ends on different posts. But there are several advantages in causing all the ends to meet on the same post, or keeping each panel distinct. 1. The intermediate posts need not be so strong nor have a face more than an inch wide—indeed, a narrow face is best, there being but little chance of its retaining water and causing decay. 2. Only one-half of the posts need have a wider face. 3. It is also easier to nail on the boards, and it may be more quickly done. 4. A vertical facing board, which is required only when the fence becomes old and the ends begin to give way, is needed only for every alternate post. The cap-board should however, break joints with these.

There are several advantages in plowing up a small ridge at the bottom to take the place of the bottom board. It lessens the amount of lumber, gives greater depth to the posts, makes an even surface parallel with the bottom board, and throws off the surface water from the posts into the shallow furrows made by the plow on each side. It should be plowed up and smoothed as soon as the posts are set, and before the boards are nailed. To set the posts perfectly straight, the two extreme ones should be first set, and a line stretched tight between them at top and at bottom. Against these two lines all the intermediate posts are to be placed, and held there till the holes are filled with beaten earth.—*Country Gentleman.*

HORTICULTURAL DEPARTMENT.



MONTHLY SUGGESTIONS.

Orchard and Nursery.

The present month offers to nurserymen and orchardists an opportunity to put things to

rights; to fit up buildings conveniently, and to do many things about their places which they will neglect or half do in the hurrying season, when the frost is leaving the ground, and customers are clamorous for trees.

Grafting.

Root-graft young trees in-doors,—best in a good cellar, where neither grafts nor roots will dry. Never graft on pieces of root.

Implements are to be renewed: provide a good stock, mending old and purchasing new ones.

Insects.

The eggs of certain insects laid upon the bark are easily discovered now. Let no good orchardist fail to make himself acquainted with them, and destroy as many as he can. Read Fitch's Reports. (In warm weather the wing-less millers of the cankerworm come from the earth, and should be destroyed.)

Labels.

Provide an abundance both of wood and zinc. Lead labels are very convenient for the orchard, and may be cut and stamped with numbers or names at this season.

Mice.

Stamp down snow close about trees in young orchards—or otherwise defend them against depredation.

Stakes.

Work out new, to supply the place of those which failed last year. Make them stout and of good stuff, and by all means soak them in a solution of a pound of blue vitriol to 12 quarts of water. They will last five times as long.

Trees too large to be moved in Spring may be transplanted in Winter by digging about them so that the mass of earth in contact with the roots may become a frozen ball, 6, 8, or even 10 feet in diameter, and capable of being moved with the tree. Prune severely before moving, but leave the large limbs so that they may be cut again in Summer to secure well healing scars.

Winds.

Tie up to prevent danger from winds when possible, and when it occurs, remove broken trees and branches at once, smooth over the scars, and apply grafting wax or waxed cloths to keep out the rain from cracks.

KITCHEN AND FRUIT GARDEN.

Cold Frames—in very cold weather give extra cover, but remove on warm, sunny days. A good blanket of light snow is worth more than anything else. See that they do not get damp for want of ventilation, and rot the plants. Give light and air freely in warm weather.

Grape Vines, if not already pruned and laid down, may now be attended to. Protect by covering with hemlock boughs. Never handle them while frozen.

Mushrooms.

Prepare beds in any place free from frost.

Poles and Pea-brush.

Cut and prepare for use, stacking them under cover. It pays well to soak the ends, if not the whole of bean poles in blue vitriol water to preserve them.

Prune fruit trees with the *knife only this month*.

Seeds.

Buy in time to test every doubtful sample; it saves vexation and many dollars. It is best done by counting the seeds and sowing them in good soil in pots kept under hand glasses, in a warm place, and counting the number that germinate.

Vegetables in the cellar will continue to arrive at perfection, and need care only that they do not freeze or rot. Let them have air on warm days.

FLOWER GARDEN AND LAWN.

The times is invaluable for reading and getting information. There is little to be done. After, or during heavy snow storms, shake the snow from the evergreens or other trees loaded with it. In warm weather, if the frost is coming out, air the rose pits, (cold pits under sashes where half-hardy plants are kept,) without letting in the sun; so long as they remain frozen let them alone. The frost can never be entirely excluded. If the earth in the pots becomes *very dry*, give a very little water.

When the frost is out of the ground deep

spading brings insect pupæ to the surface, and they are thus destroyed in great numbers. Give the fowls a chance at them if you can.

Green House.

Keep the temperature below 60°, and if possible above 35°. Plants which will not bear the least frost, ought not to be kept in a Green-house adapted to oranges, lemons, oleanders, camelias, myrtles, azaleas, roses, &c. Give good ventilation on mild days, and water sparingly, always with reference to the state of the plant, increasing water, warmth, and light, when it begins to grow, or approaches blooming. In the green-house force nothing. Stir the soil in the pots and remove dead leaves. If lice appear, make all tight, smoke thoroughly, and syringe affected plants afterward. When oranges and lemons begin to grow, wash stems with strong soap-suds and crush scale insects. Protect by mats or shutters on cold nights, and more than all else avoid dampness. During severe weather keep the temperature as steady as possible. Never leave the sun heat above 50° without air, and even at that temperature but a few hours without it. Fire heat should never be below 35°, nor above 45°. A collection of Cacti require 40°, at all times. Do not keep the house without air at any time more than thirty-six hours; it is even better to use some fire heat, than to omit giving air. Hyacinths should be kept near the top glass.

Bulbs.

Tulips, hyacinths, crocuses, &c., &c. Pot and keep in the dark and away from the heat till well started; water freely. Hyacinths in glasses or moss, should be treated in the same way. Start them slowly. If already growing, remove them to the hot-house conservatory.

HOT HOUSE AND CONSERVATORY.

In the Hothouse flowering and ornamental plants are propagated and brought to perfection; and in the Conservatory they are placed for show and to minister directly to the enjoyment of the family and the guests. Here maintain an atmosphere of uniform moisture and warmth—never allow a drying heat, a scorching sun or frost. Sprinkle freely those plants whose blossoms are not injured by water. Use occasionally, liquid manure quite dilute, until plants begin to stop blooming. It gives them vigor, and they feel the change from the hot-house less. Keep growing plants close to the light, and turn frequently. Remove plants at once when their beauty has gone, when they begin to grow much, or when you discover insects or mildew.

Hot House.

Avoid extremes of temperature; this must be graduated according to the class of plants, the degree of forcing, amount of moisture, &c. Admit air through the upper ventilators to avoid drafts.

Cuttings of various plants may now be profitably started, viz: roses, verbenas, petunias, fuchsias, geraniums and the like.

All growing plants and those coming into bloom require much moisture, and all the light

they can have. Water regularly, sprinkle frequently, but avoid excess.

Pines require the warmest and moistest atmosphere, and should have a separate house or room. Cucumbers force admirably in the same apartment at this season.

Look out for insects; use sulphur for red spider, tobacco smoke for aphides and thrips, tobacco water and soap-suds for scale-bugs, &c.

Keep the soil in pots stirred, and shift growing plants so often that they will receive no check.

GRAPERY AND ORCHARD HOUSE.

Cold Graperies and Orchard-houses will need no attention this month except to maintain them at a uniform and moderately low temperature, and guard against dampness and injury from mice. If there is danger from dampness lay lumps of quick-lime, about say a pound lump under each vine or tree. In houses where a moderate heat is employed, it is still early to lift the vines, and prepare the trees for fruiting, except where a succession of crops is desired; in this case for the earliest crop, lift the vines, tie them to the rafters, and give inside borders or tubs a good watering with liquid manure; increase the heat and keep it at 45° to 50°—seldom higher—never let it fall to freezing; dampen the floor and wall by sprinkling.

Peaches and Apricots.

Treat much the same as above. They will bloom in 15 to 20 days.

In forcing houses, the vines and fruit trees may be in any or all stages of development, and it is impossible to give particular rules; they demand the constant thought and care of the gardener.

Mildew.

Whenever mildew appears syringe with water containingsulphur, or lay sulphur on the brick flues.

PLANTS IN ROOMS.

On very cold nights the plants should be withdrawn from the windows, and placed in the centre of the room.

While the thermometer is below 35° in the shade out of doors, the air should not be admitted, except for a few minutes at a time.

Foliage should be carefully cleaned with a sponge, or gently syringed. Do not either parch or drown the plants, but water judiciously, according to the nature of the various kinds. The water used, should, if possible, be about 60°, and never as high as 80°.

Watch for insects, and destroy them as soon as they appear.

Turn pots around frequently to prevent the plants from growing to one side.

Roses should be kept in a south window; as soon as the plants are well started, water freely, and admit air in mild weather once a day.

Camelias will bear 30° of frost without the smallest injury, so that they are easier kept than geraniums, except when they are in bloom. In that state, frost will destroy their flowers.

The air of a close cellar is also destructive to the buds. Copeland says:

“As soon as growth commences, the flower-buds swell; two, or at the most three, are all that should be allowed in each cluster; if more appear, thin them out with sharp-pointed scissors, if this be not carefully done, they will crowd each other off.

“By no means bring them at this season into a very warm room, for much heat will cause the buds to fall off; keep them as cool and well aired as possible. If they get dusty, sponge the leaves, or syringe very thoroughly. The general health and good treatment of the Camelia are proved by its breaking all its buds at once, as it starts afresh. It is very apt to lose its lower buds and grow from the top only, thus spindling up and becoming naked below. Take every possible means to prevent this. Be sure that the supply of water is regular and abundant when the buds are developing, or they will drop.

There are several camelias not proper for room culture; those which have dry, brown scaly buds, are to be avoided, such as *anemone*, *flora*, *eager tonia clevina*, *fulgens*, *atro rubens*; also avoid *woodsii*, *chaudelerii*, and *dorsattia*, as being difficult of expanding—they are so very full of petals. Those most proper for room culture are *double white*, *conchiflora*, *eclipse*, *imbricata*, *florida*, *imbricata*, *maliflora*, *paeniflora*, *punctata*, *colrilti*, *rosii*, *speciosa*, *variegata*, and *incarnata*; many others might be added, but these agree best with warm culture.

In growing Hyacinths in water-glasses, care should be taken that the water just escapes coming in contact with the bulb, as too much moisture before the roots put forth, is apt to cause the bulb to decay. The glasses should be kept in a light, cool place, until the roots reach half way down in the glass. The longer the roots are, before being forced into flower, the better. When fairly started, the water should be changed at least once a week. The flowering can generally be regulated by putting the glasses in a warm or cold place, as in the latter case the flowers will not put forth, even though the glass be filled with roots. The liability of the bulbs to decay, renders their cultivation in water often uncertain. Even when successful, the fact that the bulbs are good for nothing after they have once flowered in this way, is a strong argument for planting them in pots, when they may be set out in the spring, and will make pretty border flowers for several seasons.

A “Window-Case” can be erected in any warm room that has a bay-window with good exposure. The window should be inclosed from the apartment, with a frame fitted with moveable sashes, and supplied with shelves and hooks on which to set or hang the plants. It should be well supplied with water so that the air may be constantly moist. The window case can be rendered extremely ornamental and is, in fact, a miniature green-house, in which a variety of plants may be grown with perfect success. Vines, such as the Wax plant, *Solanum Tropeolum*, *Maurandia*, *Parlor Ivy*, *Smilax*, running *Roses*, &c., may be set on slender posts. Drooping *Heliotrope Nierembergia*,

Gilia, &c., may be hung from above, and Camellias, Geraniums, Fuchsias, Verbenas, and others of the choicest house plants may be grouped upon the shelves.

CULTURE OF BULBS.

Many and very specific are the directions given in the books for the preparation of the soil for tubers and bulbs, as though it was a matter requiring the greatest skill and the nicest precision. All this may be necessary to grow flowers fit to show at an exhibition made by London florists, but we are pleased to state to all lovers of the beautiful, with little time and limited means, that good flowers,—rare gems of beauty,—can be grown without this precision. To those who have been discouraged by a formidable array of directions, we say, despair not. The gay *Crocus*, the fragrant *Hyacinth*, the brilliant, dashing *Tulip*, can be grown by any farmer or farmer's wife,—may decorate every humble cottage garden. A few rods of ground, a little taste, and some patience, is all that is needed. Every one has the necessary materials at command, almost without money and without price.

Any good, mellow soil, if well drained, will grow bulbous flowers, but most soils would be benefited by being enriched with thoroughly rotted manure, which should be well mixed with the earth; or, with surface mold from the woods. The manure from an old hot-bed is excellent for this purpose, but not more so than cow manure, which may be freely used, even when fresh, but should not come in contact with the bulb. To prevent this, it should be thoroughly mixed with the soil, and a little sand thrown around the bulb at planting. This practice is always beneficial in a stiff soil. The mechanical condition of a soil, too, may be easily improved. If naturally stiff, an addition of sand, and mold from the forest, will be of great benefit. The ground should be dug at least 18 inches deep, be well pulverized, and drained before planting bulbs of any kind.

The Snow Drop.

(*Galanthus Pivalus*.) The first flowers of spring, the earliest harbingers of that delightful season of buds and blossoms, is the little *Snow Drop*. It first feels the influence of the warm spring sun, and in this latitude, about the first of March, its modest little white flowers gladden the hearts of the lovers of nature's floral beauties. There is nothing striking or particularly attractive in these flowers, and should they bloom when the garden is gay with more ambitious rivals, it would be eclipsed and unnoticed; but its time is well chosen, and it flourishes without a rival—often bearing its delicate blossoms above the snows of early spring, undaunted by cold and frosts and storms. Of these flowers there are two varieties, the double and single.

The bulbs are quite small; the leaves and flowers about six inches in height. Plant in the fall in beds or masses, two inches apart and about the same in depth. Every third year at least, it is well to take up the bulbs after the leaves have died, and re-plant in October.

The great Snow Drop.

(*Leucojum*.)—There are three varieties of this *Snow Drop*, similar to the above in appearance, but much larger flowering in spring, summer, and autumn. As these flower at seasons when there are others more attractive, they are not as desirable as the small *Snow Drop* first described. The bulbs should be planted in autumn six inches apart and four deep.

The Crocus.

The *Crocus* is a very interesting flower—delicate and tasteful in form, and varied and gay in color. For at least a month, and until the flowering of the *Hyacinth*, through the most changeable and unpleasant of our spring weather, the *Crocus* is the Queen of the Garden, challenging and receiving the admiration of all. Too little attention has been given to these very useful flowers. They make the garden pleasant, when but for them it would be dreary, and at a time, too, when, after a long winter of cold and snows and storms, the sight of the simplest flower is most grateful. All admire them, yet in how few gardens is a fair collection, or even one or two varieties to be found. Could they be planted when in flower, or in spring for early flowering, everybody would have them, but they must be planted in autumn, and are too often forgotten at the proper time.

Flower of the Cloth of Gold.

Bulbs of the newest and choicest varieties can be obtained at the principal seed stores and of nursery-men at from fifty to seventy-five cents per dozen, and more common but not less beautiful varieties at about two dollars per hundred.

The proper time for planting is about the first of October, though a week or two earlier or later will make no material difference. Set the bulbs about three inches apart, and cover with two inches of earth. Rake off the bed nicely, and before winter sets in cover it with a little straw, coarse hay, or other litter, which may be convenient. This prevents throwing out by the frost, which sometimes, unless the ground is very high and dry. Nursery men and gardeners generally take up the bulbs every summer after the leaves have decayed, and replant in the fall, but the more satisfactory course for amateurs would be to allow them to remain where planted for three years, then take them up and replant in other beds.

The *Crocus* may be planted in the border with herbaceous plants, in clumps or masses, each mass being of a different color. They will be out of the way by the time the herbaceous plants are prepared to occupy the ground. They produce a fine effect when planted in beds cut out of the lawn, either alone, or with other bulbs. As soon as the flowering is over the bed should be planted with Bedding Plants or Annuals.

The earliest variety is the *Cloth of Gold*, of which we give an illustration, from a flower picked for the purpose, on the 18th of March. It is a lively golden yellow, with a brownish, feathery stripe in the centre of each petal, as will be seen by the engraving, which also exhibits its size and general appearance.

Following this are a dozen other good varieties, which we have not space to describe.

Tulips.

Are divided into two general classes, *Early* and *Late*. The *Early Tulips* flower in this latitude about the first of May. The earliest of the class is the *Duc Van Thol*, single and double, and may be grown in any rich garden soil. It should be well drained, and if a little sandy all the better; if inclined to clay, add a little sandy loam, and if poor, add rotted turf, or soil from an old pasture, with any thoroughly rotted manure. There is no difficulty, and need be no mystery, about the culture of the Tulip.

Make the bed prepared for them fine and mellow, and plant the bulbs in rows from six to eight inches apart each way. Unless the ground is quite light, it is well to surround the bulb with sand at the time of planting. This is for beds entirely devoted to the Tulip, but they look well if placed in the border or on the lawn, half a dozen or more in a cluster. Bulbs can be obtained from the nurseries and seedsmen at prices varying from one dollar to three dollars per dozen.

The Hyacinth.

Is an old favorite, and yet we seldom see even a tolerable bed of even a dozen varieties in the gardens of our amateurs. The Hyacinth, like all other bulbs, looks best in masses or beds. Set the bulbs from six to eight inches apart each way, and four inches deep. It is a good plan to surround the bulb, when setting, with little clean sand. Before winter sets in cover the bed with leaves, or a little straw litter. Many persons ordering Hyacinths from the seedsmen and nurseymen entertain the idea that none but the double ones are desirable. This is not the case. The value of this flower depends principally upon the form of the spike and the arrangement of the single flowers or bells upon the flower stem. The truss of bloom or spike should be pyramidal, and the flowers close enough to entirely conceal the stalk.

The Crown Imperial.

Is a noble flower, and some of the new sorts are really beautiful. Plant about four inches deep, and in a rich garden soil.

The Fritillary Chequered Lilly.

Is not very showy, but a curious and interesting flower. There are many varieties, the colors being of various shades of brown, purple, and yellow, and curiously chequered. The bulbs are about the size of those of the *Crocus*. Plant in groups, about two inches deep and four inches apart.

THE EVER-BLOOMING ROSE.

If there is perfection in the vegetable kingdom, it is the Ever-blooming Rose. Its varieties are now so numerous, their colors so various, and natures so different, that they are arranged into five distinct classes. Some can be grown in all climates and altitudes, and upon nearly all kinds of soil. They are fit to make a diversified garden of themselves; growing as dwarf bushes, as tall stately plants, and clothing arbors, bowers, trellis-work, dead fences, &c., and even making hedges to fence in and shelter the garden. They are the monarchs of the flower bed, and reign triumphantly glorious

over all other flowers; and blessed are they who possess the means, the liberality, and fine taste, to purchase all kinds, and the space to grow them in perfection.

The *Hybrid Perpetuals* or *Remontantes*, are generally of a stately, robust growth; thrive equally well upon heavy and light loams, and withstand a northern winter without protection.

The *Bourbons* are next in hardness, and do best upon loamy soils, yet a slight covering of straw tied around them in winter north of New York, is of advantage to them.

The *Bengal, Chinese* or *Daily*, is next in hardness, thrives both in loamy and sandy soils, and is preserved better by having a little straw tied about them north of Philadelphia.

Noisette is of the same hardness as Bengal, and thrive upon the same kind of soils. The varieties are nearly all of a rampant growth; useful for training upon fences, ends of buildings, arbors, trellis-work, pillars, verandah frames, &c. The flowers are generally small, double, and very fragrant, and produced in clusters of twenty and upwards.

The *Tea-scented* is generally of dwarf growth, profuse in bloom, and of the most delightful fragrance, which is diffused a great distance. They are less hardy than the other classes, and need a covering of straw in winter north of Baltimore. They thrive best upon light loams and sandy loams, and will flourish in sandy soils. They grow to most perfection out doors south of Maryland, and are the best for pot culture.

All the varieties of the five classes can be grown in the most northern climate by digging them up and potting them in the fall, and keeping them in cold frames or pits half sunk and half banked up, and with glass sashes, and covered with mats in very cold weather, shading them from bright sun in the winter time. As hundreds are yearly putting up cheap glass structures in which to grow foreign grapes, they are the best places to winter roses that cannot stand the severity of winter; as the grapevines are dormant in winter, and the roses would not be in their way, and they get the full light. With these advantages, people in northern latitudes can grow all kinds, and well will they be rewarded for their care.

What is a garden without a rose! As it lasts many years and takes deep root in the ground, the soil before planting should be stirred two feet deep and finely pulverized and enriched with short manures throughout. The black surface scrapings in woods, which is leaf mold, is the best manure for all kinds of roses.

—*W. Elder, in Gardeners' Monthly.*

CULTURE OF HYACINTHS IN POTS.

This is the most satisfactory method of cultivating the Hyacinth. By keeping the pots in a temperature near the freezing point, the flowering of the bulbs may be retarded, or by bringing them into a warm atmosphere they may be forced so that a succession of bloom may be obtained.

The soil for the pots should be light, porous and rich. Good sandy loam, thoroughly decomposed horse or cow manure, and leaf mold,

will form the constituent parts of an excellent compost if combined in the proportion of say three-fifths of the former and one-fifth of each of the latter. Soil in which any proportion of clay is found must not be used.

The size of the pots should be for single bulbs, those of five inches in diameter; where several are planted in one pot, the size of the pot must be larger, say seven inches in diameter for three bulbs.

In planting use plenty of drainage; put in the soil, pressing it well, and plant the bulb so that the crown or top may be a little above the soil. Now give them a good watering, place them out of doors on a bed of coal ashes, and cover the whole, pots and all, to a depth of six inches above the pots with spent tan bark, sand, or similar substance. The object of this is to induce the growth of roots before the pushing of the leaves and flower stalk, for if kept in a warm place after planting, and with the bulb exposed, the bulb immediately begins to grow and the top will have made considerable growth before the roots are obtaining any nutriment from the soil. The pots should be left in this condition for five or six weeks, receiving some protection in severe rains or very cold weather, by means of boards and litter. When brought into the house, which may be done in December, they should be kept in a shaded place until the foliage acquires a healthy color, and then they may be kept in either a warm or cool place, according as they are wanted to flower early or late.

No water will be required by the bulbs while they are plunged out of doors; the water which was given them at the time of planting being sufficient for them. For a short time after removal they will not need much water, but when the flower stem begins to make vigorous growth and the flowers show signs of expanding, water must be given them more freely. After flowering, water must be gradually withheld until the foliage has decayed, when the bulbs must be removed from the pots. It should be understood that these bulbs ought not to be again planted in pots, but may be planted the next fall in out-of-door beds where they will flower very well.

TO PREPARE TREES FOR PLANTING

With a sharp knife cut off, sloping from the under side, any bruised or broken roots, then reduce the tops to correspond with the loss of roots, cutting off surplus branches, and reducing those forming the head to three or four buds on each of last year's shoots. This will cause a more healthy and vigorous growth the first season—its omission is a common cause of the failure or sickly growth of newly planted trees.

In setting, let one person hold the tree in its position, while another fills in the mellow earth, pressing it firmly among the roots with the hand, taking care to leave no cavities underneath—and when the roots are all covered, pressing the whole down firmly with the foot.

Avoid deep planting—when all is finished the tree should be no deeper than when in the nursery.

Grapevines should be cut back to two or three eyes, and only one of these be permitted to grow the first year.

Raspberries and blackberries should be cut back to within one foot of the ground.

Gooseberries and currants should be cut back to one or two eyes of last season's growth.

The time for planting, in the autumn, is after the first hard frost until the ground is closed, (from the 20th of October to the last of November, in Ohio,) or any time in the spring before the opening of the buds. Trees procured in the fall may be kept safely for planting in spring by burying them half their length in mellow earth, (in a sloping position) where no water is liable to stand; a slight covering of brush or forest leaves over the tops will be of service in case the winter should prove severe. Small bushes, like raspberries, grapes, &c., may be buried entirely in earth.

Trees planted in the fall should have earth hilled up around the stems, six inches or more in height, to hold them firmly in position during winter, and protect the roots somewhat from frost and excess of wet. This is also a protection against injury by mice. In spring the earth should be levelled, and two or three inches of coarse manure or litter spread on the surface over the roots for a space of four or five feet in diameter; this will keep the surface moist, prevent baking, and check the growth of weeds.

If planting is done rather late in spring, and in dry weather, it is well to give water freely, after setting the trees and covering the roots with earth, letting it settle before finishing up; then if the surface is mulched as recommended, no farther watering is necessary.

In grass or grain crops should be grown among fruit trees, at least until they have arrived at bearing size. Neglecting this precaution is the most common cause of the failure of young orchards. No farmer expects a hill of corn to flourish among grass or other crops, and without cultivation; it is just as unreasonable to expect young fruit trees to grow well in such circumstances; yet how seldom do we see anything like *common sense* exhibited in this thing!

FACTS ABOUT APPLE-TREES.

The most important of all fruits which can be produced in temperate climates, if not the most important fruit which the Creator has bestowed upon man, is the apple. Were people generally in possession of information which would enable them to form conclusions in relation to the value of a single apple-tree, no one who has a spot of terra firma large enough for a house lot, would neglect to plant one.

Hayward speaks of an apple-tree, in Duxbury, Mass., which was upwards of 100 years old, was 16-feet in circumference 8 inches above the ground, and which produced in one year fruit from which ten barrels of cider was made, besides 30 bushels of apples for the cellar.

An apple-tree in Natick, Mass., was grafted to the Porter apple when 75 years old, and the 7th year from grafting, produced 15 barrels, which sold for 30 dollars.

The original Hurlbut apple-tree produced 40 bushels in one year, and 20 the next.

The original Bars appletree produced 60 bushels in one year.

In Orange, N. J., a Harrison appletree produced 100 bushels in one year.

An appletree in Farmington, Me., produced 17 bushels the 16th year from the planting of the seed.

Cole says he has had fruit upon an appletree in Plymouth, Mass., when the tree was 200 years old.

We have seen an appletree on the farm of Mr. Calvin Pease of Wilton, Me., from which a crop of 24 bushels of Baldwins was gathered in one year.

An appletree brought from England and planted near Hartford, Conn., produced fruit when 209 years old.

Several appletrees in the United States are 12 feet in circumference, each.

Appletrees are found to flourish best on undulating lands or hills. In low and sheltered situations there is more exposure to extreme of heat and cold.

Appletrees are more sure in their products in northern, north-western, or western exposures than in southern or eastern ones.

Appletrees are more exposed to winter-killing in situations where frosts kill vegetation earliest in the fall.

The Baldwin tree is nearly certain to winter-kill where the thermometer sinks to 38 degrees below zero.

The summers are too long at the South to produce winter apples, as they over ripen, and the Baldwin apple becomes a summer or fall apple when cultivated in the South.

The Baldwin is the tenderest variety of the apple that we cultivate. It is too liable to winter-kill to be relied upon in Franklin County excepting on high hills.

The Black Oxford is very hardy. It will not winterkill even when the thermometer sinks 40 degrees below zero.

Trees grafted near the ground are much more liable to winterkill than those which are grafted on the tops.

Branches of trees which grow in a horizontal position come into bearing sooner than those which grow more nearly in a perpendicular position.

Crooked trees, and leaning trees are the best bearers.

English orchardists, in order to hurry certain trees into bearing, bend and tie down the branches—*Farmington Chronicle*.

KEEPING PEARS.

M. D'ARJOLLES, of the *Revue Horticole*, thinks that it is not a good plan to put pears in tight boxes, but that it is better to spread them upon shelves or tables, in a cool-room, and that wrapping them in paper will only do for fruit which is entirely sound and which does not require to be examined often. He says, too, that in gathering summer and early-fall pears, the best fruit can be taken off before it has quite reached maturity, and that the small ones will in this way, having all the sap to themselves, become larger and better. This will only answer for very early fruits. With late ones the

experiment would not succeed, as with them both their quality and preservation depend upon their being gathered at precisely the proper time.

CULTURE OF WINDOW PLANTS.

The Pennsylvania Horticultural Society met at their Hall in Broad street, below Walnut. The subject for discussion was "The Culture of Window Plants." As this is a matter of general interest, the suggestions made may be found valuable.

Dr. Jack read an essay, detailing his experience in growing window plants, and setting forth his method, which has been quite successful. He said that the subject was one of interest to all who have a love for plants, and especially to those who have not the conveniences for greater indulgence.

The conditions most desired, and the attainment of which has proved the most difficult, are the application of an even heat, and the maintenance of a constant moisture. In order to protect his window plants from an atmosphere too dry, he has pursued the plan of enclosing a space inside of the windows, projecting a case into the room and giving it the form of a bay-window. This is, indeed, but a Wardian case, one side of which is composed of entire sash. The dimensions are, height five feet eight inches; width three feet seven inches (this being the size of the window frame), and depth two feet eight inches.

The accommodation of the plants is effected by a circular stage of 31 inches in diameter, revolving on a central stud. This form of stage permits a variety of arrangement, and allows access to all parts for the purpose of watering, etc. While this form of stage retains the moisture constantly rising from the soil equally as well as the ordinary Wardian case, it is better supplied with light, and affords an opportunity for a much more tasteful display of plants. It is liable to great diminution of external air, by which means, in cold weather, the plants suffer for heat.

To secure a uniform and sufficient temperature, an opening is made in the top of the case for the entrance of warm air, and another in the bottom, for the exit of the cool, which falls in consequence of its greater specific gravity. By this means, the plants are perfectly protected from contact with cold air. The current of warm air entering the top would, however, naturally dissipate the necessary moisture. To avoid this, a net work of loose cotton thread is placed over the opening, one end being immersed in water. Capillary attraction causes the whole to be moistened, and the air, in passing over it, becomes saturated with water.

The effect of this method is shown in the better appearance of the plants, a greater evenness of temperature, and the constant and marked presence of humidity. All this is accomplished without complication, and requires but little attention. The process is almost self-regulating, much like that in the Aquarium, which renders the latter of such interest.

To secure the condition of heat, the plants should be exposed not too directly to the rays of the sun. If possible, the case should be so

placed as to have the light of an adjoining window thrown in its rear.

A communication from Mr. Walter Elder was read, in which the writer traced the history of window gardening, and presented some thoughts on the moral and pleasing nature of the practice. It was the simplest branch of gardening, and the first to interest the mind with a love of flowering plants; it is the parent of exotic floriculture. Working people in large cities, who had not a foot of ground, made gardens upon the housetops, and now Paris and other European cities are noted for them.

The French excel in balcony gardens. Simple window gardening is perhaps more universal among the working classes in Scotland than in any other country. It is in every house. The pious, peaceful and moral nature of the people attaches them to home, and creates in them a desire to beautify it. The writer thought that the people of Philadelphia showed, several years ago, more taste for this branch of floriculture than now.

The communication closed with an allusion to the soothing influence of the culture of flowers on the mind. There was never a more propitious time for the culture of window plants than now, when the number of flowers subject to such treatment is greatly increased.

Preserving Flow'rs in Sand.

Those of our readers who attended the late Horticultural Fair in this city, did not fail to notice those two framed wreaths of natural flowers that hung upon the wall near the Horticultural tools. They were the admiration of all, and many times did we hear visitors wondering by what process they were thus preserved in their natural forms and colours. It is this:

Get the finest and whitest of river or lake sand, wash it so clean that the water when flowing from it will be pure as if from the well. Heat it very hot and while hot mix it thoroughly with stearic acid in the proportion of one lb. of the latter to 100 lbs. of sand. Let it cool. Take a small common sieve and nail boards under the bottom to prevent the sand from running through; place enough sand in the sieve to hold the flowers in position—not covering them; then with a sheet of paper twisted in the form of a cone or tunnel, carefully let the sand pass through it, between, around and over the flowers—cover about half an inch. Set by the stove or in some warm place where the sand will be kept at a temperature of about 70° Fab. When they have remained sufficiently long, remove the boards carefully from the bottom and let the sand run out, leaving your flowers preserved in perfection.

The only difficulty is to know when the process is complete, different plants differing in the time required. Those with thick leaves and petals needing more than light ones. Seven hours are sufficient for some, while others require twelve and even more. Experience alone can determine this. It is best always for a beginner to experiment with a single plant at a time at first. When he has succeeded with a certain variety and noted the time required, he can proceed to others, and in a short time become versed in this art. It should be mentioned

that the flowers for this purpose should be picked dry—say midday after the dew is all evaporated.—*Prairie Farmer.*

PROTECTION FOR FRUIT TREES.

The *Country Gentleman* remarks that, for extensive orcharding, trees must take the chances of the weather. A great deal may be done, however in the way of permanent shelter. Screens of evergreens and other trees planted so as to break off all severe winds, but so remote from the trees that the roots will not interfere, nor the branches shade them, will often afford important protection, both to the trees themselves, and to the crops of fruit. A dry bottom^s either naturally or effected by underdraining, contributes in a very considerable degree to hardiness, not only by promoting a well-ripened hardwood, but by keeping the roots from becoming water-soaked, which renders them so liable to injury in freezing. Mulching—covering the ground with manure in autumn—tends to the same result and is especially advantageous to dwarf pears, which need much enriching. "Manure," it says, "is worth twice as much applied to them in autumn as the following spring." This may be true taking into consideration the advantages of protection, but if the manure is applied early in the spring, we cannot see why the fertilizing effect should be so very much less. Old straw is a good protection, but tends to invite mice; hence, when used, the stems should be banked up a foot with fine smoothed earth, which will exclude them completely. The banking also throws the water away from newly set trees, protects the roots, and stiffens them from the wind—all quite important.

Recent agricultural statistics declare the wheat lands of England to exceed 4,000,000 acres, the barley lands to approach 3,000,000 acres, the oat crop to exceed 2,000,000 acres, the potato crop to exceed 700,000 acres, the turnip crop, each year to approach 3,000,000 acres, and other crops to exceed 700,000 acres, while 900,000 or more are in the fallow.

RENOVATING AN OLD TREE.

A few years ago a fine large shade tree began to decay rapidly. The foliage became thin and yellow, and a cavity in the bole of more than a foot in extent was filled with vegetable mold. This was removed in December, 1859, and the hole carefully filled up with the intestines of a slaughtered animal while they were yet warm.

The experiment was repeated in December, 1860, and in December, 1861, and to-day the old tree, covered with a dense and beautiful foliage, stands at the side of its companion of fifty-five years, healthful and vigorous, as though it might live to the end of its century.

LOW HEADED TREES AND SHELTER.

During the last year we have brought to the attention of tree planters, numerous facts in regard to the value of low headed trees and shelter. In our own grounds the past spring, we have added to the apple orchard nearly a thousand trees, and when the heads did not branch within a few inches of the ground, we cut them off entirely, and they have thrown

out vigorous shoots from the stumps thus rendered headless, but not to remain so for any length of time, as they will soon have heads of the most approved form and vigour. In an orchard of five hundred May cherry (Kentish or Downing,) the heads are within two feet of the ground. Standard pears are cut back in the same way. In all cases of tree planting we add shelter at once, and in the last trees set, used cuttings of cotton wood. We invite orchardists to visit our grounds, where trees treated as above, and also in the Shanghai style, for we have hundreds of trees in our grounds of which we are not proud, and occa-

sionally theraten them with the axe, to be replaced with a more comely style. We do not claim to be perfect, but do claim we are not like a mule, always of the same stubborn way, but susceptible of yet learning something to our advantage.

For a young orchard, we claim to have a pretty good one, at least it pleases us at this time, as it is set well in fruit, and gives promise of substantial returns; but had we planted low headed trees at the same time, it would have been worth more than double its present value.

DOMESTIC ECONOMY.



SEWING MACHINES.

We learn there are annually manufactured in this country seventy thousand sewing machines, which task the working energies of twelve or fourteen manufacturing establishments. This latest of invention is really one of the greatest. It would be difficult to express the advantages that have been secured to families, to sewing women and girls, and to operators with the needle generally, by the timely introduction of this wonderful little machine. It eats up the piles of cloth as if its hunger would never be satiated. It cheers lonely labour, and encourages the patient plodding worker, who has been accustomed to consume the midnight oil and nurse her solitary thoughts, to believe that there is help in this wide world even for her. A load of toil and care has been lifted from many a poor, burdened heart by the introduction of the sewing machine. Heavenless the inventor, and prosper all who depend for a livelihood upon the invention!

METHOD OF PRESERVING FRUIT.

1. The fruit, properly hulled, assorted or prepared, is placed in clean glass bottles manufactured for the purpose, filling them to the neck.

2. Prepare a syrup of melted refined or white sugar, and pour into the bottles, by the following rule, viz: Allow six ounces of sugar to one quart of fruit, or melt one pound of sugar in one-half pint of water, and give one half pint of the syrup thus produced to one quart bottle of fruit.

3. Place the bottles in a steaming box, or a boiler with a false bottom, which may be made of loose slats resting on supports so as to raise it a little above the water in the boiler.

Cover the boiler or steam box, and gradually raise a steam that will thoroughly heat the fruit and syrup in the bottles, bringing them to the boiling point. This may take an hour from the commencement of heating; but whatever the time, be sure that the whole contents of the bottles are at boiling heat.

4. Have ready corks, steamed or moistened sufficiently to make them flexible. They should be large enough to fill the neck of the bottle tightly and require some force to crowd them in. One cork as procured of dealers allows of being cut in two, so as to stop two bottles.

5. Have ready a vessel of melted sealing wax, compounded of the following materials and proportions: One pound of rosin, 1½ ounces tallow, 3 ounces beeswax.

6. The fruit being sufficiently heated, take the bottles successively to a table, and quickly cork them. With a towel in the hand they should be carried in such a way as to close the opening and retain the heated steam in the bottles on the way to the corking table. The corks may be forced in by a blow of a mallet, or better, by a small lever arrangement fixed to work at the right height above the table. When inserted as far as practical, if any part of the cork remains above the bottle, pare it off with a sharp knife.

7. Immediately after the cork is in its place, a person should stand ready and apply a coat of sealing-wax to the end of the cork with a paint or lather brush, to close the pores of the wood.

8. Next proceed to seal the bottle by dipping its mouth in the melted sealing-wax, so as to cover the bulb. Then transfer it to a basin of cold water, dipping to the same depth, to cool the wax. If the dipping is carried below the bulb or rim at the mouth of the bottle, there is danger of cracking the glass. Now examine

the sealed part to see if the wax has formed blisters. If there are blisters, rub them away with the finger, using a little tallow or oil to prevent sticking.

9. Repeat the dipping operation in wax and in water. See that the wax is left smooth and without flaws, and the sealing is complete.

10. Pack away on shelves or in chests in a cool dry cellar. If placed on shelves, a cloth should be hung before them to exclude the light. In a few days after packing away, inspect the bottles to see if any show signs of fermentation, which may be detected by a foamy appearance of the fruit. If this be observed in any bottle, it denotes either a crack in the glass or that the sealing was imperfect. The bottle should be opened or examined, the contents scalded, and the process of sealing repeated as before. In some cases during the season a little vegetable mould may be seen to gather on the surface of the fruit in the bottles, but this is not to be regarded, as it can readily be separated on opening the bottles, leaving the mass of fruit without harm.

Two or three persons can carry forward the different operations of preserving at the same time, and with more convenience than one alone.

The rule for syrup given above, is adapted to the strawberry, cherry, and other similar fruits. Very acid fruits, like the currant, will allow a greater proportion of sugar.

CURING BACON.

Having so frequently seen in your paper questions asked about curing bacon, I give you my method, which has never failed either with myself or others for the last 30 years.

I slaughter my pigs in the morning, cut them up and salt them same night, taking out the two shoulder veins, which is very important. I get the best saltpetre I can; I use about 1 lb. to a 3 cwt. pig, more or less, according to size. I just rub a little on the skin side, and sprinkle it on the other side, carefully putting it on the ends of joints or bones: then lay it in a tub, the hams first, covering them thoroughly with fine salt; then the sides, and so on until all is done, finely covering all over with fine salt. I let it lie three weeks; then hang it up to dry. I never have any more trouble, and never had bad bacon by any chance. I always pound and dry, by fire, salt and saltpetre before using.

A SUBSCRIBER.

RECEIPTS.

SPONGE CAKE.—Ten oz. flour, one lb. of sugar, twelve eggs. Beat the sugar and yolks of eggs to a froth, also the whites, then stir together a teaspoonful of soda. Season with rose water.

FRUIT CAKE.—One lb. of flour, one lb. of butter, one lb. of sugar, two lbs. of raisins, one lb. currants, ten eggs, one fourth oz. mace, one fourth oz. cloves, one half oz. cinnamon, one lb. citron, and a teaspoonful of soda.

ICE CREAM.—Two quarts milk, four lbs. sugar, one half lb. corn starch, eight eggs, well beaten; wet the starch with cold milk; when

the milk is boiling hot stir in the eggs and starch, then strain through a sieve; when cold flavor as you like, then turn into the freezer; stir while freezing.

TOMATO CATSUP.—Six lbs. of peeled tomatoes, and sprinkle with salt; let them stand two days; then boil and strain through cullender; put one half pint vinegar, cloves, pepper, cinnamon, ginger; then boil them one third away.

MOLASSES BISCUIT.—Two tea cups molasses, six tablespoons fried meat drippings, one cup of water, three teaspoons soda, one do. of alum.

COFFEE CAKE.—One cup of cold coffee, one cup of sugar, one half cup of molasses, seven teaspoonful of cream tartar, one half teaspoonful of soda, one cup of currants.

A CURE FOR ENLARGED TONSILS.—To one part of saltpetre, two parts of allum, and three parts loaf sugar, pounded fine, applied to tonsils with the finger six times a day, then take the same omitting the sugar and dissolve in water, wet a cloth in this and apply warm on the outside every night on going to bed until a cure is complete.

COOKING EGG PLANT.—One of our most favourite vegetables is the egg plant, and our manner of preparing it is certainly an improvement over the ordinary way of cooking this most wholesome esculent.

Divide a large egg plant into two portions, and remove the pulp from the shell. Boil the pulp until soft, and when well drained mash it; add crumbled bread, grated onion, sweet marjoram, pepper, salt, and two ounces of butter. When well mixed, fill the shells, and bake them for an hour in a moderately hot oven. The egg plant must be highly seasoned, otherwise it will not be so palatable.

A WONDERFUL INVENTION.

In the Zollverein Department of the International Exhibition has just been placed a wonderful piece of mechanism, only a few days from Hanover. All our readers know the difficulty of awakening early in order to catch a morning train. Here is a piece of mechanism which will not only ring a gentle alarm to rouse light sleepers, but it will at the same time strike a light for a lamp, and another to boil a cup of coffee. If the first alarm be not enough, a louder one will follow sufficiently sonorous to awaken the dead. If even this should prove insufficient, the mechanism will after a short interval, pull off the night-cap, if the sleeper wears one; and in the almost impossible case of a continued slumber after all this, the machine as if disgusted with such laziness, will tilt the sleeper out on the floor. In fact, the mechanism does everything almost but shout the hour in the sleeper's ear. An extraordinary amount of ingenuity has been expended upon this combination of clockwork, and springs, and lucifers, and levers.

[We copy the above from one of our foreign exchanges. This invention is no touch to one made and patented in this country, and illustrated on page 82, Vol. XI. (old series) SCIENTIFIC AMERICAN. Instead of going through the process of coaxing and cajoling the sleeper to

arouse, the Yankee invention referred to by one operation tips the sleeper out of bed, thus avoiding all the useless and complicated details specified above. The Zollverein invention,

however, is the more polite one of the two, and is, no doubt, better adapted to operate on persons of nervous tendencies. It promises ample success to its inventor.

COLONIZATION REVIEW.

DECEMBER.

CONTENTS:—Advantages of Upper and Lower Canada for the New Settler.

UPPER AND LOWER CANADA.

If I were called upon to state shortly the difference between the Upper and Lower Province, I should say Upper Canada was a wheat-growing, Lower Canada a grazing and dairy country. But you must not understand from this that Upper Canadians cannot raise stock and keep dairies, but that they don't. Neither do I mean to say that Lower Canada cannot produce wheat. For many years, that part of the United Province, was visited with the midge or weevil, and wheat culture almost ceased. Now they are free from this pest, and Lower Canada this year, has splendid crops of wheat, and continues to excel in root crops. Mr. Price, the Member for Chicoutimi, 200 miles below Quebec, assures me that he shall have upwards of 30 bushels an acre of fine wheat on his farm there. The accounts from the Eastern Townships are equally encouraging. In Upper Canada all the crops, except hay, exceed by 33½ per cent. the average of either of the two last years, and 20 per cent. above that of the last seven years. Wheat, wheat, wheat, year after year, seems to have been the summum bonum to which Upper Canadians aspired. There is no agricultural production which they are not able to raise quite as well, if not better, than our American friends on the other side of the noble lake, lying in light and beauty at my very feet. Cousin Jonathan must chuckle over the fact that his Upper Canadian near neighbours on the frontier allowed him in 1857, and there is no doubt in the same proportion since, to carry off two million pounds in exchange for broom corn, ashes:—

Butter.....	£10,000
Cheese.....	41,000 !!
Flax.....	24,000
Green Fruits.....	39,000 !!
Flour.....	315,000
Vegetables.....	16,000
Indian Corn.....	100,000
Wheat.....	600,000
Hops.....	5,500 !!
Eggs.....	4,600 !!
Wool.....	10,000
Cattle.....	120,000
Meats of all kinds.....	200,000 !!

Thus the supineness and the want of enterprise and energy of the present race of Canadian farmers allows the Yankee farmer to beat them in their own markets!

The agents of the Illinois Central are flooding the Province Show at Kingston with their books and pamphlets. It shall not be my fault if distant and ill-informed persons are not warned in due time to save them from disease,

disappointment and ruin. Families are returning by scores from Illinois to settle in Canada, and thus save the wreck of their fortunes. A few weeks since, a farmer and several fine young men, seduced by the glowing picture drawn by Caird of prairie farming went thither, and returned dispirited and disgusted with all they saw and heard. The young men have wisely hired themselves out to learn the ways of the country; the farmer has purchased a farm of 100 acres in the Eastern Townships for five pounds currency per acre, with 60 acres cleared, a good house, and offices, and has gone back to Ireland to bring out his family. Here then is an authentic evidence of the mischief done by this one-sided 'land agent.' The Canadian farmer has an undoubted title to his farm from the Crown; the titles to lands in the Illinois Central, I suspect, neither belong to the railway company nor to the United States, but to certain bondholders in England.

CANADA now seems to be a land of kindling energies. The wonderful success which had attended her up to a certain period, led too many of us to neglect those pursuits, and that steady course of toil and industry, our hereditary lot, without which no one can or deserves to prosper—

The trials of these years have forced upon us attention to enterprises which will eventually emancipate us from European markets, and from which we ought long since to have become free. In manufacturing matters we hear of woollen and cotton factories—in agricultural affairs draining is talked of, and even the word 'irrigation' has been whispered into wondering ears—the accumulations of manure which had remained for a generation unheeded, are gradually finding their way into arable lands impoverished by repeated crops of the same grain—there is, moreover, a merry sound of returning prosperity in our crowded cities, on our noble lakes, in the deep solitudes of our forest home—*que nous en profitons*.

Our Revenue returns are most satisfactory, the taxes necessary for the due administration of the public service are raised in such a way that the least possible pressure falls upon the masses, the municipal and local taxes are very small, the necessaries of life are cheap, and wages fair—our great staple, wheat, has reached a remunerative price—cleared farms, with suitable buildings can be bought, or rented with the option of purchase, on very favourable terms—millions of acres of wild lands, most of which are covered with valuable timber, can be purchased from the Government in various parts of Upper and Lower Canada, at sums varying from two to four shillings an

acre, payable by instalments extending over four years.

The yeoman of Great Britain gives 3l. sterling per acre per annum for land of less value than he can rent here for 15s. currency, including all taxes! It is from this class we should like to see a large immigration, for their sakes and our own. Cleared farms can now be rented, all over both provinces, on the terms I have named. There are hundreds of farms in both, provinces provided with all requisite buildings, well watered and fenced, to be purchased at from 5l. to 10l. sterling per acre, upon which 30 bushels of wheat per acre, and other produce in proportion (with firewood for the chopping), can be grown. There never was a better time for the British yeoman, with a capital of from 100l. to 5000l., to cast his lot among us.

Canada offers to large and small capitalists a great variety of securities in which money may be invested with the utmost confidence, and for which interest at the rate of 8 per cent. per annum, payable half yearly in London, can be obtained. These securities consist of mortgages upon cleared farms and other productive property of ample value and undoubted title, our system of registration of deeds and the sworn assessment of value rendering fraud almost impossible. There are, also, municipal debentures, some of which are guaranteed by the Government, which will pay 8 per cent. There is a class of persons at home who, with a view of increasing their incomes, purchase annuities. By investing money in Canada, an equal income can be obtained, AND THE PRIN-

PIPAL SAVED! Thus affording ample profits for the outlay.

Canada possesses unrivalled railway facilities whereby access is obtained to the principal markets of our own country, and also to those of the United States. Our own St. Lawrence promises to be the great highway of travel from east to west—stately steamers and the white-winged messengers of commerce are borne on her broad bosom full-freighted with the necessaries and luxuries of life. The recent commercial treaty with France affords a new field for enterprise. With proper management, Quebec may recover her lost trade with the West Indies. The Reciprocity Act, between ourselves and our cousins on the other side the frontier, is attended with beneficial results in a commercial as well as a social point of view.

We Canadians entertain no feelings but those of amity towards our American brethren. There is no desire on either side for territorial aggrandisement at the expense of the other, or for any closer political connection than that which now exists. Each nation has before it a noble mission over an ample field; and for the due cultivation of this vast space, socially, morally, and religiously, we shall assuredly have to give account. A talent of inestimable value is committed to our joint keeping, which we cannot, without guilt, allow to remain unimproved,—a jewel lent to us which we are bound to keep untarnished, remembering that we all had a common origin, have a common language, and a common faith, and are treading a path which we pray may lead to a common home, and a glorious heritage above."

COMMERCIAL REVIEW.

NOVEMBER.

CONTENTS.—Home and Foreign Markets—English Agricultural Statistics—The Grain Trade of Chicago.

By the news from Foreign Markets, we learn that a considerable demand for grain in England will bring advanced prices in our home markets. New arrivals from the West arriving in Montreal to be partialled stored up. The last orders for shipment to England having been discharged before the close of navigation. Prices are as follows:—

Potash, per cwt.,	\$6.70 to 6.75	Wheat, U.C. White, per 60 lbs.,	\$1.05 to 1.10
Pearlash, "	6.25 to 6.30	" U.C. Red, "	0.92 to 0.97
Flour, Fine, per 196 lbs.....	3.75 to 4.00	Peas, per 66 lbs.,.....	0.69 to 0.70
No. 2 Superfine,.....	4.30 to 4.40	Indian Corn, per 56 lbs.,.....	0.45 to 0.47
No. 1 "	4.55 to 4.60	Barley, per 50 lbs.,.....	1.00 to 1.05
Fancy "	4.70 to 4.75	Oats, per 40 lbs.,.....	0.35 to 0.40
Extra "	4.95 to 5.00	Butter, per lb.,	0.15 to 0.17
S. Extra Superfine	5.20 to 5.30	Cheese, per lb.,.....	0.07 to 0.08

The price for Barley is remarkably higher, and our farmers would be wise to sell off at once.

English Agricultural Statistics.

Recent agricultural statistics declare the wheat lands of England to exceed 4,000,000 acres, the barley lands to approach 3,000,000 acres, the oat crop to exceed 2,000,000 acres, the potato crop to exceed 700,000 acres, the turnip crop each year to approach 3,000,000 acres, and other crops to exceed 700,000 acres, while 900,000 or more are in the fallow,

The grain trade of Chicago
The receipts of grain at this port, for the

year 1861, were 16,587, 655 bushels, being an increase over the year 1860 of 2,690, 572, bushels. The increase of corn is still greater than that of wheat. In 1860, the total amount received was 15,282, 979 bushels, and in 10 months and 25 days in 1861, 25, 978,755. This large increase is in a measure owing to the blockade of the Mississippi, which prevents grain on the Illinois River, and in the southern portion of the State, from seeking its usual market in Southern cities.