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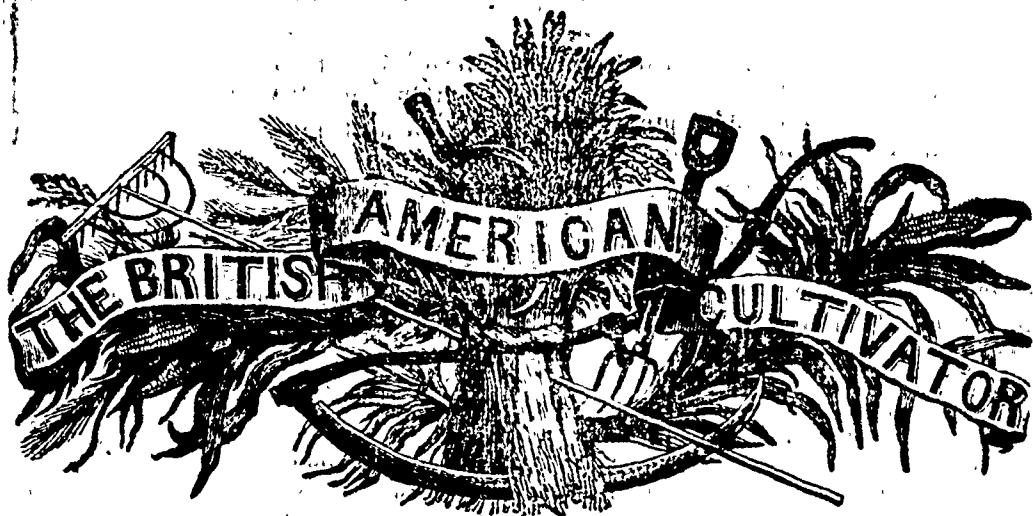
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"Agriculture not only gives Riches to a Nation, but the only Riches she can call her own."

New Series.

TORONTO, JULY, 1847.

Vol. III. No. 7.

CAN THE CANADIAN FARMERS SUBSTITUTE ANY SYSTEM OF MANAGING THEIR LANDS, THAT WILL MAKE UP FOR THE LOSS OF THE WHEAT CROP IN FUTURE YEARS?

JUDGING from the history and habits of the Hessian and Wheat Fly in other countries, and especially in the eastern portion of our own, the inference may be very fairly drawn, that the loss that may be sustained as to the Wheat crop, will become so considerable, that all intelligent and observing cultivators will find it to be to their interest to discontinue sowing Wheat for a few seasons, until the fly has passed away. For ten consecutive harvests, the Farmers in Eastern Canada lost their entire Wheat crop; and the same disastrous results followed from these two small and insignificant-looking insects, in the entire Eastern, and portions of New York and Pennsylvania States. If the same results should happen in Canada, the loss would almost be incalculable. It is scarcely the province of the Conductor of an Agricultural Journal to dictate to his Patrons, as to what course they should pursue in the management of their business, but he can at least safely give advice, and should most certainly be the pioneer in all great and useful improvements, and it is with this

view we have resolved to give some plain advice, which we hope to practise ourselves, and see practised by others. The remarks which will follow, will be given in a friendly spirit, and it is to be hoped, that those for whom they are intended, will give them a careful consideration.

The cultivation of wheat has become too important an interest to abandon, without first adopting the most feasible measures to prevent its destruction by insects, or other causes. The principal ground of alarm, at present, is the injury which has been, and doubtless will be, sustained by the Hessian and Wheat Fly. These are two distinct insects, and in order to adopt any remedial measures to check their work of devastation, it is necessary thoroughly to understand their habits. The Hessian fly passes through two distinct generations per annum, and the periods that it is an active fly are, September, October, and May. The fly, about these periods, deposits its eggs near the sheath, a few inches above the roots of the plants. About a week after the eggs are deposited on the plants, they hatch, and become active and destructive insects, or grubs. They become so completely encased between the sheath and stalk, that no external applica-

tion could possibly destroy them; and in our judgment there are only three means by which their depredations could be prevented.

1st. By sowing lime and hard wood ashes, broad-cast on the plants of the young wheat, at the periods when the fly is about depositing its eggs; possibly such a treatment might save the crop. This, of course, would have to be done both spring and autumn.

2nd. When the insect is newly formed, and before it has done much damage to the plants, by passing Crosskill's clod-crusher over the field, not only this, but, insects of all kinds would be destroyed, and if an implement of this kind had been extensively used in those portions of Canada where the wheat crops have received most injury from the Hessian fly, it would doubtless have been a means of saving many fields from harm, which have turned out an entire failure.—For drawing and full description of this machine the reader will refer back to the *B. A. Cultivator*, new series, vol. 1, page 329.

3rd. The next and most feasible means of evading the attack of the Hessian, as well as the wheat fly, is to sow a very early variety of spring wheat at as late a period as the first week in June. Both these destructive insects by this treatment may be most effectually set at defiance, provided that the soil be well prepared, and the variety of wheat sown should be calculated to ripen in 90 days from the period of sowing. As the ravages of these two insects, in all probability, will completely destroy the hopes of many of our best wheat growers, we would recommend all who have sustained considerable loss, to put the foregoing methods to a test. We do not wish to be understood, to advise parties who have sustained serious damage from one or both of the wheat flies, to entirely despair of growing wheat in future years; but judging from analogy, the inference may be pretty fairly drawn, that, the destruction from these insects will yearly increase, until the entire wheat crops become destroyed.

Those of our farmers whose loss has become so considerable, that they have just grounds to apprehend that the business of wheat growing to them will no longer be a profitable one, will doubtless turn about in their mind's eye, with a view of ascertaining whether a profitable substitute for the wheat crop could not be cultivated. To render some little assistance to such as may be thus situated, we shall as briefly as possible point out a few operations on the farm, which if judiciously carried into practice,

will remunerate the cultivator quite as liberally as that of cultivating wheat.

It is obvious that those who cannot profitably grow wheat, will cultivate other crops. The first great interest to be attended to is, to cultivate such crops as will answer as a substitute for wheat, with a view of supplying the deficiency in sustaining animal life. These, in our judgment, may be placed in the following order:—An early variety of maize, oats, rye, barley, peas, buckwheat, and rice. The whole of these crops may be cultivated with nearly a certainty of success; provided that a new tribe of insects should not make their appearance, and thus destroy them, as has been partially done in the case of the wheat and potato crop. In proportion as the wheat plants become more difficult to cultivate, from the causes previously alluded to, will be the desire on the part of the cultivators to substitute the cultivation of other crops, which will be profitable and wholesome in sustaining the wants of the human family. Those that we have pointed out may be cultivated on every quantity of soil, and in every township in the Province, and the only thing required, to secure a large and profitable return from the land, is to study the habits and wants of each, and to adopt such a rational system of cultivation, that the laws and requirements of each plant may be supplied by art, wherein there may be a radical deficiency on the part of nature. If our apprehensions regarding the failure of the wheat crop should ultimately prove correct, and our farmers should find a necessity of turning their attention more largely to the cultivation of other crops; it is obvious that the wants of the country demand that we must not be satisfied, as were the Lower Canadian farmers under a similar calamity, with simply *vegetating*. But we should produce from our lands sufficient to pay a large proportion of the imports of the country. Either this will have to be done, or else the inhabitants of the country will be obliged to adopt the simple and economical habits, that were characteristic of this country upwards of 40 years ago, when imported luxuries were used only by a few individuals, and the great bulk of the population were satisfied with what they produced on their own farms. It is not in unison with the spirit of the age to recede,—man is a progressive being, and we live at a period of the world's history when the rays of science and civilization shines more conspicuously upon the human intellect than at any previous period. It therefore does not seem rational for man in

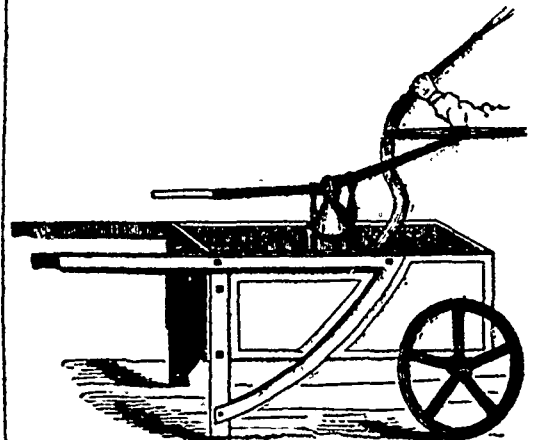
consequence of a single calamity, to give up all his previously conceived notions about what constitutes comfort and happiness in this world. If an All-wise Providence has seen fit to show us our complete dependence on HIM, by sending flies and worms, the very smallest of his creatures, to destroy our wheat and potato crop, the wisest course to be pursued under such circumstances, is to try every possible means to evade injury from those enemies to our crops, and if those means fail, then it would be wise to give up growing the effected crops for a few seasons until the insects have passed away, or in other words, until they become starved out. What these products are to be, is now the question to determine. It is clear to our mind that new articles of export will have to be cultivated by our farmers, and in our judgment, among the whole list of products that may be profitably grown in the colony, none will exceed those of hemp and flax.—The lint and seed of these two plants cost the British nation between eight and ten millions of pounds sterling, annually; nearly the whole of which are paid for in British gold. The annual imports of Canada exceed five millions of pounds, and the agricultural exports fall short of a million of pounds annually. The only article at present exported at the sea-board of this country, worthy of much note, or on which much reliance can be placed, as a means of making payments for the imports, are wheat and flour; these even under favourable circumstances fall short of meeting the commercial demands against the country, and it now behoves every man at all interested in the welfare of this colony, to employ all the influence he may possess in looking out new articles for export. If it were possible to bring the same amount of capital and skill to bear in the cultivation of the two plants we have mentioned, as have been expended in the cultivation of wheat, then, there would be a fair prospect, that they would become a good substitute for wheat and flour, as a profitable article of export. By employing efficient machinery and skilful operatives, preparing the fibre of these plants for market, they will leave a large profit after paying all expenses, and besides the price or value of the article will not be so fluctuating as have been that of wheat and flour. The manufacturing of butter and cheese, and the cultivation of peas for the British market would pay exceedingly well, if prices should equal the average of the past five years, but even then, they would under the most favourable circumstances, prove inadequate to the wants of the country. It is

obvious that if the wheat crop in Western Canada should prove a failure as was the case for ten years in succession in the eastern portion of the Province, it would be wisdom to have more than one article of export, by which the commercial credit of the country can be sustained in adverse seasons, or those in which the wheat crop should prove a failure.

Reaping Machines.

Our readers will recollect, that in the April number of our magazine, notice was made of a machine for the above purpose, which would be on sale at our establishment. It is proper we should state, that in our judgment there were some points connected with the machine in question, that were calculated to destroy its efficiency; we therefore declined the sale of any considerable number of them, until they could be put to a practical test. We have since written to two establishments in New York State, in the hope that a supply might be had from that quarter, but the demand for them has been so great, that there is no possibility of getting a single machine.

Garishore & Co's Patent Fire-Engine.



This little Engine is decidedly one of the most efficient and useful machines for the purposes intended, that has ever been introduced into the market. A very large volume of water may be driven over the roof of any two-story building with it; and it has frequently been made the agent in saving valuable buildings when on fire. It can be worked most efficiently with four men, and is completely portable. Manufactured by Garishore & Co., Dundas, and on sale at the Provincial Agricultural Warehouse. Price \$10.

Hay-Making.

In the making or curing of hay, the first things to be considered are the proper periods for cutting the grass, and the length of time and modes adopted to cause it to dry. On these points, practical men do not agree; some preferring to cut when in full flower, by means of which, they say, they obtain more and better hay, and the crop is less exhausting to the land; while others consider it best to permit the grass to stand until the seed has just ripened sufficiently to vegetate, which will be more or less scattered for the benefit of the succeeding crop, and the hay, it is thought, is more nutritious, and consequently will afford more flesh and strength.

Lucerne and clover, undoubtedly, afford better and more hay when cut in the flower, and is better adapted for dairy stock than when cut late; but to avoid loss in weight and quality, by heat or fermentation, it is better to salt them down in the mow or stack the same day they are cut, after being exposed a few hours to a hot sun. Two bushels of salt, if uniformly scattered among the hay, are sufficient to cure three tons.

Red-top, Timothy, and the more substantial grasses, generally are not cut before they have arrived at their full growth, all about the time they begin to ripen their seeds. If cut when in a growing state, the unripe juices of the plant are apt to bring on violent heat and fermentation; and thus deprive the crop of much of its substance and nourishment. The truth of this has been confirmed by the observation of Mr. Isaac Reeves, of Delaware, who is of opinion that, by mowing these grasses before they are ripe, the roots bleed and die out, and that this is the reason why a second crop does not spring up for a long time after. "I once," said he, "purchased the fifth part of a crop of Timothy on one of the Islands in the Delaware, with the intention of cutting my lot at the time the other four purchasers did theirs, but I was called from home, and it was not done until the seeds would vegetate. I thought my hay was spoiled; but it was preferred to that of all others for horse-feed; and behold, the next year, my lot of land yielded double the crop of the others, and at the end of three years, it had increased to two and a-half tons to the acre, overgrowing all the other grasses, having a uniform crop of five feet in height, and preferred before all others at the market. Since that, I have never cut Timothy before the seeds will vegetate; and

I would take a poor field, that shows only a few spires of Timothy growing in it, and by these simple means, engage, in five years, to cut two and a half tons per acre, of superior hay, provided the land be suitable to the growth of the crop."

With regard to the best mode of making hay, there also prevail various opinions. One class of farmers never move their hay out of the swath on the day it is cut, but on the second day, shake all that was cut on the day previous, by giving it two turnings. It shaken the day it is cut, they say the hay is reduced by the heat of the sun; but by leaving it in the swath, it "soaks its own sap," and will be reduced very little afterwards. The more of the natural juice or moisture that can safely be left in the hay, the less they say, will it suffer from that portion of the loss which arises from the drying. Another class contend that *the more quickly the drying is effected, the less extensive will be the change in the starch of the plants;* and consequently the hay will retain more of its substance in a soluble or digestible state. The last assertion would seem to be correct, from observations made in England some time since on the two modes of drying hay. In the dales of Yorkshire, where great attention is given to the frequent turning of the hay, and the consequent increased rapidity of drying it, the cattle can be fattened upon hay alone, which is said to be rarely the case in Scotland, on the Tweed, where the process is more slow, occupying three or four days.

The plan generally adopted in the United States, and the one which long experience seems to justify, is to mow during the early part of a fair day, while the dew is on the grass, say until nine, ten, or eleven o'clock; then spread and turn the hay; towards evening rake it up into cocks of about 100 pounds each; and if the weather be very dry and hot, draw it to the barn or stack the same day. But if the crop is very heavy and green, it is suffered to remain in the cock over night, and about eleven o'clock the next forenoon, it is opened or spread, and four or five hours after is conveyed to the stacks.

In our agricultural labors, perhaps there is no branch more frequently slighted, and more slovenly done, than that of stacking hay and grain. The stacks are usually placed flat on the ground, often in situations where the water will not drain off, with the whole structure, rough, mis-shapen, and totally unprotected from vermin, and the rain. In

England, this business is done differently, the stacks being made with the view of saving all the grain and keeping the hay secure from the rain. They are generally placed on frames, elevated about two feet above the earth, and then built with the most exact symmetry, to the height of twenty or thirty feet, and covered with thatch.
Amer. Ag.

How to Prevent Disease in Sheep.—One of your correspondents proposes giving salt pork to sheep to cure the rot, and another proposes putting tar on their noses once a month, &c. &c. Now to my mind these prescriptions are about as rational as to set a fleece of wool before a hungry man who is perishing from famine. Sheep raising has been my principal business for the last sixteen years, and there never has been any disease among them within my knowledge. My motto is, "an ounce of prevention is better than a pound of cure," and my remedy against all diseases of sheep is, to give them plenty of good pasture, with water, shade and salt, in summer; and in winter the addition of hay, grain and shelter.—*Am. Ag.*

Bees.—“Bees should not be kept on the south side of a wall or building, but on the north side. If kept on a southern exposure, they will be tempted to leave their hives while the general atmosphere is yet cold and perish before they can return.”

The Prospect of the Crops.

The Wheat crop has received great injury in the oldest settled portions of the Province, from the grub of the Hessian Fly. This insect has committed its depredations only in sections of the country, and the loss, although very considerable in some neighborhoods, will not equal the fears that have been entertained by many from this source. During the months of March and April, the cold damp rains and frosts that prevailed at that season, destroyed a large quantity of wheat, and many farmers whose prospects of a good crop were exceedingly bright in autumn, had just cause of alarm, after the ground became thoroughly settled in the spring. Many whose crops were injured from this source, had the land re-sown with spring wheat, which owing to the lateness of the spring, does not look as healthy as crops managed in a similar way, ordinarily appears at this season of the year. Where

the winter wheat plants were seriously affected with frosts, and other causes, and the plants that remain on the ground, are scattering, and of a deep green, and unnaturally luxuriant in their growth, the rust will doubtless be very destructive; and indeed there cannot be much doubt but that many crops will be entirely destroyed from this great enemy to the wheat-grower. The next cause that will be likely to mar the farmers' hopes of a good harvest, is the *Wheat Fly*. This insect was in sufficient abundance last harvest, to leave just grounds to apprehend that whole fields will be destroyed by it the present harvest. The greatest damage, in all probability, will be done to the best fields of wheat,—those that escaped injury from the spring frosts and the Hessian fly.—At the period this article reaches the subscriber, it will then be too late to save the crop. For matter of experiment sake, however, small patches of spring wheat might be tried, by sowing lime broad-cast, and by building fires that would cause a great smoke in the immediate neighbourhood of fields that the fly have not yet done any damage to the crop; but such treatment will often cost more than the value of the grain, although it might happen to prove a partial remedy.

A much greater breadth of winter wheat was sown last autumn than was ever known before in this country, in a single season;—and although it would be difficult to make a close calculation of the actual quantity sown, still, it might be very fairly stated, that the increase over the last year's crop was fully equal to twenty-five per cent. That increase was fully destroyed by the spring frosts previously alluded to, and the Hessian fly may be said to have annihilated one-tenth of the quantity left. The rust will doubtless destroy fully two-tenths of the remainder; and it yet remains to be seen how much damage to the wheat crop will be sustained by the attack of the wheat fly. Owing to an unfavorable spring, only about one-half the usual quantity of spring wheat has been sown.

Very much of the spring wheat crop will be under an average, which has been occasioned principally from the imperfect manner the land was prepared for the seed, in consequence of the cold heavy rains that prevailed in the early part of the spring.—Although neither winter nor spring wheat, in Western Canada, can be expected to yield as abundantly as was the case the past two seasons, still there is every prospect that the approaching harvest will afford an abundant yield to supply the country with breadstuffs for a twelvemonth. The oldest settled portions of the country have sustained the greatest damage, and in most of the northern and middle range of townships, there will be a full average, at least the present appearance of the crops would warrant such an opinion. Nearly all new land wheat looks exceedingly well; and if it should prove that the wheat sown upon land recently cleared from the forest, should produce much more abundantly than old land, it will doubtless be a means of encouraging many to engage in the clearing of lands that otherwise would not have done it. Although there has been a great outcry about the damage done the crops, by winter's frosts and the Hessian fly,—and the loss that will be actually sustained from these causes will probably equal 30 per cent of the entire wheat crop of the country,—still, in passing through almost every portion of the province, most excellent fields of wheat can be seen, many of which will yield upwards of 40 bushels per acre. Instances of this kind are to be seen in the immediate neighborhood of fields that have been completely destroyed. In many parts of the province, those fields that suffered most from the grub of the Hessian fly, were sown early in the season, and the land was under the best possible state of cultivation. The inference may therefore be drawn, that the fly deposits its eggs upon the plants, at a period when they are of a certain growth, and that it attacks the plants on both well and badly cultivated lands, indiscriminately

The hay harvest, which is now about

over, has been, in most parts of the province, a very productive one; and the weather has been most propitious for securing this important crop in good condition.

Oats, barley, rye, and Indian corn look exceedingly healthy,—and as by far the larger proportion of the land is occupied mostly with the foregoing crops, there need be no apprehensions regarding a failure of crops nor breadstuffs reaching starvation point. Indeed, the Canadian farmers, although in many cases they have realised great loss, have much reason to be thankful; and so long as they can safely calculate upon growing heavy crops of rye, barley, oats, Indian corn, hay, fruits, and culinary vegetables, and have a healthy climate, so long should they not be heard to complain, even if it should so happen that the wheat and potato crops should prove more hazardous than in former years.

The potato crops, in almost every instance where sound tubers were planted, have a most healthy and luxuriant appearance; but in some few instances that came under our observation this valuable crop has proved a complete failure, which must be attributed solely to the fact that diseased potatoes were planted, and consequently they did not germ or give evidence of the first symptom of vegetation. These instances have been rare, and so far as present appearances would indicate, it is quite safe to say that there will be a full average crop of potatoes, or at least this will be so in proportion to the quantity of land planted with this crop. If we were allowed to indulge a little in the spirit of prophecy, we would venture the opinion, that the potato crop will receive much greater injury from the attack of the disease, or epidemic, as scientific men term it, than any previous year. The cause of the disease is yet a subject of much controversy and speculation among the most learned men of the day. Almost every person who has written on the subject, has had some new theory of his own to establish, and so far as our observation and experience would warrant us, in forming an opinion regarding this very difficult subject, we are disposed to believe that the disease in question is caused by the work of a small black insect, whose habits and appearance are very similar to a common flea. The only means of prevention,

that appears feasible to our mind, are the use of sulphur, ashes, lime, soot, and salt, to be sown broad cast on the top of the plants, when the dew is on in the morning, but not in sufficient quantities to destroy vegetation; and also to either cut off the tops or pull them carefully up at a short period before the tubers give evidence of disease. The latter method if carefully practiced will doubtless be a means of saving a large proportion of this valuable crop.

Provincial Agricultural Association.

We beg to remind the friends of agricultural improvement, that the next grand exhibition under the patronage of the above Association, will be held in the City of Hamilton, on the sixth and seventh days of October. Much good is expected to result from this exhibition, and judging from the great interest that has been manifested towards the association during its short career, we are warranted in the opinion, that the good citizens of Hamilton will find much difficulty in accommodating the tens of thousands of visitors with comfortable lodgings. The managing committee will, doubtless, do their best to make every suitable provision for the great gathering; and we have much confidence that the citizens of Hamilton will vie with each other in giving comfortable accommodations to the thousands who will be unable to find lodgings at the hotels and houses of public entertainment. The association has been established with a view of encouraging improvement in the various pursuits of life, in which the inhabitants of this colony are engaged, and one of its grand objects is to concentrate annually, at one point, the choicest productions—the improvements—and most recent inventions of the country. To do this most effectually, the various committees that will be appointed to award the premiums should be authorized to grant discretionary prizes for every article under their several classes, that in their judgment might be worthy of a prize. By the adoption of such a course, the inventive genius of our people would be greatly stimulated to action. This, however, cannot be done, as useful and desirable as it may appear, by a society without funds. Before a very wide latitude in this respect be given the judges, the amount of disposable funds in the hands of the association should be ascertained, which can only be known by the friends of the association subscribing

liberally before the first day of the exhibition. We expect that the various Agricultural Societies throughout the western portion of the Province, will contribute liberally towards the funds of the Association, in order that it may be placed on a sound and respectable footing. Aid from these societies in future years will scarcely be expected, but in this instance it is very desirable, as the future success of the association will greatly depend upon the character of the next exhibition. But few answers to the circulars that were sent by the Association, to the various Agricultural Societies, have yet been received, and the only positive assurance of aid that have yet been given have been received from the following Societies:—The Home District, about £50; Gore District £50; County of Northumberland £25; Simcoe District £10; London District £10. Some few District Societies have positively refused to render any aid, and strange to say, a District Society whose members will, doubtless, receive as large a proportion of the funds of the Association, as either the members of the Home or Gore Districts, have stated in terms that cannot be misunderstood, that no assistance need be anticipated in that quarter. Instances of this kind however are rare, and we have much confidence that the wealthy and influential portion of the country, and; in fact, every man who has a desire to see its agricultural and general productive interests placed upon a sound and flourishing condition, will render every assistance in their power in advancing the interests of every movement that is calculated to improve the social and physical condition of this fine country. The Association, under notice, is destined to be of great service to the country, and we earnestly expect that all parties will unite in giving it a hearty and liberal support.

While upon this subject we would state, that we shall at all times be happy to receive subscriptions, and that persons desirous of entering articles for competition may do so, any time up to the first day of exhibition.

Preserving Green Currants Fresh.—M. S. Wilson, of Lenox, Mass., preserves green currants in dry glass bottles, corked and sealed tight, placing them in a cool cellar. Green gooseberries may be preserved in the same way. He adds, "In this manner green currants have been preserved in my cellar for years. I have green currant pies on my table at all seasons of the year."

On the Improvement of Wheat No. 1.

MR. EDITOR:—

Wheat our principal cereal is cultivated, 1st, for seed or reproduction, and 2nd, for the food of man, and this has been the case from time immemorial; for both purposes, the freer it is from impurities and disease the better. For 1st, when it is intended for food, the quantity of the farina (flour) contained in the sound kernel, is much greater than in diseased grain, of much finer texture, and more wholesome quality, (the bread being more palatable and nutritious) so that mankind is doubly benefited, i. e., both in quantity and quality; and 2nd, when it is intended for seed, not only are the same results produced, but we have the certainty of obtaining a more prolific, and in every way more remunerative crop. Such are the results from sowing good and healthy seed—and the same follow in an equal degree from sowing seed that is pure and unmixed. In the mother country much careful attention is paid to these points, with the most beneficial consequences. These are various diseases which affect the wheat crop, which can be prevented, or at least, lessened by the exertions of the farmer himself—as to these and the remedies for them, I may speak in a future letter, at the proper season. Meantime, I wish to direct your attention to a few of the impurities which are frequently to be found affecting the sample of wheat, much to its detriment in all respects. This is a fit matter at this very time to be brought before the notice of Canadian farmers, as I observe, that the Canada Company has very liberally and spiritedly offered a handsome premium to be awarded at the Agricultural Meeting at Hamilton in October, for the best sample of 25 bushels of fall wheat, so that I am induced now to call the attention of farmers to some weeds, whose seeds may, with some little care, easily be eradicated from among those of wheat, but which, if found in the sample exhibited by any competitor for the above premium, ought properly, and in all probability will, disqualify it from receiving the award; for I suppose it is the sample composed of 25 bushels of grain which is best not only in quality, but also in purity, that will at all be considered worthy. Of such weeds, I would here particularly notice, and make a few observations on

CHESS, CHEAT, OR DARNEL.

This is a weed about which much nonsense has been written. I was lately highly amused

on perusing a statement regarding it, by a writer in the *Prairie Farmer*, which certainly reaches the very climax of absurdity. This writer asserts, not only what has often been done before, "that wheat will turn to chess by freezing and pasturing," but he goes much further, and actually states that he has himself, more than once, had in his possession, a root from which proceeded both a stalk of wheat and one of cheat, and which he affirms, was seen by other parties, and that "another respectable citizen of this neighborhood has found wheat and cheat growing from the same root." The Editor of that excellent paper, very properly remarked, that the writer should have preserved his specimen for general inspection, "as people are naturally incredulous on this subject" in this I cordially concur, and do not hesitate to say, that had the alleged single root been minutely examined, it would have been found to have been really double—though from being warped together in a manner that can only be accomplished by the hand of nature, it had, at first sight every appearance of being only one. I have myself in the antipodes of Great Britain (and probably you and others in this country may have) seen even trees, whose roots, stems and branches had become so interlaced, that a superficial observer might have been justified in alleging that there was only one tree, though several branches were evidently composed of different timber, fibres and leaves, and otherwise retained their distinct characters of separate trees.

But the statement as to one root producing both chess and wheat, is in itself absurd; for chess is not a disease, (as are smut, rust, mildew, &c.) but wheat and chess are two different plants, and the one is entirely distinct in its characters, is in fact an altogether separate species of plant, from the other. The stalk or straw alone of the one, resembles that of the other; while the head of chess (which is now well known to be a kind of grass, by Botanists named *Bromus*.) is not close and compact, or even at all like that of wheat, but is open and branching in the manner of the oat. Agriculturists both in the old and new world have often ere this been gulled with stories of wheat degenerating into chess, and these are still believed by many—but as Professor Johnston very aptly remarks, "Let us assume with all Botanists, that species cannot be transmuted, and the production of wheat from a *Bromus* (et vice versa,) is impossible," and hence the alleged pro-

duction of two distinct species, from one root, is, a priore, equally so.

Wherever chess or darnel abounds among wheat, (let farmers look sharp to it, and profit by the hint!) it will almost invariably be found that the latter is thin on the ground, from one of two causes; either too great sparing of seed, or the plants being thrown out by frost in spring, after an open winter, or otherwise; while the chess which is a coarser and hardier plant, has stood the frost without suffering damage. The seed sown may not have been well cleaned, or chess may be an indigenous plant in the soil, or in some soils, and thus spring up spontaneously, and flourish on the spots unoccupied by the wheat; as do the wild mustard or yellow weed, wild poppy, and other weeds in some countries, which are not sown with the wheat. Experienced farmers are well aware that nature suffers no part of the soil to remain idle, and if a sufficient supply of cultivated plants are not on the ground, she immediately asserts this prerogative, and fills up the vacancies with chess or other noxious weeds, whose seeds are either naturally in the soil, or conveyed there by one means or another. Let due attention therefore be paid, in the first place, to having a sufficiency of wheat plants, for if they are thick enough, such weeds will thereby be kept down or smothered.

If chess be, in all cases, an indigenous plant, which I do not believe, it will be difficult to eradicate, on account of its resemblance to wheat, till they come into ear. Then, however, every effort ought to be made, by pulling it up, or cutting off the ears of the chess with a pair of scissors, or otherwise. Let not the farmer be afraid that his wheat will be trampled down and damaged by going through himself, or by careful workers, overlooked by himself. It is an old saying, "that the tread of the Farmer hurts not the crop," and though the meaning of that saying evidently is, the more he goes among, and examines his crops, the better is he acquainted with their condition and prepared to remedy any deficiency (or by it may be meant, to inculcate the benefit of industry which the Farmer shews who sticks to his occupation, and *has an eye to every thing*.) I think it will be equally applicable in this case. I do not urge on a Canadian Farmer the necessity of going over all his crop in this way,—though that is done in real earnest, (labor being cheap,) by every East Lothian and many

other Scottish Farmers, more than once in the season,—especially as regards cockle, (which they denominate papple); but our Canadian Farmer can allot an acre or two of his wheat, which he knows to be of a good kind, and to be already pretty free from weeds; and as soon as he can distinguish the chess or other intruders from the wheat, let him in earnest set to work with his family or labourers, and carefully pull out every weed he can observe. Let the produce, of this acre be again well examined in cutting or binding, in the shock, and when putting into the barn, but especially when opening out the sheaf for the mill. On all these opportunities, let every weed be carefully picked out; or if chess, &c. cannot be entirely eradicated in this way, let the greatest care be taken to do so effectually, by proper winnowing. Every Farmer ought to have an improved Fanning Mill; and he need not grudge the trouble and expense of putting the produce of his experimental acre two, three, nay four times, through the winnowing machine, introducing each time different sieves, &c. He may even be so careful as also to hand-pick all the plump, sound, and healthy grains, from a bushel or two of seed, at his leisure hours, assisted by his family. This may, and perhaps ought to be the first operation employed, with regard to the acre alluded to, viz: to sow it with pure and healthy seed. In this way wheat has been kept very free of many such weeds as chess, in many parts of Scotland. I myself have seen the fields in whole districts of that country, waving in rich luxuriance with splendid crops of pure Hunter's Wheat and Hopetoun Oats,—the first raised from *one head* of wheat found by Mr. Hunter of Tynefield, in a Berwickshire Moor,—and the latter from *one head* of oats discovered in a neighbor's field, by Mr. Shireff. In the truth of these circumstances, which happened not very many years ago, I can easily be borne out by many gentlemen now in Canada, if such were needful. I mention them here chiefly with the view of shewing how much can be done by care, attention, and patience, and to encourage Canadian Farmers to be more particular than I am told they have been, in having in their possession pure and sound seed. I have shewn the best modes of having it pure. The soundness or freedom of seed from disease, and the means of securing it therefrom, may form the subject of a future communication. Meantime, I shall merely say, let the Farmer sow his *pure*

seed at the proper season, and I will guarantee that from him we shall hear no more of such libels on nature, such ridiculous absurdities, as "wheat and chess growing from the same root," or "wheat turning into chess." I say *absurdities*, for we may with equal reason, believe, and assert, that a honeysuckle and a brier grow from one root, or that a dog often turns or changes into a pig!

I am, &c.,

SCOTTS.

July, 1847.

The Weather and the Crops.

The report of the crops that will be seen in another page, was written about the 10th inst., and since that period, up to the 22nd of the month, the weather has been excessively hot, so much so indeed, that the wheat crops have been hurried forward to perfection in a most unprecedented manner. Already, much has been harvested in the townships bordering the lakes, and we are pleased to add, that the samples are bold, and will average the standard weight. Within the past two or three days, frequent showers of rain have fallen in the neighborhood of this city, and the weather has now become very much moderated, which, will doubtless prove favourable to the wheat crops that have not yet fully matured. The rust has not done the damage that was anticipated. The wheat fly that commits the depredations in the head or kernel, from the best accounts we have received, has not been more destructive than was the case last year, and where it is likely to do much damage, it would be a wise plan to cut such crops early, inasmuch as the grub leaves the grain, the moment it begins to harden. The best farmers in England and the United States, commence cutting their wheat crop a short period before it may be termed ripe, and it has been ascertained that the grain will yield a greater quantity of flour, when cut a short time after it has left its milky state, than at any other period. The work of the grub of the Hessian fly can now be seen in nearly all parts of the province. Every stalk thus effected, falls to the ground when the head begins to fill, much thus damaged has filled to the astonishment of every one, and in neighborhoods where it was thought that the work of destruction was complete, there will be an average of ten bushels per acre.

TRANSACTIONS OF THE NEW YORK STATE AGRICULTURAL SOCIETY, AND AGRICULTURAL SURVEYS.

The sixth volume of proceedings of the above society has been recently published, which contains upwards of 700 pages of highly instructive information. This work embraces the proceedings of the various country and local societies in the State, as well as those of the State Society. By this means a correct record of the proceedings of Agricultural Associations, is distributed as it were broadcast among all classes in the State. The New York State Legislature defrays the expense of publication, and the only burden that the society has to sustain in publishing this massive and highly creditable Agricultural Work, is the binding and distribution, and the payment of their Secretary, who gets for his salary, the sum of One Thousand Dollars per annum. To make the *transactions of the society* still more interesting and popular, full and accurate, agricultural surveys of the different counties in the State will be taken as fast as the means of the society will enable it to proceed in a work of this character. A commencement has been made, and Washington County has been selected as the most appropriate county in which to commence this important work. Our friend, Dr. Asa Fitch, has been commissioned to execute the survey, and to superintend the publication. Under his able management it cannot but succeed, and be productive of much good to the farmers of the Empire State.

The subjoined plan will give our readers a pretty correct idea of the nature of the enterprise, which we copy from the *Albany Evening Journal*.

Plan of the Proposed Agricultural Survey of the County of Washington.

1. Geographical and topographical description of the County.
2. Geological features, minerals and fossils, nature of the soil, distinguishing that composed of the "northern drifts," or transported materials from that produced from the rocks of the immediate neighborhood.
3. Length of time the soil has been under cultivation; the original growth of timber, and the time it was first cut off.
4. Date of the first settlement of the several parts of the county, and the origin and general character of the settlers.

5. Condition and progress of agriculture from the first settlement to the present time, showing what have been the improvements and causes which have produced them; what have been the staple crops, the mode of their cultivation, and as far as may be practicable, the actual proofs of each, at different periods.

6. Present state of agriculture; the several crops cultivated, their respective yields and market value. Also, all industrial pursuits connected with farming, such as the manufacture of maple sugar, how managed in its preparation, &c.

7. Adaptation of crops, as grains, grasses, and roots, to different soils; showing the arrangement which in this respect has been found by experience to be most judicious and profitable.

8. Fruits and fruit trees; having particular reference to the adaptation of the various species to the different soils—mentioned under head No. 2,—and how far the productiveness, health, or longevity of the trees are effected by the nature of the soil, &c.

9. Weeds and pernicious plants, describing those most injurious, whether indigenous or introduced, and giving the most approved modes for their eradication.

10. Insects, describing those which are prejudicial to the farmer, and noticing the most effectual means of preventing their ravages.

11. Implements; having regard to any peculiarity of construction, and noticing any improvements, which may have been adopted in their form, mode of manufacture, or uses.

12. Live stock; horses, cattle, sheep, and swine; showing the numbers of each of these classes kept in the county, their diseases and mode of curing them; the different breeds, and as far as may be, the relative value of each for different purposes; the relative value of horses and oxen for labor on the farm; and any facts in regard to the profits and most economical management of poultry of different kinds.

13. Feeding and fattening animals; having regard to the most profitable modes, and the relative value of different kinds of grain, roots, apples, pumpkins, grasses,—both in their green and dry state— or any plants for feeding laboring animals,—whether horses or oxen,—milch cows, or for fattening cattle, swine or sheep.

14. Dairies and dairy produce; showing the quantity of butter and cheese produced, the quantity per cow, the best modes of making these

articles, and the kind of pasture and food, as well as the general management, which is found most profitable.

15. Wool growing; showing the number of sheep in the county, the breeds, the quantity of wool produced per head, the value per pound of the different kinds of wool, its preparation for sale, and where sold; the number of sheep pastured per acre on different soils; time required for winter feeding; quantity of hay required for carrying a given number of sheep through the winter; most economical mode of winter feeding, whether with hay alone, or with any other fodder, and whether any and what kinds of grain or roots, and in what quantities, and in what manner, are fed to sheep.

16. Manufactures; the kinds carried on in the county, their extent, and the effect they have had on the farming interest.

17. Examples of good management or success in farming.

18. General profits of farming; showing the returns for capital invested.

19. Education; the state of schools, and whether any instruction having a particular reference to agriculture, is given in schools and academies, and with what success or advantage.

20. Suggestions for improving the condition of agriculture.

21. Zoology of the county—at least a notice of those indigenous quadrupeds, birds, reptiles, fish, &c., that are serviceable or detrimental to man.

Owing to some improvements that are in process of being made in the paper-mills belonging to the Publisher of the *Cultivator*, the requisite quantity of paper could not be had, and consequently the present number has not been published as early as otherwise would have been the case

Memory.—Memory is the highest gift; we do not feel it to be so, because we only partially lose it, and generally retain it in great things; but let a man every moment forget others, then see what he would be. We are the creatures of the past, therefore of memory. To deprive us of memory would be to thrust us naked, destitute, into the mere present, only the moment after to strip us of memory again.

Kitchen Gardening.

CELERY.

May this month advantageously be planted out for winter use. If you did not sow seed at the proper time in spring, and have not plants of your own growth, procure some healthy ones, if possible, from a soil interior to that of your own garden. Celery thrives best in a piece of ground which is rather moist, and which is of the richest vegetable mould,—and near which there is no shade. On such a spot lay off a trench or trenches, about a foot wide, and remove the earth a spade deep, and lay it neatly on each side of the trench. Loosen the subsoil in the bottom of the trench, but do not throw it up or mix it with the good soil. Then put two or three inches of well mixed and rotten manure (good stable dung is not the worst,) which cover over and gently mix with about an equal quantity of fine rich mould, which may with much advantage have been previously prepared, by collecting and mixing up leaves, turf, &c, in a corner of the garden. Trim off each side of the trench neatly, and remove all stones and lumps of coarse earth, &c. Then lay a line along the middle of the trench, and make a single row of holes with a dibble, in which insert a plant, as you go along, about eight inches apart. The long roots ought to be cut, and the decaying leaves next the root drawn off. Take care, when planting, not to bury or choke the heart of the plant. Indeed this is a requisite much to be attended to. At planting, apply abundance of water, and frequently afterwards, if the state of the weather require it—they will not easily be drowned—and till the plants strike root and begin to grow, it will be well to keep them shaded. By-and-bye hoe the plants and eradicate all weeds!

The next operation, and one upon which the successful cultivation of this health-giving and excellent vegetable mainly depends is, *the earthing up* the plants as they grow. This ought to be done with great care and nicety, bringing up the soft mould around the stalks, and under the leaves, which ought to be held up with one hand, but on no account inserting any earth into or upon the heart. Some careful Gardeners even insert boards under the leaves, so that the earth can be drawn in under these boards, without hurting the leaves or choking the plants,—and they remove the boards as they go along. If your plants thrive well, this will require frequent repe-

tion, and the oftener and more correctly you do so, the more will the crop reward your pains in winter; as, of course, the finely blanched stalks will be found to be both of greater length and strength when you come to dig them up for use.

There are several varieties, but the white and the pink, or rose colored, are those most generally cultivated. The last sometimes grows a little coarse, and for this reason the white is by some preferred, as being more tender.

The stalks add much to the delicacy of pea-soup, and the tender leaves and the seed of this vegetable, are frequently made use of as a condiment in soups, more especially in that just mentioned.

LEES

are as yet not much cultivated in Canada, except by Scotchmen or those of Scottish descent, but they deserve to be known by all, and to have a place in every Cottage Garden. In one respect they are quite adapted for our country, being hardy enough to stand the rigours of its winter. When the plants are about eight inches high, they are fit for transplanting, which may be done in rows of about a foot wide, and five to six inches between each plant. The soil ought to be a soft, friable mould, of richest quality, and abundantly supplied with well made manure. The roots ought to be cut short so as only to be about an inch in length, and then dipped well in soft mud. Some people also cut the tops,—while others think that process bleeds the plants and hurts their growth. We stated in a former number, the mode of planting with a dibble, which ought to be as carefully done as possible. The plants ought to be kept clear of weeds, and earthed up as they grow. Indeed, when large and well blanched plants are desired,—and these are by far the most delicate and profitable,—the remarks we have made as to the earthing up and cultivation of *Celery*, will fully apply to the production of this vegetable.

LETTUCE.

The use of lettuce, as a cooling and agreeable salad, is well known; it is also a useful ingredient in soups. It contains, like the other species of this genus, a quantity of opium juice, of a milky nature, from which of late years, medicine has been prepared by Mr. Duncan, chemist of Edinburgh, under the title of *Morphea*, and which can be administered with effect, in cases where opium is inadmissible. Its soothing qualities are equal, and it leaves no bad or lethar-

gic effects, and its use does not require continuation like laudanum.

The varieties are very numerous. Those herein enumerated, have been selected from the many which have come under our observation, and will be found to suit the various seasons of the year. Some varieties celebrated in Europe, are of little value here, soon shooting to seed under our hot sun.

The Early Cabbage Lettuce is the earliest; it produces a moderately sized and very firm head; it is known among market gardeners as the "butter salad."

The Royal Cabbage Lettuce is a very large variety, dark green, with firm head, and withstanding the sun better than the preceding variety, not rapidly shooting to seed.

The India is a very fine kind, produces large hard heads, leaves wrinkled, stands the sun remarkably well.

The Early Curled [Silesia] does not head; is used principally as "cut salad."

General Observations for July.—Continue to sow peas, turnips, radishes, lettuce, and transplant cabbages and lettuce plants. Water when required in the evening, and pick up all fallen fruit, and destroy grubs and insects. Herbs for winter use should be cut off and dried as they come into flower in dry weather. Cucumbers for producing picklers should now be sown.—Of Strawberries, whenever they are done bearing fruit, and have made offsets sufficiently strong, a new plantation may be made from plants taken from the vigorous runners. Those of the small sorts should be in rows of about a foot wide and six inches between each plant. The larger sorts ought to be allowed much more room,—15 to 18 inches between the plants, both ways. The soil best adapted for strawberries is the light gravelly and warm, but not too dry; and the manure fittest to be used is, decayed vegetable matter; as animal manure destroys the *flavour* of the fruit, and causes a greater production of leaves and runners than fruit. This most delicious, fragrant and *nourishing* fruit, ought to be introduced into every Farmer's Garden; and, even in *small* plots, can advantageously be planted as an edging to the borders.

Profits of Farming.

At an agricultural meeting in Massachusetts recently, some remarks were made by Mr. Calhoun, of Springfield, on the profits of farming, as

compared with other pursuits. The conclusion was, that farmers, on the average, succeed better than merchants; that if, by way of experiment, one hundred men should go into a city and trade, and one hundred go to farming, at the end of twenty years the one hundred farmers would be worth the most money. Mr. Calhoun referred to some facts, statistical and other, to show the risks of mercantile business, and added, with regard to agriculture:

"Here is a foundation that may be built on with more certainty than any other. Yet young men are rushing into cities to make their fortunes. It is all-important that the facts which have here been stated, now and at former meetings, should be deeply impressed on young minds. Mr. Brooks says, 15 per cent. may be made on capital by any diligent and systematic farmer. Hon. John Lowell said 18 per cent. All this may be done by farming intelligently. He had wondered that farmers generally could get along so well as they actually do in their careless mode of farming. For himself, he had regained his own health by farming. The fresh open air had restored him. He repeated his pleasure on hearing the numerous statements of the profits that may be made in this business. One more consideration should have much weight. It had been truly stated by his venerable friend from Farmington, Major Wheeler, that this business naturally leads the mind to contemplation, and to gratitude to the Ruler of the Universe, to whom farmers feel obliged to look for a blessing on their labors. No occupation so directly leads the mind to reflection on the works of creation. All that we eat, drink, and wear, comes from the ground. In every view this occupation is important."

If the profits of farming in New England can be made to rise to 18 per cent., the advantages of our soil and climate ought to enable the farmers of Maryland to realise a still higher rate.—The importance of bringing *Science* to the aid of *Agriculture* is becoming more generally appreciated now than formerly, and we may hope that the results already realised may have the effect of perfecting an alliance so pregnant with beneficent consequences. It would be easy to make the elements of agricultural chemistry a part of the course of instruction in schools and academies—so far, at least, as to teach how to analyse soils and learn their different natures.—*Dait. Amer.* [In these excellent remarks, we of course highly concur. Ed. B. A. C.]

Manufacturing of Glass in Canada.

The following communication on the foregoing subject is deserving of a careful perusal by all who are interested in manufacturing enterprises in Canada. Mr. F. views this important interest in its true light, and it would be telling Canada some hundreds of thousands of pounds annually, if the great bulk of our population would so think and act in relation to the various manufacturing enterprises that might be profitably carried on in the colony. He very justly asks the question, why cannot we make equally a good an article ourselves, and thus save to the consumer most of the duty at present collected? As this question has not been answered by our correspondent, we shall for his information as well as that of our general readers, answer it to the best of our ability. The impression has been entertained by all who took a conspicuous part in the management of the affairs of this colony, that it would be injurious to the best interests of the Mother Country, and would be a strong proof of disaffection on the part of the colonists, should they make any attempt to manufacture those articles that were imported from Great Britain. The people were both ignorant and indifferent upon the point, and so long as the Colonial Government derived a large proportion of its revenue from impost taxes; were the latter interested in checking in the bud infant manufacturing enterprises. The case would have been materially altered, if a more equitable system of taxation had been adopted. If a system of taxation had been established that would have been borne equally by all who possessed property or a representation of property in the country, the government, and those who lived by the government, and, in fact, all who were interested in the general welfare of the country, would have employed every means in their power of increasing its productive wealth, whether those products were produced on the farm or in the factory, would then have been a matter of minor consideration. The great aim of some of our leading statesmen is to build up commerce and rely upon it, as the true source of wealth and revenue. The result of this mode of legislation may be found by examining the large imports of Canada, when compared with her exports. The imports the present year will exceed four millions of pounds sterling, and the exports of Canadian products will fall

short of a million and a half of pounds sterling. The writer of these strictures does not profess to thoroughly understand every topic connected with political economy, but, nevertheless, he is fully of opinion that it would have been a very easy matter to have had the great industrial interest of Canada placed upon such a footing, that the exports of 1847 might have been equal to the imports previously mentioned, and the imports less than the supposed exports. Before the Canadian people could fairly set about accomplishing such a patriotic task as the one we have pictured to our fancy they will have much to learn. Whether they will attempt to employ their talents and capital in developing the agricultural, mineral, and manufacturing resources of the country, on a broad and liberal scale, is a question, that would be difficult to determine.— At all events, it is certain to our mind, that it would be useless, under present circumstances, for the people of this colony to engage extensively in manufacturing enterprises. This is an omission that we make very reluctantly, because, our zeal in Canadian matters, in former years, forced upon us the conviction, that one of the surest roads to national prosperity would be that of engaging largely in the manufacture of all the coarser kinds of goods, and thus, not only establish a wholesome and steady market for all the agricultural products that could be produced in the colony, but be a means of lessening the annual imports, at least, fifty per cent.

A much greater result than the foregoing might have taken place, had it not been that the great bulk of the people have been contented with their situation, and have had very imperfect notions respecting national prosperity and greatness. Money has been exceedingly scarce in the country, and there is no certainty of procuring it in any quantity, with a view of its being employed in agricultural and manufacturing enterprises. Our Canadian statesmen have been satisfied in viewing the appalling and disgraceful spectacle of the bone and sinew of our country, being placed in the position that they could not with any degree of certainty, calculate upon extending or improving their condition by employing borrowed capital. Men possessed of property to the value of thousands of pounds, have frequently found great difficulty in borrowing as many hundreds; and indeed, instances have often occurred, where farmers and mechanics have

been refused accommodation to the amount of a few hundred dollars each, when at the same time they were doing a sound and healthy business, and were owners of unencumbered freehold property equal to the value of from eight to ten thousand dollars. At the present moment there is a complete dearth in the money market, and every man in business, especially those engaged in agricultural and mechanical pursuits, are put about to get a sufficient amount of money to meet their engagements. Money has become so notoriously scarce, that almost every man is anxious to borrow, and but few can succeed in effecting loans upon advantageous terms or such as would be adapted to afford a wholesome accommodation to persons engaged in manufacturing operations. It would be a very easy matter to so regulate the affairs of this colony, that money in any quantity could be had for long periods of time, quite as readily as merchandise, agricultural products, and other property could be purchased on credit. It requires but a very small amount of skill, on the part of a man in business to purchase goods or other property on credit, but to effect a loan of the same amount of money would prove an Herculean task; and in fact, the most experienced financier would not attempt it. This state of things goes to prove to our mind that the entire monetary affairs of the country are based upon an unsound foundation, and require immediate attention on the part of every man who has claim to a spark of patriotism. For our own part, we have resolved to be very cautious in recommending the Canadian people to engage in new and untried enterprises, which require the expenditure of much skill and large sums of money, so long as there remain upon our statute books, laws which pretend to regulate the value of money in our market, and which at the same time make no provision to establish a value for merchandise and other property. If the former is required, the latter is equally as much so; but in our judgment the value of goods, property, and money should be allowed to find their worth in the market, and then, and not till then, can a new country like Canada become a manufacturing country.

To the Editor of the B. A. Cultivator.

MR. EDITOR,

Feeling that it is the duty of every one in this colony to do what he can to encourage home productions, I beg leave to call your attention and that of your numerous readers to a branch of industry that I should think might be profitably introduced among us. I refer to the manufacture of glass. Year by year our importations of glass of all kinds from the United States is increasing. The glass-ware, especially the tumblers, made there, are found to be far more serviceable than those imported from England; and, if you compare those costing the same price from these two countries, you will find those from the States to be by far the most serviceable.

So clearly has this been proved, and so generally has this become acknowledged, that all our best families use nothing but American tumblers on ordinary occasions, reserving the expensive English cut ones for great occasions; and these are persons who three years ago would have thought themselves insulted if they had been recommended to use such American articles on their dinner tables. I have spoken of them as far more serviceable. I will give you an instance of it. It is only a year since we began their use in our own family. Before that time a single year did not pass round without our being obliged to renew our set of tumblers; and when inquired into I found that they were so delicate, that they often actually went to pieces in the domestics' hands when wiping; and that it was no unusual thing for them to crack when standing on the shelf. Since we have used the heavy pressed American tumblers, we have not lost a single one, and I think them handsome enough for any gentleman's table, and they are thought so by others. I have no doubt of there being better articles made in England than are made in the United States; but I speak of such as we get for the same price that we pay for the American tumblers here, duty included. Whether it be the fault of our importers, or whether their being too fragile an article to carry such a distance, I know not; but this I do know, that I can buy a much better article for 12s. 6d. currency, per dozen, of American manufacture, than I can for 15s. of English manufacture—larger, handsomer, quite as clear, and infinitely more serviceable.

Now, if these can be afforded in this country at such a rate, after paying 15 per cent duty; I ask, why cannot we make equally as good ones ourselves, and give the consumer most of that duty? I do not think that people are patriotic enough to desire to pay such a duty for the benefit of our revenue, or rather, I think, they are patriotic and prudent enough to purchase an equally good article manufactured here, if it can be afforded at a less price. When we consider the immense quantity of glass-ware used in this Province, including window glass, tumblers, wine-glasses, bottles for various purposes, and phials for the Druggists and Physicians' uses; and that more and more of these are being imported every year, for which hard cash has first or last to be paid, and a duty of 15 per cent, I think we have reason to believe that the demand would warrant the establishment, in some favourable locality, of, at least, one glass factory.—Workmen, acquainted with the business, could, no doubt, easily be procured, or soon taught the business; and I should hope that the necessary materials could be found in the country; if not all, those that cannot be found could be imported, free from duty, and on more reasonable terms than the manufactured article.

Yours truly,

J. B. FULLER.

Thorold, July 5, 1847.

Management of Honey Bees.

Swarming.—The cause of swarming, in all cases, is an excess of population, the bees not having room for all to work to advantage. When bees are placed in very large hives, or when they are quartered in an open room, as is sometimes done, they never swarm. Swarming may also be prevented by affording additional rooms, either at the bottom, top, or side of the hive, during the swarming season. As a matter of profit, in the increase of stock, bees should never be placed in rooms, or in hives larger than twelve inches square. If we should have two swarms, the one in a hive two feet square, and the other in a hive one foot square; or in hives of the same contents, though differently shaped, the result of the increase of each, at the end of five years, would be, with good management, about as follows: viz, the swarm in the larger hive would about half fill it with comb the first year; the second year it would be complete, but no new swarm. The following spring would find the hive full of comb, but only half full of bees; and it would require the third year to replenish, and so it would continue *ad infinitum* yearly replenishing its lost population, and at the end of fifty years you would have no more bees than when you commenced!

The other hive would be plumply filled the first year; the second year a couple of prime swarms might be calculated on; the third year, we will say, only one swarm each (a very low estimate), we now have six swarms; the fourth year we will double to a certainty, and the fifth year the same, making twenty-four swarms, while the larger hive "stands alone in its glory," if not entirely annihilated by the ravages of the moth, the more probable result of the two. In each hive there is but one queen, which is the source of all the increase. The eggs are laid by her. A hive one foot square is as large as she can use. In such a hive all the workers that she desires to carry out her ends can be fully accommodated. Ten thousand bees to a hive in the spring are all-sufficient—more would be but an incumbrance; hence, we find, that though there be one hundred thousand in a large hive during the breeding season, the following spring finds them departed to that "bourne whence they never return."

The principal laying of the queen depends much upon the mildness of the spring and much upon the strength of the stock. I am fully satisfied

that many of my stock are in progress of breeding through the entire winter, to some extent. Indeed that such is the case with any populous stock we have abundant proof, in cases where the stock has been destroyed in the heart of winter, as an experiment to test the fact. Where such is the case, there is not that diminution in the number of the bees from fall to spring that ordinarily occurs. In weak stocks, the internal heat necessary for the maturing of the young brood cannot be produced, and we find that such stocks are compelled to await the approach of warm weather. Here we have the basis of prosperity in a nut-shell. If we cannot so manage that our hives will be populous to their greatest capacity, we may as well give up the idea of perfect success at once.

If the hive be well filled, the queen is fully aware that a large portion of her increase, which the laws of nature compel her to give, must leave her domicile; and she also, through instinct, learns that each swarm must be provided with a queen-regent, like herself, in order to perpetuate their species. These queens, or rather princesses, are produced from the common egg from which issue the workers, or from a common worker-grub, in its primary stages of advancement by a particular treatment. This fact is shown by the mode of artificial swarming, now practised to some extent; the philosophy of which is this: If a piece of comb, containing the young brood of different stages of maturity, be attached to the top of an empty hive, and a quantity of bees be placed therein, having no queen, they will select a certain aged grub from the comb afforded them, and by a particular process of nursing and feeding (the nature of which never was nor never will be known by us) they will produce a perfect queen, and proceed in their avocation as usual. Without this piece of comb no power or ingenuity of man could cause the bees to perform a single day's labour.

As each swarm requires a *princess* from the old stock, from two to six are generally produced every spring, and such as are not wanted are immediately put to death, as it is entirely out of the question for more than one to exist in the same hive, unless it be during the short period awaiting the issue of a swarm. A very remarkable circumstance occurs in the development of these young princesses; they are so timed in their maturity as to issue from their cells respec-

ely just as they are wanted to take their departure with the swarms. That is, giving them a short period after quitting their cells to gain strength for the journey, say forty-eight hours, must be borne in mind, that where there is sufficient room, as in very large hives, the queen has no necessity of swarming, and consequently takes no measures to furnish the young princesses.

Indeed it often occurs that she neglects to do this in cases where the greatest necessity exists for them, and as a swarm never leaves in such a case we find many of our hives loaded with bees, clustering around and below during the entire warm season, which we watch with anxiety from day to day, or hour to hour, wondering what can keep them spell-bound to their tenement! As the needle invariably points to the north pole, and no human power can change this law of nature, so is the queen-bee the loadstone that draws every bee to her. The broiling rays of a summer-sun, famine, nay, the prospect of a certain death cannot move them. But when a young queen sallies forth on the wing of uncertain destiny, she is the magnet that draws after her a goodly portion of the estimated mass. Whither she goes they follow, and as she would gather her subjects around her, preparatory to the journey, she selects a slender branch or some small tree and alights. The bees at once commence clustering around her, perhaps some few minutes before the last has left the hive. Whether the bees ever select a habitation before leaving the hive is a matter of doubt with me. They sometimes do take at once, after issuing, to some suitable tenement, such as a decaying hive, or some hole in a building, or perhaps they may cluster for a few minutes, and then rapidly take their flight to the forest. All of this may be and probably is concerted after swarming. In confirmation of this, I once had a swarm issue from the hive in which the day previous it had been lodged, and after revolving a long time in the air, settled down upon the very hive from which they had just issued. Now here is an instance where a particular location is fixed upon while on the wing. What caused this singular operation I cannot say, unless it was that they took some dislike to the hive, and afterwards concluded to try it again. In order to remove such a difficulty, I took another hive, and as soon as they had fully clustered set it upon a table, and also set the hive with the bees upon its side near it; then with a dusting brush swept them gently down upon the table,

and they quietly entered the new hive, and did well.

The number of bees produced from April to July, in a strong stock, may be estimated at from 20,000 to 30,000. The first swarms I have generally found to be the largest, though some consider that in general the second are. The third are usually small. The period between first and second swarms is nine days; between second and third six or seven, and if yet another, the next day or two. The time, however, is dependent upon the weather. If we have hot, sultry weather, the bees mature more rapidly, and are increased in numbers, and consequently throw off swarms faster, but we need never look for a second swarm sooner than a week, and if the weather be cold and wet, it may be delayed fourteen days.

There is a catastrophe attending a rainy spell of weather during the swarming season, that many persons may not be aware of, which is this: The queen, in laying the foundation of new princesses, calculates upon their maturity at certain periods; when, if the weather does not permit, swarms would be ready to issue, according to her principles of the science; but as she cannot foretell the weather, she is often caught with three or four of royal scions on hand, and the weather does not permit the issue of a swarm for several days, as fine weather for such an operation alone will do.

As these princesses ripen in maturity, a spirit of jealousy begins to be engendered, that sets the whole hive in an uproar. Here is a sad dilemma! The old queen expects to go off with the first swarm, in person, as soon as the weather becomes fine; in the meantime there are several young expectants for assuming the reins of government, who begin to show a spirit of revolt as they grow in strength and age. If this state of things last for a week, through rainy weather, their jealousy becomes so furious that a general fight of extermination takes place, and the one that finds herself alive last assumes the reins of that stock; and if all the princesses have matured, there will be no more swarming that season.

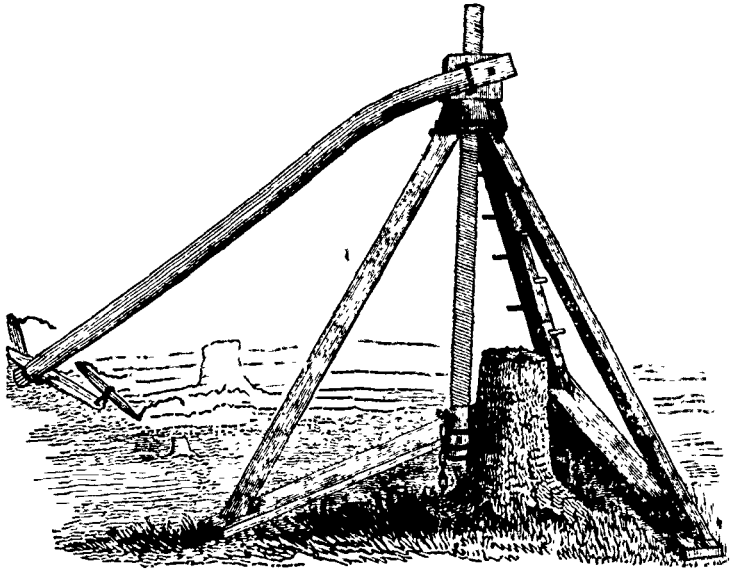
This is another reason why bees do not swarm, when we think they do not know what is for their own interest; but I assure the reader, that when they do not send off swarms, it is for a good and sufficient cause, though we may not be able to comprehend it.—*Amer. Ag.*

STUMP EXTRACTOR.

The accompanied engraving is a correct representation of a Stump Machine that is on sale at the Provincial Agricultural Warehouse. They are warranted to extract any ordinary sized pine stump, and are not apt to get out of repair. They have been tested along side of the various kinds of machines that are in use in this country

and the United States, and all who have seen them put to the trial, have given their preference over all other machines. They are cheap, strong, efficient, and durable, and doubtless supercede the use of all other machines used for extracting stumps.

After the 1st of September, we shall be prepared to execute orders for any quantity of the above machines, on the most reasonable terms.



Cement for Floors.

It is often desirable to have floors rat proof. The following receipt was procured by J. S. Skinner, from Col. Trotten, of the U. S. Engineer Department.

The mortar is to be made of one part of hydraulic cement, measured in rather stiff paste.—Then one part mortar, thoroughly mixed, is to be used with two and a half parts of broken stone or bricks, the largest pieces not exceeding four ounces in weight, or of gravel of similar sizes, or of oyster shells, or of either or of all these mixed together. These coarse materials must be free from sand or dirt. The concrete thus made, must be put down in a layer of not more than six inches, which will be about the proper thickness for the floor; rammed very hard, and until the coarse particles are driven out of sight, care being taken to bring the top of the mass into the true

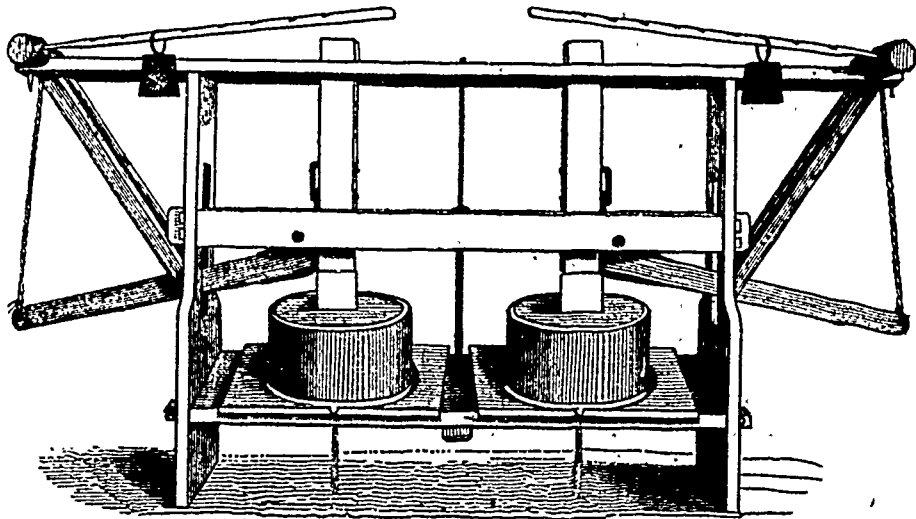
place of the floor by the first process; no subsequent addition of plaster being admissible. With the help of a straight edge drawn over great pieces, the top surface may be made smooth as even by the first operation.—The concrete should contain no more water than is necessary to give the requisite elasticity to the mass. The floor should be covered as soon as finished, with straw or hay, which should be kept wet for several days the longer the better.—*Bost. Cult.*

How to Make Good Tea—Boil rain water and pour upon your tea, letting it steep from one to ten minutes if you wish to realize the true taste of the "plant divine." Well, river, or spring water, many parts of the country, is strongly impregnated with lime, which acts chemically upon the tea-leaf and greatly deteriorates, or destroys its fine aromatic flavor. In fact, water containing lime, or more vegetable matter in solution, has more or less effect upon all kinds of cookery. Beside, it is highly injurious to the health of most persons.

CHEESE PRESS.

The accompanying drawing is one of the most recently improved cheese-presses in use in the dry districts in the United States. It is as its appearance indicate, a powerful, and at the same time easily managed machine. It is calculated

for the largest sized dairies, and will press small as well as large cheeses, and is intended to operate upon one, two, three, or four cheeses; as may be required. We can recommend them with confidence. On sale at Agricultural Warehouse. Price £4.



A Wash for Fruit Trees.

A good deal has been said about the best application for this purpose—one recommending lime, another a solution of soft soap, and another a solution of potash. All these are very excellent, but sometimes fail of being applied, from an unwillingness in the farmer to drive to the village in search of them, or from the false economy which regards the slight expense of procuring them. If there is anything equally beneficial, and within every one's reach, we think it should be substituted, as doing away with the last apology which a lazy man can give for neglecting his trees, and we think that this article may be found in wood ashes, of which every farmer has an abundance. I have tried the solution of black salts, the application of soap, and also that of wood ashes; for large trees with rough bark, the latter is quite as good, if not better than the former. A wash of ashes and water can be made as strong as you please, and if put on some dry hay, a good deal of the ashes will remain adhering to the bark, which the subsequent rains wash into the crevices. This wash if applied in the summer time, will, while the ashes remain on the tree, make it offensive and disagreeable to the insects, and deter them from lighting on it; also ultimately makes the bark smooth and healthy.

But those who wish for healthy and productive orchards, too much attention cannot be given to the bark of their trees. We frequently meet with forest trees whose interior has been almost entirely destroyed by fire or decay, and which yet seem healthy and flourishing by virtue of a vigorous bark;

and any one who has tried the experiment must have observed how both shrubs and trees, that have become enfeebled by age and neglect, can be rejuvenated by attention to their exterior condition. We don't mean to recommend to any to procure old or large trees for his orchard in place of young ones, but if he has an old apple tree worth improving, by removing the outside of the whole bark on it late in the spring, he will find that he has given to the tree much additional vigour. Upon smaller trees and shrubs, a liberal scraping with a trowel and an application of ashes and water will have the same effect.

When trees grow in grassy land, a pretty good way to keep them from being sod-bound, is to remove in the fall the sod two or three feet around the tree, and on this turn about half a wheelbarrow of manure; the winter rains and snows will wash the strength of it to the fibrous roots. In the spring the manure may be scattered about under the tree, and in lieu of it, substitute leached ashes. This, beside being beneficial to the tree, prevents the grass from approaching the stem of the tree during the summer; and what grass grows over the ashes is easily removed in the fall.

In conclusion we would say, that the farmer who curries his horse twice a day, finds himself abundantly rewarded for his toil, in the improved strength and appearance of his animal; why don't he curry his trees once or twice a year, and reap a larger reward for the labour and the capital thus invested?—*Minor's Journal.*

LADIES' DEPARTMENT.

Directions for Making and Using Starch.

ANOTHER LETTER FROM MARY.

MR. EDITOR.—Feeling no less anxious than yourself to gratify one who has so far excelled her sisters as to consider the wants of the *Editor*, in preference to those of his numerous family of subscribers, and willing to make amend for my delinquency in *this particular*, I will present for the special benefit of "Ella," the following directions for making starch, clear starching, ironing, &c.

The best and cheapest method for manufacturing starch for domestic use, is, to take ears of green corn when in full milk, and carefully separating from them all the husk and silk, rub off the pulp on a coarse grate, or tin seive, mix it in a pan with clear cold water, and let it stand for two hours; then pour off the water carefully, leaving the starch at the bottom of the pan; fill it again with water, stir it well, and let it settle as before; repeat this process until the water above the starch is perfectly clear, and the starch appears clean and white beneath. Pour this off also and fill the pan once more with water which has been previously blued and strained, mix it well, and strain the whole through a coarse towel or strainer; let it stand for two or three hours, then pour off the water, and place the starch upon earthen platters to dry in the sun. Starch made in this way is not inferior in quality to that made of rice, and is less expensive. Twelve ears of the large gourd seed corn will make a half pound of starch.

Directions for preparing or using this Starch.

—For linen, dissolve one large table-spoonful of starch in two gills of cold water; dip the articles and wring them, then wrap in a thick dry cloth, and let them remain at least six or eight hours before ironing. If any traces of the starch are discernable on the garments, let them be carefully rubbed with a dry cloth, before using the smoothing iron. For lace, prepare the starch as before, dip the articles, wring, and clap them, and iron immediately with a very hot iron. Footings, edgings, &c., should be ironed lengthwise, so that the edges be kept straight. If care is taken in this, the articles will have every appearance of new. For book muslin, lawn, jaconet, etc., dissolve one tea-spoonful of starch in a table-spoon of cold water; to this add two gills of boiling water, place it on the stove, and let it boil ten or fifteen minutes, stirring it all the time. Take

it off, and add a few shavings of clean white lye, stir it well, and when sufficiently cool dip the articles, clap them, and spread them on a cloth to dry in the sun, or before the fire; after dry make them very damp by sprinkling them, wrap in a damp cloth, and let them remain for several hours. Before ironing, great pains should be taken in clapping, stretching, and smoothing the articles with the hand, lest they become misshapen. This is the most difficult of this important art."

Starch made of rice, or bran, may be prepared and used in the same way as above; but potato starch should never be used cold, and indeed might say, *should never be used at all*, for it does great injury to whatever cloth it is applied to.—*Ohio Cult.*

[We may observe that the instructions given above for making corn-starch, are equally applicable in making it from potatoes. This is the name of British Tapioca is much used in puddings or kind of custard in the old country. To which milk and cream, and a little sugar or jelly are applied. A.]

"A Maiden should never talk scandal, scold nor hate so long at least as she is in the world on account of the contrast. When she has become mother of a household, with children, and maid-servants, no reasonable husband would be the object to a moderate degree of anger, and a humble share of scolding."

A Correct Taste in Children.—In many families the mother can contribute to the formation of a correct taste. The first hymns she teaches her child, the lisper, and even the earliest notes which she sings for its lullaby, should be chosen with care. The pictures with which the walls of the nursery are adorned, should be selected with a studious and cultivated regard for real beauty.—The likenesses of excellent men and women, whose names you would choose to have your children love, and whose virtues you would rejoice to see them imitate, are a very desirable ornament. A few elegant historical pictures which might be used as introductions to general history, or which are calculated to inspire noble sentiments, would be found of great utility in every family able to bestow them. A few well finished landscape pictures would also tend to foster a love of nature in the cheerful and its sublime aspects.

There is a refining and effectual influence arising from a daily familiarity with the scenery

ne, whether it glow before us in its original
ness, or in the representations of the genuine

At proper times as the mind becomes able to
ive them, clear and definite instructions should
given as to the reason of their selection, the na-
of their influence, and the general rules
ch should govern the exercise of the imagina-
As the youth educated by such a process
ers upon scenes, and studies away from home,
e early instructions, examples and associa-
s will operate to elevate, restrain and purify
mind, influencing his course of reading, his
panionship and his present character.—*Far-
Mech.*

Cheap Pudding.—Take two quarts coarse corn
el (the white Southern corn is best), a pint of
d peaches chopped into pieces not bigger than
e beans, a pound of chopped suet, eight or ten
e beaten up in milk, and mix all into a stiff
er, and put in a bag, and boil three hours.
the same with any kind of sauce you like, and
will eat as good a pudding as ever was made
such a trifling cost. If any should be left,
m it up next day, and it will be good again.

Musquitoes.—Attach a piece of flannel or
nge to a thread, made fast to the top of the
stead; wet the flannel or sponge with cam-
erated spirits, and the musquitoes will leave the
ci.

HOPE.

There's something in the human breast,
O'erwhelmed with care and sorrow,
That makes it turn with hopeful eye
To the dawning of the morrow.

Though heavy cares may crowd around,
And storms may darkly lower,
It feels there is a God above
Possessed of boundless power.

Although misfortune may appear;
Yet Hope will never fail,
But stay to cheer the heart amid
Misfortune's chilling gale.

And in the latest solemn hour,
When comes the reaper Death,
Hope will sustain the hum heart,
As long as there is breath.

Best. Cult.

The Young Lady's Mora' Toilette.
(From the Boston Cultivator.)

The Enchanting Mirror.—Self Knowledge.
This curious glass will bring your faults to light;
And make your virtues shine, both strong and
bright.

Wash to smooth Wrinkles.—Contentment.
A daily portion of this essence use;
'Twill smooth the brow, and tranquil joy infuse.

Fine Lip Salve.—Truth.
Use daily for your lips this precious dye,
They'll redden, and breathe the sweeter melody.

Best Eye Water.—Compassion.
These drops will add great lustre to the eye,
When more you need, the poor will you supply.

Solution to Prevent Eruptions.—Wisdom.
It calms the temper, beautifies the face,
And gives to woman dignity and grace.

Matchless pair of Ear Rings.—Attention and
Obedience.

With these clear drops appended to the ear,
Instructive lessons you will gladly hear.

Invaluable pair of Bracelets.—Neatness and
Industry.

Clasp them on carefully each day you live,
To good designs they efficacy give.

An Elastic Girdle.—Patience.
The more in use, the brighter it will grow,
Tho' its least merit is external show.

Ring of Tried Gold.—Principle.
Yield not this golden circle while you live,
'Twill vice restrain, and peace of conscience give.

Necklace of purest Pearl.—Resignation.
This ornament embellishes the fair,
And teaches all the ills of life to bear.

Diamond Breast Pin.—Love to all.
Adorn your bosom with this precious pin,
It shines without, and warms the heart within.

A true Time-piece.—Regularity.
By this the youthful fair may learn to prize,
And well improve, each moment as it flies.

Select Bouquet.—Company.
Behold the gay assemblage! but beware!
For all are not as innocent as fair.

A Graceful Bandeau.—Politeness.
The forehead neatly circled with this band,
Will admiration and respect command.

A Precious Diadem.—Piety.
Whoe'er this precious diadem shall own,
Securs herself an everlasting crown.

Universal Beautifier.—Good Temper.
With this choice liquid gently touch the mouth,
It spreads o'er all the face the charms of youth.

The Hessian Fly.

The Hessian fly—*Cecidomyia destructor* of Say, is a European insect, and has been detected in Germany, France, Switzerland and Italy, where it at times commits severe depredations upon the wheat crops. Its ravages are alluded to so far back as the year 1732. It was brought to this country, probably in some straw used in package by the Hessian soldiers, who landed on Staten and the west end of Long Island, August 1776, but did not become so multiplied as severely to injure the crops in that neighborhood, until 1779. From thence as a central point, it gradually extended over the country in all directions, advancing at the rate of ten to twenty miles a year. Most of the wheat crops were wholly destroyed by it within a year or two of its first arrival at a given place, and its depredation commonly continued for several years, when they would nearly or quite cease; its parasitic insect enemies probably increasing to such an extent as almost to exterminate it. It is frequently reappearing in excessive numbers in one and another district of our country, and in addition to wheat, injures also barley and rye.

There are two generations of this insect annually. The eggs resemble minute reddish grains, and are laid in the creases of the upper surface of the leaf, when the wheat is but a few inches high, mostly in the month of September. These hatch in about a week, and the worm crawls down the sheath of the leaf to its base, just below the surface of the ground, where it remains, subsisting upon the juices of the plant, without wounding it, but causing it to turn yellow and die. It is a small white maggot, and attains its growth in about six weeks. It then changes to a flax seed like body, within which the worm becomes a pupa the following spring, and from this the fly is evolved in ten or twelve days. The fly closely resembles a musquitoe in its appearance, but is a third smaller, and has no bill for sucking blood; it is black, the joints of its body being slightly marked with reddish. It appears early in May, lays its eggs for another generation, and soon perishes. The worms from these eggs nestle at the lower joints of the stalks, weakening them and causing them to bend and fall down from the weight of the head, so that towards harvest, an infested field looks as though cattle had passed through it.

Wheat can scarcely be grown except in fertile soil in those districts where this insect is abundant. The sowing should be deferred about the last of September, the season the past when the fly usually deposits its eggs. Any time in autumn the eggs of the insect observed to be profusely deposited upon the crop should be speedily grazed down by sheep and other stock, or if this cannot be done a heavy roller should be passed over it that as many of the eggs as possible may be crushed or destroyed thereby. One or the other of the same measures should also be resorted to in the spring, if the same contingency occurs; or if the worms are a later date discovered to be numerous in the first and second joints of the young stalks, an experiment may be tried of mowing as close as possible, the most infested portion of the field. Where the soil is of but medium fertility, and the wheat is of some of the hardier varieties of wheat, it is known to be in a measure fly proof, and is therefore advisable.—By Dr. Asa Fitch.

Cause and Preventives of the Rust in Wheat.

The rust in wheat is the presence of a fungus, and may be seen by the aid of a good microscope. The cause of these fungi, is the presence of carbonic acid and ammonia in the wheat in greater quantity than can be assimilated. About the latter part of June, and from that time onward till November, carbonic acid and ammonia are generated very fast, by the decomposition of animal and vegetable matter. Water possesses the power of absorbing immense quantities of these gases. I have not any work by me as yet sent—being away from home—to see the amount, but I think it is stated that one gallon of water will condense and absorb upwards of eight hundred gallons of ammonia. In summer, after a drought of some considerable length, the rain of a small shower, or the first part of a heavy shower, is highly charged with these gases—and the heavy dews, too, are often very highly charged with them. The effect of a slight shower, or of a heavy dew, after a drought, coming in contact with the stalks of wheat, is absorbed by them, and the carbonic acid and ammonia become mixed with the juices of the plant. These gases, coming as they do in greater quantity than can be assimilated by the plant, and the surplus, if great, so weaken

gases of the plant as to deprive it of the power of expelling them, remain in the pores or other cells and vessels. Now, if the seeds of the wheat or fungi that infest wheat are present, the carbonic acid and ammonia furnish their proper food, and they immediately germinate and grow to full maturity, bursting and splitting the stalk of the sickly wheat in order to get room for their development—thus disorganizing the structure of the wheat stalk, stopping its pores, preventing the operations that should go forward in it, and thereby killing the plant.

Now for the remedy. To prevent this carbonic acid and ammonia from injuring the plant, it is necessary that the carbonic acid should be neutralized, and the ammonia prevented from getting in contact with the wheat stalk in such great quantities—and, also, the stalk should be strengthened as much as possible against such attacks. There are many substances that may be made use of to produce these desirable objects. I will mention a few, and the method of applying them. Pulverize charcoal of any kind until it is reduced to the size of marbles and less, then take stone lime and reduce it to powder by slacking it with water; take equal portions of it and ground charcoal intimately together, and apply the mixture immediately at the rate of ten bushels to the acre. It would be well to put more than the usual quantity in those places where the wheat looks very stunted, and less than the usual quantity where the wheat is poor and slender. Or, take four bushels of good hickory ashes, or five bushels of oak ashes, or more than five bushels of weaver's ashes, to five bushels of ground charcoal to the acre. The ashes and lime will not only benefit the wheat crop, even if it is not exposed to rust, but also the succeeding crop—while the charcoal will do good as long as the ground is cultivated and it remains there, as it never decays, and is always useful. It is the most valuable fertilizer that we have, and is worth more than its weight in gold. I could give you many instances of its wonderful—nay, astonishing—power, but my limits here will not allow me. One bushel of salt of any kind—say salt from the beef barrels, or fish barrels, or the rock salt used by farmers—reduced to powder, and added to five bushels of ground charcoal and mixed intimately, and sown on an acre, will be as efficacious, if not more so, than the other preparations, as the other preparations.

The soda of the salt, the potash of the ashes, and the lime unite with the carbonic acid, and render it unfit for the use of the fungi, and strengthen the wheat plant so as to enable it to assimilate the carbonic acid and ammonia—while the charcoal absorbs both the carbonic acid and ammonia, and prevents the wheat from becoming surfeited with them. It holds these gases subject to the action of the wheat, and if the wheat at any future time finds itself in want of carbonic acid and ammonia,—if its roots be in contact with the charcoal, they will draw that held by it. Thus the charcoal performs two very important services, and hence its great usefulness.

Lime that has been air slacked, will not answer in place of that which is fresh slacked, as it has already become partially, if not wholly neutralized, by having already absorbed carbonic acid, and therefore cannot neutralize the carbonic acid which is injuring the wheat.

The proper time to apply the before mentioned preparations, is just about the time the wheat is in full blossom, as that is the time at which the surplus of carbonic acid begins to work the injury. The mode of application is to put them in a bag, and walking up and down the furrows, sow them as you do grain.

If the season is such that much carbonic acid and ammonia is formed just at the time the wheat is most liable to be injured, it may be necessary to repeat the application at an interval of, say, two weeks or less. And a very bad season may require the applications to be repeated several times. These operations, however, will not only save the grain from rust, but will make fine, large, full heads of plump wheat, and will also be useful to the succeeding crops—particularly the charcoal. Care must be taken not to sow the preparations too thick in one place, for they may kill the plants. A top-dressing of ground charcoal at the time of sowing the wheat, harrowing in with the wheat, and rolled over with a heavy roller, will be found highly efficacious in preventing the rust. It should be put on at the rate of twenty-five bushels to the acre.

The preparations here recommended are very efficacious in preventing the smut in wheat.
—*Far. Cab.*

Good Action.—A good action shines out upon us in the deceased—It is the precious stone which the Mexicans place amid the ashes of the dead, that it may represent the heart.

Cure of Foot Rot in Sheep.

Perhaps it may be an advantage to some of your readers to know how to get rid of that troublesome disease of sheep, the *foot rot*. My flock were badly infected with this disease. I tried various receipts or modes of cure, amongst the rest, catching each sheep twice a week, examining all the feet and swabbing them with strong mixtures, but all in vain.

The disease is highly contagious from the ground on which the infected sheep have run; hence it is absolutely necessary, in order to effect a cure, that you have fresh pasture fields, free from the disease, such as spring pastures, where the winter's frosts have destroyed the infection, or fields from which crops have been harvested in summer—or any fields in which infected sheep have not run.

Then if the flock is large, divide it into flocks of 100 or less, for convenience of handling—put them into a clean dry pen, and examine each foot of every sheep, looking particularly for the disease, which may be found if existing, between the hoofs, on either or both sides, or near the heel, separating the hoof from the flesh. When discovered, take a sharp knife and cut off all the hoof that is separated, so as to lay the diseased part bare, then apply with a swab, the mixture named below. Apply it also, as a preventive, to the feet that do not show the disease. Then turn the diseased sheep into a separate pen, and those not diseased, into the clean pasture. In two or three days examine the healthy sheep again, and if any shows the disease separate them from the rest, apply the mixture again, and change them to another clean pasture, taking care not to let them run where infected sheep have been. The diseased flock should be examined, and the mixture applied, every 2 or 3 days, cutting away diseased hoof as before; and as fast as any appears cured turn them into clean pasture, but not with the sound flock until several examinations have placed the question of cure beyond a doubt.

Mixture for Foot Rot.—1 lb. blue vitriol, $\frac{1}{2}$ lb. copperas, $\frac{1}{2}$ lb. alum, 2 gallons strong tobacco water, in which the other ingredients are to be dissolved when hot—*Ohio Cult.*

Green Pea Soup.—Dried peas, either for soup or for eating whole, soaked until they begin to vegetate, say about two days, will taste nearly as well as when green.

HORTICULTURAL DEPARTMENT.

Colors of Flowers.—The bright colors of flowers are given by a matter of a very different character, always fluid, and contained in cells situated immediately beneath the epidermal layer. Most of the different shades of color are given by superposition of cells containing different colored matters; thus yellow, seen through red, appears orange, green showing through red, renders apparently brownish. The very different colors are produced by the close aggregation of cells lying one over another. The layer of epidermis, or cuticle, (outer coat) of petals is colorless, and by assuming a papillose structure, gives them the peculiar veiver-like character which some sometimes possess; or when less developed and filled with colorless fluid, render the surface glistening, or crystalline in appearance. The predominant colors are red, yellow, and blue, with various intermediate tints; sometimes these colors are converted one into another in the petals by fertilization, (at which period the colors are brightest.) In many, (Bugloss tribe) the blue flowers become red; in others, the yellow flowers become blue; and in some (evening primroses,) white flowers turn red. Many flowers have their color bedimmed or removed as they wither, especially the blue, which become most frequently white; white flowers usually turn brown; red colors are more persistent; and yellow is generally not altered, except in a few instances, when they become blackened.—*Hensley's Outlines of Structural Botany.*

Iron for the Pear Tree.—Dr. Thomas C. of Portchester, N. Y., sends us the following additional evidence of the good effects of iron, in a letter received from him some time since:—

"A friend of mine at Olney Park, near Philadelphia, writes me that he has greatly enlarged and improved his Seckel pears by supplying the soil pretty liberally with slag from the iron furnace. My own observation leads me to believe that iron is of great value in protecting the pear tree from the yellows."—*Horticulturist.*

"It is a good plan to plant peach trees in an apple orchard, alternately with the orchard standards. This has been done with great success by some cultivators. The ground is thus shaded in a measure, and the evils of a hot sun obviated.

YOUTHS' DEPARTMENT.

Maxims of Washington.

Every action in company ought to be with some respect to those present.

Speak not when others speak, sit not when others stand, and walk not when others stop.

Be no flatterer; neither play with any one that is not to be played with.

Let your countenance be pleasant, but in serious matters somewhat grave.

Be not yourself glad at the misfortune of another, though he were your enemy.

In writing, or speaking, give to every person his due, according to his degree, and the custom of the place.

Dispute not with your superiors in argument, but submit your judgment to others with modesty.

Undertake not to teach your equal in the art he himself professes; it savors of arrogance.

Before you advise or reprimand any one, consider whether it ought to be in public or private, private or at some other time, also in what terms to say it; and in reproving, show no signs of cholera, but with sweetness and mildness.

Wherein you reprove another, be unblameable yourself, for example is more prevailing than precept.

Be not hasty to believe flying reports, to the disadvantage of any one.

Let your apparel be modest, and endeavour to accommodate nature more than procure admiration. Conform to the fashion of your equals, such as are civil and ordinary with respect to time and place.

Associate yourself with men of good quality, if you esteem your own reputation, for it is better to be alone than in bad company.

Enter not base and frivolous things among grown and learned men; nor very difficult questions or subjects among the ignorant, or things hard to be understood.

Be not forward, but friendly and courteous, the first to salute, hear and answer, and be not pensive when it is time to converse.

Do not gaze on the marks or blemishes of others, but ask not how they came. What you may speak in secret to your friend, deliver not before others.

Think before you speak; pronounce not impatiently, nor bring out your words too hastily, but calmly and distinctly.

Treat with men at fit times about business, and do not loiter in the company of others.

When you speak of God or his attributes, let it be seriously, in reverence and honor, and obey your natural parents.

Notes for Boys.—Has your Father a carpenter's or a blacksmith's shop on his farm? If not, get one to build one of each immediately; and when-

ever he hires a carpenter or a blacksmith to come to do his odd jobs, be sure you go in and look on and help until you get the use of every tool in each shop. You will be several years in doing this, so don't be discouraged if you can't do all your little work to please yourself at first; your hand-sled, your steers' sleds, and steers' yokes.—Martin-boxes, and hen-coops you ought to make yourselves, together with many other things; and then there are the farming tools—all ought to be of a size suited to your age, and of the best quality. Some fathers turn off their boys with old worn out tools; this is wrong, you ought to have a little scythe and a little axe, both very sharp, and then you ought to be taught how to keep them so; and also how to use all your tools skilfully. Never slight any kind of work, but do it well, and if you cannot keep up with older persons labouring at the same thing they ought to help you rather than let you lay behind. Never indulge a lazy spirit, your father or guardian will see that you are not over-worked, and will always give you sufficient time to rest and go ahead with your studies every day; yet you will do more work than those dull heads who neither read or study at all. Farming work, above all others, is the best to make boys grow, and gives them strong and vigorous constitutions.—*Brockville Recorder.*

True Friendship.—In true friendship—a man who hears a friend spoken ill of, or run down by their common companions, who may be his apparent friends in his presence, but who are really his enemies; if he is possessed of proper firmness, and a correct standard of action, will have the courage to stand up for that friend, and say "no, I don't believe what you say as to him, for I know better than you, that what you say is not true." But if this man be easily led away, and afraid of scorn, or of a very undecided spirit and disposition, he will not only fail to support the character of his friend so traduced, but even will be very apt to let his opinions of, and conduct to that friend be much influenced, it not entirely regulated by the open clamour and loud denunciations of the others. The first mode of acting is a noble and truly generous one; while the other shews a mean and truly unchristian spirit, which is shameful and contemptible, and deserving severe reprehension. In short, supporting the character of another, when he is traduced, and especially when he is absent, is the touchstone of genuine friendship in human life. The true Christian exemplifies each

friendship when he is not ashamed, but boldly and sincerely "Confesses Christ on earth before men," who are by natural disposition Christ's enemies. His recompense will be great. At the very time when he has most need of a friend, when he will stand alone on his last and solemn trial before the Great Judge—Jesus says, "I will then confess him before my Father in Heaven."—*Com.*

Anecdotes of Animals.

"Love me, love my dog"

There are no animals of which boys are more justly fond and proud than their dogs; and as I have never found them weary of listening to, or reading anecdotes about them, I will begin by telling some stories of our canine favorites, which I have the very best reason to believe to be strictly true.

Some years ago a fine house-dog, which had grown old in the service of a kind master, was asleep in an upper room that overlooked the field where the cattle were grazing. The gentleman observing some little disturbance among the cows, ordered the dog to go and bring them to the barn-yard, a duty he had performed daily for years. At first, he only looked quietly up and closed his eyes again for another nap; but upon receiving another order, he rose, wagged his tail slowly, and whined, but did not obey. His master, who at the time was lame with the gout, and perhaps a little impatient, then said in a voice half reproachful and half sorrowful—"Get you gone, Towser! you have bec me old, and are as good for nothing as your master." The faithful animal looked wistfully in his face, gave a long low whine as if he understood what was addressed to him, turned slowly round, and jumped through the window to the roof of the piazza beneath it, ran in an opposite direction from the field where the cattle were; and disregarding the eager calls of the men, he never once looked back but disappeared in the underbrush of the neighboring thicket. From that day he was never seen nor heard of, though a considerable reward was offered for his recovery. No doubt he hid himself among the rocks to die alone, as animals of various kinds are well known to do.

I have often, when a child, heard my old friend tell this anecdote with great feeling, and he always ended by saying in a sadly impressive tone, that he would give the worth of fifty such dogs,—no trifling sum—to be able to lose the remembrance of the unkind tone in which he had spoken to his faithful old favorite.

Let it be a lesson to boys, and girls, too, never to speak harshly, nor treat unkindly, "even a dog."

Another dog-story which I have heard related with many variations, I shall tell as it occurred at a house not far distant from my residence.

A fine English mastiff and a little dog "of no particular kind" occupied the same kennel very peaceably in pleasant weather, but they might well be called "fair-weather friends;" for, no sooner did a rough, cold spell come on, than ill temper and great dissatisfaction were the immediate result. The mastiff taking advantage of his strength, and

thinking probably that "might makes right" ways took possession of the house and left his little companion to shiver in the door-way, shift for himself where he could.

This state of things continued during nearly a year, when one day the rain fell incessantly, froze as it descended, the forlorn little fellow set completely at his wit's end. He crept in as fast as he could, then cold and wet, tried various ways warming his half-frozen limbs. At last he suddenly started up, ran rapidly to the corner of the barn, barked violently, and then rushed back as if seeking protection from an approaching enemy. This repeated until the attention and good feelings of the mastiff were completely roused, and he too ran to the corner, challenging the imaginary foe with furious barking; but seeing nothing on which to vent his wrath, he went back to his lair and fed the babies turned to good effect. The cunning dog had no sooner seen him at a distance, than he stowed himself snugly away in the warm corner of the kennel. The mastiff looked in, as if half-posed to resent such an infringement of his enjoyed rights.—but (was he ashamed of being witted or did he feel that was suffering justly) he put his tail between his legs, and crept in.—*Am. Ag.*

A Word to Boys.—The learned Blackwell says: Boys, did you ever think that this great world, with all its wealth and woe, with all its mountains, oceans, seas, and rivers, with all its shipping, its steamboats, railroads, and magnetic telegraphs; with all its millions of darkly-groined men, and all the science and progress of ages, soon be given over to the hands of the boys of the present age—boys like you, assembled in school-rooms, or playing without them, on both sides of the Atlantic? Believe it, and look abroad upon your inheritance and get ready to enter upon its possession. The Kings, Residents, Governors, Statesmen, Philosophers, Ministers, Teachers, Men of the future, all are boys, whose feet, like yours, can reach the floor, when seated on the benches of which they are learning to master the monstrosities of their respective languages.

How to Lead a Happy Life.—The first and most essential point to lead a happy life, is to banish from the mind all sordid and miserable cares for the future, and be contented for the present; treat the little misfortunes of this world with indifference—turn a deaf ear to imaginary troubles. Don't make a fool of yourself by trying to squint through the eyes that would otherwise close, and elongate their sockets to correspond with the broad grin of the other features. Look at everybody without suspicion till you have found out that he is a rogue—taucey everybody is given nature, because you are so yourself. Eat, drink well, and sleep well; these, to a sensible mind, will come as a matter of course. Do not owe a man a farthing you can't pay—be under no obligation to any one—mind your own business, never try to make it up between man and wife, and so lead a happy and unsophisticated life. *Library of Secrets and Wrinkles.*

Improvement of Sheep.—There are many of wool growers who kept sheep, the average of whose fleeces is not more than two and a half pounds, and the wool not worth more than three to twenty-five cents a pound, the present season. Now it is more profitable to give a price for a good flock than to get a bad one. The extra weight of those sheep fleeces will weigh from four to five pounds, the wool of which would be worth thirty cents a pound, the past season, together with the price per pound, will pay the interest on ten to fourteen dollars, to say nothing of the worth of their lambs. I kept a flock of Merino sheep and have fifty four ewes, the fleeces of which taken from them last June, weighed two hundred and seventy pounds, four ounces, washed and pressed five pounds to each fleece. The lightest weighed four pounds six ounces, the heaviest seven pounds four ounces. Many people, who kept Merino sheep, say they cannot be at the expense of buying those that are high. To such I say, if one half or one third of your whole flock of ewes are middling sheep, keep them for mutton. Get a first rate buck, and a few fine ewes; and each year at shearing time mark your sheep by putting figures on them, and put the same numbers on paper, calculate the weight of each fleece, and those that are the most profitable turn off to fat without raising a flock from them.—*Far. Mon. Vis.*

Useful Invention.—We learn from the *Brooklyn Advertiser*, that a Mr. Boons, of that city, discovered and applied a principle by which to regulate the temperature inside a dwelling some ten or thirty degrees, or more if necessary below that outside. He is confident that he can regulate the temperature of dwellings, hospitals, churches, &c., at the South, below that in which cholera fever and other tropical disease become prevalent. The same principle is applicable to ships as well as dwellings, and can be applied in every part at a small expense. By means of it, ships are to be instrumental in saving many valuable lives, both by sea and land. From a knowledge of the nature and results of his experiments we are convinced of its utility. His intention to patent the invention in other countries as well as this, is our reason for not remarking more on its nature and utility.—*Far. & Mech.*

God Save the Plough.

—
BY MRS. SIGOURNEY.

See how the shining share
Marketh earth's bosom fair,
Crowning her brow!
Bread in its furrow springs,
Health and repose it brings,
Treasures to unknown kings,
God save the plough!

Look in the warrior's blade,
While o'er the tented glade,
Hate breathes its vow,
Wrath, its unshating wakes,
Love at its lightnings quakes,
Weeping and woe it makes—
God save the plough!

Ships o'er the sea may ride,
Storm wreck their bannered pride,
Waves whelm their prow:
But the well loaded wain,
Garn'ring the golden grain,
Gladdens the household train—
God save the plough!

Who are the truly great?—
Minions of pomp and state,
Where the crowd bow?
Give us hard hands and tree,
Cultures of field and tree,
Bests friends of liberty—
God save the plough!

Wear a Smile.—Which will you do—smile, and make others happy, or be crabbed, and make every one around you miserable? The amount of happiness you can produce is incalculable, if you show a smiling face—a kind heart—and speak pleasant words. Wear a smiling countenance—let joy beam in your eyes, and love grow on your forehead.—There is no joy like that which springs from a kind act or a pleasant deed—and you may feel it at night when you rest, at morning when you rise, and through all day, when about your business.

“A smile; who will refuse a smile,
The sorrowing breast to cheer?
And turn to love the heart of guile,
And check the falling tear?
A pleasant smile for every face,
O, 'tis a blessed thing!
It will the lines of care erase,
And spots of beauty brings.”

THE DAIRY.

(From Allen's American Agriculture)

Cows for the Dairy.—From what has been said of the various characteristics of the different breeds of cattle, it must be evident, that no very different criteria of excellence can be given, for all good dairy cows. But there are certain points in a good milker, that can hardly be mistaken. She should be descended from the best milking stock; her head should be small of a medium size, muzzle fine, and nostrils flexible and expanded; face long, slender and dishing; cheeks thin; eyes full, mild and prominent; horns delicate and waxy, and they may be either branching, lopped, crumpled, or hornless; long, thin, lively ear, and the inside of a orange color; neck thin and small at its junction with the head; deep chest, but not too heavy before; back level and broad; well ribbed; belly large; low flank; wide thighs, but thin; short legs, and standing well apart; large milking veins; loose capacious udder, coming well out behind; good teats; loose, mellow skin, of a deep yellow; and a fine, thick coat of glossy hair; and she must be of a good disposition, and free from tricks. Yet with all the skill of a well practiced taste in the selection of animals, the dairyman will frequently find his theories and results at sad variance. One may sometimes select a fine animal, with every appearance of good milking qualities, which is but a medium cow at the pail; and another, that hardly seems worthy of notice, and which sets at defiance many established milking points and all preconceived notions of symmetry, may yet prove a good milker. A cow that runs to flesh while in milk, is generally an indifferent animal for the dairy. Perfection in a cow, consists in converting all she eats into milk while yielding it, and when dry, in turning all she consumes into valuable meat.

Management of Dairy Cows.—A cow may have her first calf when between 2 and 3 years of age, according to her size and development. After calving, she should be stuted in her food for two or three days, and not fed freely for a week. Avoid fat in a breeding cow. Too high feeding is the cause of a milk-fever, caked bag, garget, and a host of evils; and too poor fed is almost equally objectionable. The average time of a cow with young, is from 40 to 41 weeks, but they sometimes go only 34, and occasionally

overrun 41: A dry, unoccupied stall or yard best for her to calve in; and if there is any delay or difficulty in the operation, she may be assisted by placing the fetus in the right position, and gently pulling it with every three or four days. After the calf has drawn all it wants in the morning and evening, the bag should be thoroughly and quickly emptied of all the milk. If the cow is strong and vigorous, the calf is the best doctor for the garget or caked bag. He may be allowed to suck the cow or not, at the option of the owner. There are reasons for and against the practice, which will be seen under the head of raising calves. Each person must determine in his own case which side the balance lies.

Milking.—This is an important operation, and on its proper performance depends much of the success of the dairyman. A cow regularly and gently, yet quickly and thoroughly milked, will give much more than if neglected. If a herd of cows be separated into two divisions, each yielding the same quantity of milk, and one is given to a good milker, and the other to a stupid or lazy one, the latter will speedily reduce the milk much below the quantity obtained by the former; and if the milkers then exchange cows they will be found to change quantity too, before affording the least, soon giving the same. An indifferent milker ought never to be tolerated in a herd; good ones are cheaper at double the price. It is best to milk at intervals of 12 hours, which may be done when pastures are convenient, or cows are soiled or fed in the yard. But as this is not often the case, they should be milked early in the morning and turned into the pasture, to fill themselves before the sun is oppressive; and if they are to be kept up at night, they should be allowed to browse in the pasture as long as possible before they are brought to the yard.

MILK.

Milk is produced from the females of all the warm blooded animals, which are enumerated among the mammalia. The milk of several animals is employed for domestic purposes, among different nations. That of the camel is used by the Arabs; the milk of the ass by the Spaniards, the Malays, and the inhabitants of the Levant; that of the mare by the Cossacks, the Kirgheez, and the Tartars; and that of the goat, the ewe and the cow, by most of the ancient, and with few exceptions, by every modern European nation. We have in the last century however, the use of all except

milk, has been almost entirely discarded by the most highly civilized people. If we except some few Welsh and Swiss, or other emigrants, who resort to the goat and ewe for their milk materials, for the first few years of their residence here, the cow is the only animal which is employed in America for producing milk. For she is pre-eminently fitted, and the modern improvement of this valuable animal, has carried the product of milk almost as far as can be reasonably looked for from a given amount of food; although this is of the average richness of the goat and ewe, and before that of the ass, the quantity she yields is frequently as 80 to 1 in favor of the cow over the first two competitors. As a milk-giving animal, the cow is the best fitted for the purpose of civilized man, and she is made to contribute, not only to his health, his comfort and his economy, but to many of his choicest pleasures. Milk contains every element of nutrition necessary to animal existence; and man can exist with unimpaired health and strength if limited to this food alone.

The constituents of milk are butter, which varies from 2 to 6 per cent.; casein or cheese, usually 4 to 5, but sometimes varying from 3 to 15 per cent.: (the last excessive quantity, yielded by the first milk after calving;) milk-sugar, 6; salts or saline matter, 0.2 to 0.6; and water, 80 to 89.

There is much diversity in the product and quality of milk from cows of the same breed, the same food, and other circumstances and conditions apparently equal. Thus of a herd of 2, chiefly Ayrshire, one gave 84 quarts in one week, which afforded 3½ lbs. of butter; two others at the same time gave 86, yielding 5½ lbs; and a third gave 88 quarts, making 7 lbs. The quantity of butter however, which a given quantity of milk will produce, is not the only criterion of the value of the milk, except for this purpose alone. Some cows will yield more butter, others will produce more cheese; while for consumption, another partially compensate, in the increased quantity of milk-sugar, and the saline matters, for a deficiency of both of the other ingredients. But for dairy purposes, butter and cheese, are the only measures of the value of milk; and a cow is considered good or indifferent, as she gives one or the other in the greatest abundance.

Circumstances which modify the quantity and character of milk.—Besides the accidental variation in the quantity and quality of milk in different animals before adverted to, there are many other causes which influence both. Of these, climate has a most decided and uniform influence, frequently modified, however, in the particular individual, by some personal and controlling causes. But a cow whose maternal ancestry on both sides are choice milkers, is almost certain to produce more than the quantity of milk than the quality.

Boussingault tried numerous experiments, with cows fed on various kinds of food, and found the difference hardly appreciable in the quality of milk. Its true benefit is to be looked for in the increased quantity, through which the valuable ingredients are distributed in nearly the same proportion, as when the product is materially lessened. By quality we mean to be understood, the amount of the ingredients, valuable for nutrition only; for it is certain, that there is a rich aromatic flavor, not only in milk, but in butter and cheese, which is afforded in various articles of food, and especially by the fresh green herbage which abounds in the pastures from spring to autumn. Activity or rest has a great effect on both quantity and quality. The less action and the more quiet or rest, the greater the amount of milk and butter. But exercise is absolutely essential to the production of cheese. Butter may be made from cows confined in a stable, but cheese can only be profitably made by animals at pasture. It is supposed by physiologists, that the exercise in gathering their food, rather than any peculiarity in its character, is necessary to convert the nitrogenized tissues, into the nitrogenized principle of caseum or cheese. The time from calving, has also its effect. The first milk drawn from a cow after calving, has been found to yield over 15 per cent. of casein, while in its ordinary state it gives only 3 to 5½. As the quantity of milk diminishes in a farrow cow, the quality improves within certain limits. Pregnancy affects the quality injuriously, and especially towards its last stages; and a cow that is predisposed to giving milk, should be dried of a few weeks before its expiration, as it is then unfit for use. Fat cows give poorer milk than such as are moderately lean; and young animals do not come up to the maximum of their quality till after third or fourth calving. The milk first drawn from the udder, will yield only an eighth, and sometimes even a much less proportion of cream, than the strippings; and the milk which is drawn three times a day, is greatly inferior to such as is taken but once, though the latter is less abundant. Excitement, or fretfulness; change of locality, or to a different herd with new companions; separation from her calf; periodical heat; annoyance from flies, or worry from dogs; exposure to storms, severe cold, or an oppressive sun; and many similar causes, diminish the quantity of milk and butter; but some of these may reasonably be expected to increase the proportion of its casein.

Dr. Playfair found that the quantity of butter in the evening milk, after the cow had been at pasture all day, was 3.7 per cent., while the casein was 5.4; after lying quietly all night, the milk from the same cow on the following morning, contained 5.6 per cent. of butter, and only 3.9 of casein. In stabling the cow, the butter was invariably in greater proportion than when allowed to ramble in the pasture; and the casein with a single exception, was equally diminished.

(To be continued.)

Dutch Husbandry.

The foundation upon which the agriculture of Belgium rests, in the cultivation of clover, which seems indigenous, since none of the most ancient records notice its introduction, but speak of it as familiar as of hay or oats. It is probably from this country, that the plant in question has been, though but recently, slowly, and hitherto, only partially introduced among the farmers of Germany, France, and Great Britain. The clover in Flanders is sown in every sort of grain, in wheat, rye and winter barley, in the spring of the year, when the blades of those plants have acquired a growth of three or four inches; and with oats and summer barley at the same time with those seeds. It is also often sown with flax; and in general the crops grown between those plants are more luxuriant than when sown with the cerealia. It frequently happens, when sown with flax, that clover yields a heavy crop a few months after it is sown; two still more abundant crops the next year, and sometimes even three;—and if, as it occasionally happens, it be suffered to stand another year, it will yield one heavy crop, and afterwards good pasture for cattle, till it is ploughed up to receive the seed of wheat, which usually follows it.—The original strength of the plants which yield such abundant nourishment, is undoubtedly due to the care taken in pulverizing the soil by frequent ploughings and harrowings to the extirpation of all weeds, and to the copious stores of manure laid on the ground, and its complete amalgamation with the soil; but the successive harvests which the plants yield are attributed, and with apparent probability, to the top dressings which are bestowed upon them. The top-dressings administered to the young clover consist either of rotten yard-dung, lime, pigeons' dung, coal, or native turf ashes, and are laid on as soon as the plants begin to extend themselves over the ground. Sometimes the plants are refreshed with liquid manure.

These manures, though administered to the clovers, as far as they can be obtained, are found far inferior in powers of fertility to that substance which is most generally used, and the effects of which, form the theme of the praises bestowed by all who have witnessed the Belgium husbandry. The turf ashes of Holland are sown by the hand on the clovers, in quantities varying from eight to twenty bushels to the English acre.

This small quantity produces a most surprising and almost magical effect. Within a few weeks after it is sown, a field where none, or but a few straggling plants were to be seen, becomes covered with a most abundant herbage. The produce of a field sown with these ashes, at the first mowing, show their efficacy in a most striking manner; the clover being frequently a foot higher in such parts, than on those where its sowing has been omitted. These ashes are found surprising efficacy to such as are made from the turf commonly used for fuel in Flanders, inasmuch as one-third of the quantity is deemed sufficient to afford a great productiveness.

These ashes are brought from Holland by canals to Brussels, whence they are conveyed by land carriage to the different farms where they are applied. Long practice has so convinced the Flemish farmers of their benefit, that a common proverb in the parties of the country, may be translated: "He that buys ashes for his clover pays nothing, but he who does it not, pays double." They are frequently ferched from the sea by persons who have to carry them forty, or fifty miles by land.

The abundance of the clover produced from the soil of Flanders, enables the cultivator to maintain a great number of cattle, principally on the dung of which is managed with an attention and care which are highly worthy of imitation, and contributes to maintain in a state of high fertility that soil which yields the most exhaustible crops. "The farmers," says the Abbe M... "supply the want of straw in the following manner: The peat or sods which are cut from the heath, are placed in the stables and cow-stalls for litter for the cattle. The ground under them is dug to a certain depth, so as to admit a considerable quantity of these peat sods, and fresh manure are added as the feet of the cattle tread down into less compass. These compose so many beds of manure, thoroughly impregnated with the urine and dung of the cattle. This mixture produces a compost of excellent quality for fertilizing the ground where corn is to be sown.—*Enc. Brit.*

Barley.

The value of barley for making pork and feeding other animals is not duly estimated by the generality of farmers. As a summer crop its culture can often be made quite profitable. It delights in a rich loamy soil, which is more inclined to clay.

| | |
|---|-------|
| 100 grains of harley meal give, on burning, | |
| ins of ash. 100 grains of this ash contains, of | |
| Silica,..... | 29.67 |
| Pho-phoric acid,..... | 36.80 |
| Sulphuric acid,..... | 0 16 |
| Chlorine,..... | 0.15 |
| Per-oxide Iron,..... | 0.83 |
| Lime,..... | 3.23 |
| Magnesia,..... | 4 30 |
| Potash,..... | 16 00 |
| Soda,..... | 8.00 |

100.00

is analysis was made by PROF. THOMPSON Glasgow. German chemists have found some less than 3 per cent. of ash in 100 parts of barley. In a good soil adapted to the plant, quantity found by Dr. T. may be regarded as average. Supposing that all the straw was re- turned to the soil either directly, or in the shape of manure, 2000 lbs. of barley, after it was thoroughly dried at 212° taken from an acre, (equivalent to 50 bushels,) would remove from the earth 60 lbs. of its most valuable minerals. Among these would be 17.80 lbs. of soluble silica or flint, which is found mainly in the hull of barley. The most valuable earthy element in the seed of this grain, and in all others, is phosphoric acid. Of this, 2000 lbs. of barley remove from the soil 22 lbs. If barley is fed to swine, horses, or other domestic animals, and all their solid and liquid manure be returned back on the field that produced the crop, the soil will be made richer for the operation. This does not accrue from the mistaken idea that all the matter removed in a crop, can be returned back in the manure, which the crop will produce when fed to animals. All animals literally burn their food in their warmed bodies, the gases and vapor formed by the combustion escaping through the lungs in expired air. 100 lbs. of dry dung will make less than 50 lbs. of dry dung and 10 lbs. of urine. How, then, can the removal of 100 lbs. of barley, corn, or wheat, from a piece of ground, be the return of only 40 lbs. of the same matter to the soil? This question we greatly desire every child, whether male or female, 14 years of age, should be able to answer correctly. We are disappointed and mortified at our poor success in persuading those that till the earth that schools to teach the laws of nature which govern the growth of cereals and other cultivated plants, ought to be established and supported for the benefit of agriculture. Let that pass; while we ask again why it is that a farmer may take 1000 lbs. of barley from a field and by restoring only one-tenth of the same, the soil of this land none the poorer by the operation? It will be recollected that 1000 lbs. of this grain contain at most but 30 lbs. of uncombustible earthy matter. By restoring these and 70 lbs. of organic matter, carbon, oxygen, hydrogen, and nitrogen, the husbandman gives back to the soil as much as he has furnished towards the 1000 lbs. of barley. How is the land made richer when we restore to the soil a particle more soluble flint, phosphorous, sul- phur, iron, lime, magnesia, soda, potash, chlorine, and nitrogen, that was removed in the crop?

Some knowledge of agricultural geology is indis- pensable to the clear understanding of this inter- esting subject. Consider for a moment the source from which all soils derive their lime, potash, phos- phorus, sulphur, and other earthy elements of plants. In 100 lbs. of the ash of barley there are 37 lbs. of phosphoric acid, 24 lbs. of potash and soda, beside 7½ lbs. of lime and magnesia. No wonder that this crop requires good land to yield a large amount of seed.

It is the constant abrasion, comminution, and so- lution of the small particles of rocks, which lie ex- posed to the meteoric influences of frost, heat, light, electricity, water, oxygen, carbonic and nitric acids from the air, that renovate soils while at rest, when partially exhausted by the removal of crops. Sci- ence can render the practical farmer most valuable aid in hastening the natural process for bringing back virgin fertility to a worn out field. But alas, the practical man too often scorns the proffered light of science. He ridicules the idea of having his sons study the properties and source of the constituent elements, which God has appointed to make the bread, the meat, and the clothing of all rational beings.—We rejoice however in the strong faith that this deep prejudice against the study of the natural sciences which have so intimate a connection with rural industry, can not last always. Our children's if not our own offspring, will see the end of it.

As a bushel of barley can be grown on some soils about as easily as a bushel of oats, who would not give a trifle to know by actual experiments the re- lative value of 200 lbs. of barley meal and a like weight of corn meal, for making pork, beef and mutton? By making meal into well cocked pud- ding, and mixing it with boiled or steamed potatoes, a little slop from the kitchen and dairy, pork can be made at no great expense, while the dung and urine from the pig sty will make great barley next year. We are much in favor of that system of husbandry which consumes the largest amount of the products of the farm at home, and carefully saves, and uses to the best advantage the manure thus made. We have often help to harvest from 45 to 50 bushels of barley on an acre, and have seen it much used in fattening hogs. But its precise value for feeding has never been determined.—*Gen. Eur.*

Green Peas for Winter Use.—The lovers of green peas will be pleased to learn that they can be preserved for winter use, by simply gathering them at the proper season for using them green, shelling them and drying them in the shade, and when well cured and perfectly dry, packing them away for use.

When required for use, they should first be im- mersed in warm water for ten or twelve hours, which will render them as tender and delicious succulent as when taken from the vines. The best method of preserving them, after they have been thoroughly cured by the above process, is to put them into close jars or bottles. In this way, not only green peas but green beans and green corn may be had the year round.—*Far. & Mesh.*

Enemies to the Turnip Crop.

The turnip is exposed to numerous depredators, of which the turnip flea-beetle is the most invertebrate. It attacks the plant as soon as the first leaves expand and often destroys two or three successive sowings. The black caterpillar, slugs, wire-worms, and numerous other insects, grubs and aphides prey upon and greatly diminish the crop.

Remedies have been tried to an almost indefinite extent, but none hitherto with more than very partial success. Liberal sowing and rapid growth best insures the plant from injury, and to effect this the seed should be plentifully sown, and if possible, when the ground is moist, and always in a rich soil. The seed should be steeped in some preparation which experience has shown, will the most quickly develop the germ. Solutions of the nitrates or sulphates, urine, soot-water, liquid guano, carrier's oil, &c. impregnate the first leaves with substance distasteful to their early enemies, and thus a short respite from their attacks will be secured. Gypsum, ashes, bone dust and poudrette, drilled in with the seed are excellent forciers for the young roots. Charcoal dust applied in the same way has been found to increase the early growth from four to ten-fold. When the fly, and bug, &c. is discovered, the application of lime, ashes or soot, or all combined, should be made upon the leaves while the dew or a slight moisture is on them. This leads the young plant along, and kills such enemies as it reaches. Urine, diluted sulphuric acid, (oil of vitriol) and other liquid manures will have the same effect. Ducks, chickens, and young turkeys and birds will devour innumerable quantities, and their presence should always be encouraged not only on this, but on most of the fields. Dragging the surface with fine light brush will lessen the slugs and insects. The ground should be ploughed just before winter sets in, which exposes the worms and the larvæ of insects to the frost, when they are unable to work themselves into a place of safety. The seed should not be planted on ground before occupied or near any of the order of plants cruciferæ, cabbage, radish, mustard, charlock and water-cress, as they all afford food for the enemies of turnips and thereby tend to their multiplication.—*Am. Ag.*

A new kind of Cheese.—An esteemed friend, to whose receipts we have great confidence, has

kindly furnished us with the following for making cheese:—

Boil good white potatoes, and when cold, peel and mash them till not a lump remains. To five pounds thus prepared, add a pint and a half of sour milk, and as much salt as may be deemed necessary to season the mass. Having worked it well, let it be carefully covered for from two to four days, according to the state of the weather—then work again—make the cheese the way you like, and dry them in the shade. After they have become sufficiently dry, place them in paper or pans, and let them remain a fortnight or more. In this way cheese of a most excellent quality may be made, and what is of no small consequence, it will keep for years without the slightest deterioration from the effects of age, provided it be kept dry. A friend, who has had the pleasure of eating cheese prepared in this manner, speaks of it in high terms.—*Me. Farmer.*

The Weather has been extremely dry in this region during the past month, until the past few days. The grass crop will in consequence be light; and the spring crops have suffered more on most soils. Corn is backward, and has suffered much by the worm; but it will doubtless recover rapidly, now that we are having fine rains. The wheat crop must prove light. In addition to the injury by the winter, the fly has done much damage this spring, and the drought has prevented a fair growth of straw.

The prospects for fruit are quite fair. Peaches in many parts of this country are very thick set, and apples moderately so; plums are not so, but all the finer kinds are destroyed by the curculio. Indeed we have never known these or other insects so numerous as this year. Our strawberry crop is nearly ruined by the drought.—*Ohio Cult. for June.*

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