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**The Field.**

**Timothy Grass.**

(*Phleum Pratense.*)

An admirable series of papers is now in course of publication in the *Farmer* (Scottish,) on pasture grasses. To one of these articles we are indebted for the following account, as well as the accompanying illustrations, of our most valuable grass, the common timothy grass of our meadows. The species is also known by the English names of meadow, catstail grass, and herd grass.

Although a native of Europe, it is highly probable that all the timothy grass now in cultivation is of American origin, for it was here grown under the name of herd grass about the middle of the last century, and it then acquired the name of timothy grass in North Carolina, in consequence of having been introduced to that State from New York by a Mr. Timothy Hansa. It was introduced by a Mr. Peter Wynch, from Virginia to England, in 1763.

The appearance and general habit of this grass is familiar to most, as it forms the too exclusively cultivated species in this country. It is a fibrous-rooted, slightly creeping, perennial grass, with more or less developed bulb-like swellings or knots at the base of its stems. The accompanying illustrations show this peculiarity of habit, Fig. 5 being a stock of the plant very much diminished in size to show its general aspect; and Fig. 4 a specimen of portions only, base and head, but little below the natural dimensions. The leaves are numerous, long, broadish, flat, rough, and rather firm in texture; the stems are two to four feet high, smooth, with four or five joints, strong and upright. The inflorescence, or flower head, is in dense cylindrical, spike-like, erect panicles, from two to six inches long, varying in color from lightish to dark-brownish green. The seeds are easily separated from the husks when ripe, very small, somewhat globular, heavy, and of a light silvery color. The small figures 1 and 2 represent the seed enclosed in the husk, the first of the natural size, and the second magnified. Fig. 3 shows a single flower, magnified, consisting of corolla, anthers, and stigmas, the seed vessel being enclosed in and concealed by the corolla.

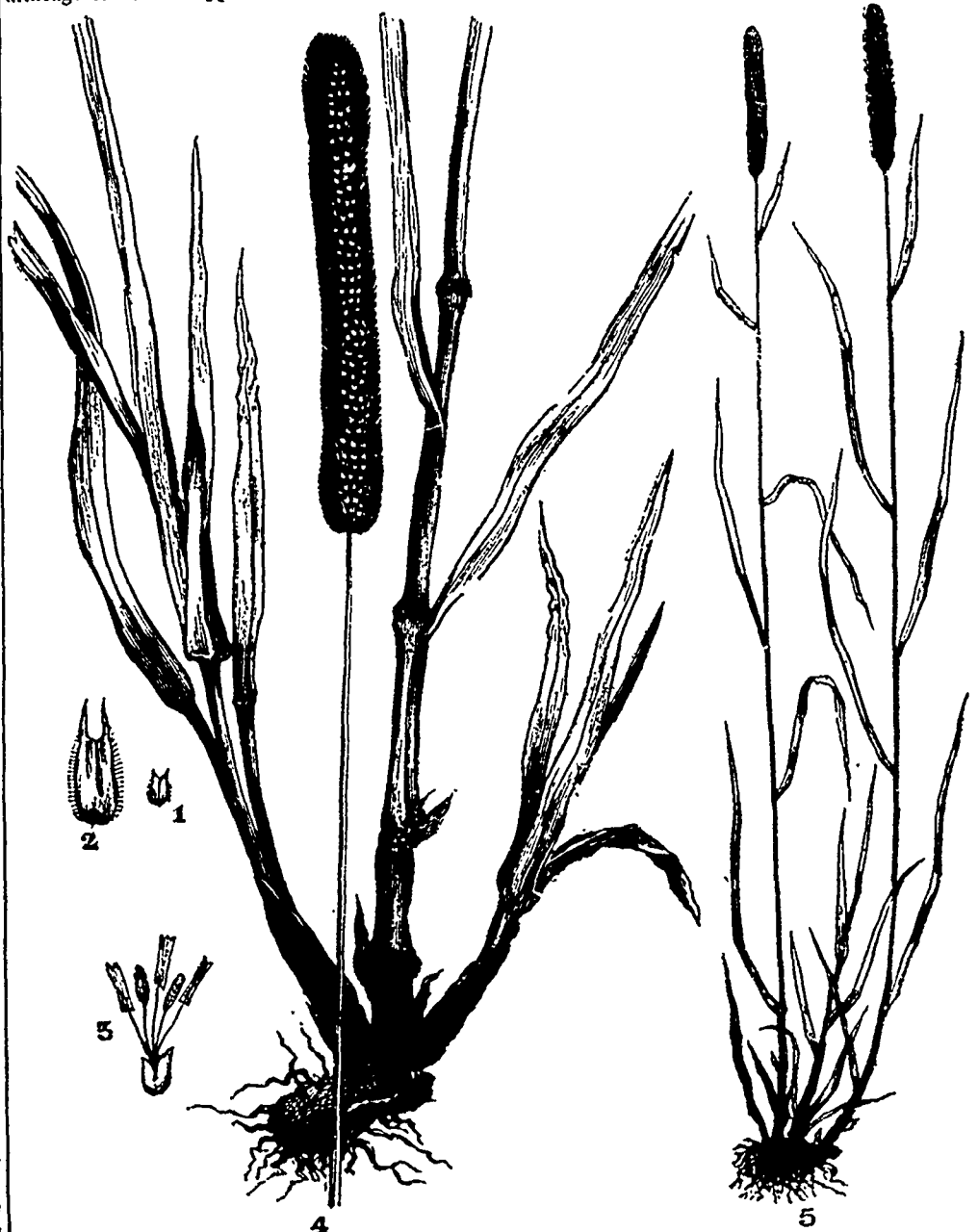
This variety of the very extensive order of grasses is found wild throughout Europe, Northern Asia, and in North America, even considerably beyond the northern limits of the arctic circle; and, although not unfrequent in the settled districts of Australia and New Zealand, its presence in the southern hemisphere is attributed to cultivation. Its natural presence is looked upon as indicative of good substantial, rather moist soils, well adapted for the production of cereals, when aided by proper drainage.

Timothy is neither a very early nor a good autumn

cropping grass, but yields a heavy summer cutting, and may be pastured longer in spring than most others without injury to the hay crop, as its flowering stems are comparatively late in starting. Further, although of a coarse appearance in all its stages, it

of growth in the second year after sowing. It is not suitable for lawns or ornamental parks: in the former especially it can only be considered an intrusion and a pernicious weed.

Timothy seed differs from that of all the other



is keenly deroured by cattle, horses, and sheep, whether green or in hay. Other properties which may be mentioned are, its suitability for a great variety of soils, as well as its attaining to full vigor

grasses in cultivation by its heaviness, globular form, and size. Thus, while that of the somewhat similar *alopecurus pratensis* weighs only 4 or 5 lb. per bushel, *phleum pratense* averages about 44 lbs., and about

74,000 of its seeds are contained in one ounce. The greatest number of these braird when covered with not more than a quarter of an inch of soil, only about one half as many come up when the covering is from three quarters to one inch, and two inches of earth effectually buries the whole of them. Such is the size, form, and weight of timothy seed, that it is invariably placed with that of the clovers, or "heavy division," in assorted seed mixtures. As the young plants grow rapidly, they soon acquire sufficient strength to secure them against the effects of weather and ravages of insects. When sown alone, from ten to twelve pounds of seed per acre will suffice, in mixtures a much smaller quantity will generally be sufficient. Old timothy seed is easily detected by the dullness of its color, and the absence of that fine silvery lustre which fresh new seed possesses.

There are some interesting varieties of the species, the most noticeable among which are the medium sized plant generally grown in America, and a very promising kind sent from British Columbia by Mr. Brown, collector for the British Columbia Association, and plants of which, grown in the Edinburgh Botanical gardens last year, exceeded five feet in height, while some of their panicles, or heads, were more than six inches long, and the root foliage was from fifteen to fifteen inches in length. Two other varieties are smaller than the preceding, more knotty, less upright, and more generally found in a wild state.

### Structure and Office of Roots.

The embryo of every seed develops in two opposite directions, one portion possessing an inherent tendency to seek the light, the other endowed with a contrary property, to shun the light and penetrate the soil. The one is adapted in its form, its members, and mode of growth, for spreading in the air and exhaling and absorbing vapor or gas, while the other is specially fitted for extending itself in the more solid and resisting medium of the earth, and absorbing nourishment in a liquid state. The manner in which these conditions are provided for in the two portions of plants furnishes one amongst the many beautiful illustrations and evidences of contrivance and design with which the works of nature abound. Let us confine our examination at present to the roots, and consider how they grow. It was shown in a former article, on the germination of the seed, that the ascending portion of the plant, or stem, was divided more or less regularly into segments, each of which, at its extremity, produced at least one leaf and bud; and each of these divisions increases in length by growth throughout its whole extent; so that the adjacent leaves on the stem, which at the first were close together, become separated by a considerable space. This kind of elongation never takes place in the root; if leaves or buds were formed on its surface, they would remain always exactly in the same situation, and the distance between such appendages would never increase. In other words, the root elongates by additions to its point, and not by the extension of any part once formed. In diameter, the root increases, like the stem by the interposition of new cells or fibres amongst the old, but in length it grows exclusively by the addition of new tissue at the extremity. Roots are entirely destitute of such appendages as the leaves of the stem; we cannot, therefore verify the statement by observing whether or not such natural offshoots become further removed from each other, as in the stem, but if we, artificially, mark a growing root, we shall find that the marks remain always exactly at the same distance from each other as at first; no subsequent growth of the root carries them wider apart. Now, this peculiarity in the growth of the root exactly fits it for the conditions in which it is placed and the purposes it has to fulfil. The newly formed cells at the end of each rootlet, with their extremely thin and delicate mem-

branous walls, are admirably adapted for absorbing the moisture which surrounds them, and which forms a large portion of the food of the plant. This absorbing surface is greatly increased by prolongations from the young cells, having the appearance of minute hairs, which in some instances can only be discerned by the aid of the microscope, but in others are obvious to the naked eye, as in the first rootlets of the seedling maple, an illustration of which was given in fig. 5, accompanying the article before alluded to, in the last number of this journal. Nothing else could so well perform the office of absorption as this delicate, newly formed tissue. Nature, therefore, provides that it shall be freshly laid on to the extremity of each tiny rootlet, as it insinuates its way further and further, in search, as it were, of fresh nutriment in the surrounding soil. In another equally important respect this peculiar mode of growth is adapted for the conditions in which the root is placed. Unlike the stem, which can extend without impediment in the air, this portion of the plant has to make its way through a comparatively dense and solid medium, and if the divisions of the root extended throughout their whole length like the joints of the stem, it is easy to see that, when thus forced against the resistance opposed to them by the earth, they would become so twisted and compressed as to be entirely unfitted for the free transmission of fluid through them. But as it is, a portion of the root once formed, is never pushed forward by any subsequent effort of growth, and the channels provided for the passage of fluid remaining undisturbed, continue to perform the office of conduits as long as the absorption of moisture goes on. How beautifully, too, this mode of growth, at the extremity only, enables the roots to insinuate their soft and yielding fibrils into the tiny crevices and interstices of the soil, bending and passing over such obstructions as oppose an effectual barrier to the penetration of their points, while once having found their way into any aperture or fissure, the lateral expansion of the growing roots, a movement which, as in all vegetation, takes place with slow but irresistible force, is sufficient to widen the passage, and make room for its subsequent increase in diameter. As the main root branches out in every direction, each rootlet branches out in the manner we have described. The increase of roots below the surface of the earth goes on just in proportion to the spread of the branches above ground. That the absorption of moisture, that is, of nutriment, takes place only from the freshly formed ends of the rootlets, has been proved in the following manner by Senebier:—He took a radish, and placed it in such a position, that the extremity only of the root was plunged in the water; it remained fresh for several days. He then bent back the root so that its extremity was curved up to the leaves; he plunged the bent part in water, and the plant soon withered; but it recovered its former freshness upon relaxing the curvature and again plunging the extremity of the root into the water.

This absorption of moisture only by the extremity of the rootlets explains, says Dr. Lindley, "why forest trees, with their dense umbrageous heads, do not perish of drought in hot summers or dry situations, when the earth often becomes mere dust for a considerable distance from their trunks, in consequence of their foliage turning off the rain. The fact is, obviously, that the roots near the stem are inactive, and have little or nothing to do as preservatives of life, except by acting as conduits, while the functions of absorption are going on through the spongy-lets, which, being at the extremities of the roots, are placed beyond the influence of the shadow, and extend wherever moisture is to be found. The same peculiarity prevents a plant from exhausting the earth in which it grows; for, as the roots are always spreading further and further from the main stem, they are continually entering new soil, the properties of which are unexhausted."

From the foregoing considerations, the practical importance of preserving the delicate terminal fibres of the roots in transplanting trees, shrubs, or herbs, will at once be obvious, and has been so often enforced in agricultural writings that it is needless to dwell on the subject here.

It follows, also, that as the increase of the root and the general activity of the vital functions take place just at the time and in the same proportion that the stem above is growing and spreading that while evaporation is going on most rapidly from the leafy expansion of the aerial system of the plant, a compensating process of absorption is going on from the spongy rootlets beneath the ground—it is clear that to disturb and tear asunder these delicate organs during the period of activity, must be injurious to the plant, must retard its growth, if it do not kill it outright. Hence, it is a most unwise practice to choose this season for transplanting. Before this activity of growth and absorption has commenced, or after it has subsided, are the proper times for performing this operation. The early spring, therefore, before the plant has burst into leaf, or, better still, where the climate will allow, in the fall of the year, when all parts of vegetation are at rest, are the best and only seasons for removing growing plants; the early summer is in all cases the least favorable season for successfully accomplishing the change. The correspondence between the increase of the roots and branches should also be considered in the operation of pruning.

Besides the purpose of absorbing nourishment from the soil, roots have another office, that of fixing the plant in its place, and how admirably they fulfil this object is shown by the tenacity with which they retain their hold, so that the violence of storms will oftener break the trunks of even the largest trees than tear them up from the ground by their roots.

There is considerable variety in the form and general appearance of the root in different plants, and it is not uncommon to include certain modifications of the stem under this name. But it should be remembered that all true roots spring from the base of the embryo or of a leaf-bud. These last will emit roots in almost all cases when placed in favorable situations, as, for example, when the portion of the stem from which they spring is placed in contact with the ground or covered with earth. Runners habitually take root in this way, and sets are artificially obtained on the same principle. While some true stems run under ground, there are also true roots that are emitted in the air, where they either attain a considerable length before they reach their natural bed in the soil, or where in some instances they remain and perform all their functions by absorbing moisture from the air. Of this latter kind are the aerial roots of some orchids; and of the former, the roots at the base of corn-stalks, and a still more remarkable example in the aerial roots of the celebrated Banyan tree of India.

The real distinction between root and stem may thus be briefly summed up:—The origin of all true roots has just been noticed, and forms a notable distinction. Stems are, moreover, divided with greater or less regularity into segments marked by the growth of leaves and leaf-buds. Roots are entirely destitute of scales or leaves, or any scars left by their presence; and as a rule, have no leaf-buds, and ramify without any symmetry or regularity. Accordingly, we must regard as stems the underground portion of such plants as couch-grass, which is jointed, and furnished with buds that, alas! are only too prone to start up into vigorous life. The tuber of the potato, also, the eyes of which are merely leaf-buds, must be classed amongst the varieties of stem; and all true bulbs are stems, or often little else than large leaf-buds; while such reservoirs of plant food as we meet with in the radish, beet, turnip, and such like, are true roots. They belong to a class of plants called biennials, and the nutriment stored up in the root during the first year of their growth serves to nourish the plant and mature the seeds during the second year, after which the whole plant perishes.

These subjects are of great interest, and to be illustrated would occupy far more space than can be allotted to them in a periodical journal of this kind. A brief sketch is all that can be given, and our object will be gained if, while some useful knowledge is imparted, new interest is awakened, and a desire excited for the fuller information which systematic works alone can furnish.

## Barn-yard Manure.

RESTING the report of Mr. McLellan's lecture on manure, we now come to the second branch of the subject as treated by him, namely, the nature and principle of barn-yard manure. There is no manure so valuable as this: and its superiority over all others is owing to the fact that it contains all the elements necessary to the production of plants, while other manures, such as guano, super-phosphate of lime, &c., contain only certain portions of those elements. Only in a soil where those particular elements were deficient would it be of any use to add any particular artificial manure. Now, every field has a maximum of one or several, and a minimum of one or several nutritive substances, and the crops are always governed by the minimum. If, therefore, we always knew what that minimum was, we could supply it alone, which would be all that was required. But in this knowledge lies the difficulty, often insuperable. By applying barn-yard manure, however, all the constituents are added, and that which is most needed amongst them. This statement, nevertheless, requires a certain limitation, which will be presently explained.

It is only that portion of the barn-yard manure which supplies the deficiency that is effective in increasing the amount of the crops. To apply to the soil that which already exists there in excess, cannot help the land, and hence the difficulty of applying artificial manures. There is a great diversity in soils even in the same locality; and hence it is found that a manurial application beneficial to one farm or field is utterly useless to another, perhaps adjoining.

Now, it is evident that if a constant drain is made upon certain elements of the soil, without a corresponding return, those elements must in time constitute the minimum, and will govern the crops, as has been already stated. This, indeed, is the result of the constant cultivation of the cereals. Where cereals are cultivated, the grain is nearly all sold off the place, and only the straw retained and used on the farm. This straw is made into manure, and returned to the field yearly, an application which keeps up the maximum quantity of the straw constituents, while the grain constituents are constantly being taken away without return. A decrease of these constituents must therefore eventually take place, and a corresponding decrease of grain in the crops must be the result, whilst that of the straw suffers no diminution. Hence, in time, the application of a manure of this sort becomes equivalent to no manuring at all, as far as the production of grain is concerned. It may be mentioned here, in passing, that occasionally, even when the grain constituents are added to the manure, the result may be only or chiefly an increase of the straw: but this is owing to what we call accidental circumstances of the season. For instance, it is well known that in a wet, cool season, the proportion of straw far exceeds that of the grain; and the reason is this: in the cool, moist season the flowering of the plant is retarded; and the tendency of plants before flowering is to shoot out new branches and leaves; but after flowering, no more new leaves or branches are formed, and the food is then appropriated to the formation of seed. When, therefore, the flowering is retarded, the food that should be applied to the production of seed is used for the formation of straw, a certain amount of grain constituents being always employed in this process. It is evident that whatever shortens or hastens the period of flowering, other things being equal, is beneficial to the formation of grain, and vice versa.

But to return to the point under immediate consideration. It has been shown that an increase of straw will not effect a corresponding increase of grain. Now, by the constant production of cereals and selling off the grain, the constituents of the seed must become exhausted; and as a consequence, such a system of farming must eventually come to

an end. A luxuriant growth of straw is produced, with a lamentable deficiency of grain. These effects are indeed only too palpable in many parts of Canada. For, while we not unfrequently see the fields of growing wheat, with their beautiful tints, rustling in shining waves before the western wind, and holding out to the farmer visions of wealth, how often are his hopes disappointed when the harvest discloses the golden ears containing little else than chaff.

The question naturally arises, can this be remedied? Undoubtedly it can. A better system of farming will do it; and the time has now come when the farmers of Canada are adopting a better course, by raising more turnips, clover, and such like crops, and keeping more stock. True, in many cases they deserve little credit for the change, for they have been driven to it by sheer necessity. It was with extreme reluctance that they relinquished or even moderated the exhaustive growth of wheat, to which they have been compelled by the destructive ravages of the midge. In this way we may come to regard these insect plagues as a blessing to Canada rather than otherwise. And thus it will ever be found in the scheme of Providence, that a seeming evil is employed to work out some comprehensive good; and this not the less because short-sighted mortals fail to discern either all the benefit evolved, or the divine hand at work.

It has been before stated, in reference to the cereals, that all of them more or less derive their nutriment from the surface soil, taking none whatever, under ordinary circumstances, from the subsoil. Hence, an unvarying course of cropping with cereals necessarily exhausts the superficial soil. Often the farmer seeks to remedy this by what he calls a "rotation of crops." If his fields have grown wheat for a year or two he then sows barley, followed, perhaps, by oats, and so on, all the fresh crops, however, being cereals, and all, equally with wheat, deriving their nourishment from the arable soil. He tells us that such a system is easier upon the land, because these different crops extract different elements from it. But such is not the case; for the various cereals are composed, with only slight modifications, of the same elements, and consequently take up the same ingredients from the soil. One cereal, therefore, exhausts the soil as much as another; and a change of cereal is of advantage only as far as the exhaustion of the soil is concerned. "But," replies the advocate of this kind of rotation, "experience, the best teacher, has convinced me that I can grow some cereal crops (oats, for instance,) on a field which has failed to produce wheat." This we admit; but the explanation is not that oats require different elements from wheat; nor does the circumstance prove that oats are at all less exhaustive to the soil than wheat. Nay, rather, it shows that the former crop is even more severe, that its power of robbing the land is much greater,—for the correct explanation of its comparative luxuriance where wheat has failed to grow, is to be found in the fact that the ramifications of the roots of oats extend more widely than those of wheat. They spread in all directions, and reach out further in search of the little food remaining in the soil.

A rotation of crops of this sort, confined to cereals only, is equal to no rotation at all. The true element of success in the system of rotation is to alternate with these superficially-rooting crops others which send their roots deeper, and draw their sustenance from the lower soil. In short, we must introduce more clover, turnips, and such deep-rooted plants; and in addition, keep more stock. These latter crops do not draw upon the surface soil, but receive their nourishment from the subsoil; and when they are fed off to the stock on the premises, as they should be, and the manure returned to the land, they enrich the arable soil instead of impoverishing it, and add to the ground the elements of grain as well as those of straw.

The foregoing, Mr. McLellan contended, was the true and only system of manuring, and he, moreover, urged the importance of not selling off all the produce of the land under any circumstances, for in this way where no return was made, even the subsoil would in time, however remote, become exhausted. Indeed it is far easier to restore the fertility of the surface than of the subsoil; for the arable soil bears such an affinity for manures, and all elements of plant food, that, no matter what amount of manure might be

applied, it would all be arrested by the upper layers, and would not reach the subsoil. So retentive is the surface soil of its nutritious elements, that all the rains and floods of centuries will not wash them down into the deeper strata.

Hitherto, in Canada, the drain has been altogether too exclusively on the surface soil, which, however rich, is not inexhaustible. The restoration of the so-called exhausted land is to be sought by deeper cultivation, the growth of deep-rooted plants, the raising of stock, and the return to the soil of the manure thus made.

The conclusion of Mr. McLellan's lecture on the proper management of barn-yard manure must be deferred to another issue.

## A Crop of Alsike Clover

Mrs. H. THOMAS, of Brooklin, has sent us several fine stocks of Alsike clover, over four feet high, as samples of a crop grown by him on a small piece of land. The following statement, bearing date July 28th, accompanies the specimens:—"I had a small field of three and a half acres that I had summer-fallowed, and subsequently took a crop of fall wheat from it in the autumn of 1865. In the following spring I ploughed it once and sowed to spring wheat, and seeded it down to Alsike clover, putting on but five pounds of seed to the acre, harrowed in with the last harrowing. I should state that the field has had no manure since it was cleared; which is some eight or ten years. The clover germinated and came up well; and last fall I pastured it very lightly. In the spring of the present year, about the 20th of May, I sowed a barrel and a half of plaster on the field, and now I am cutting and securing the crop for seed. I have five good sized waggon loads in the barn, and there are fifteen or sixteen more in the field. The average length of the stalks is about two and a half feet, but in some of the hollows it is as high as four and a half feet. Of course, it was all down in one tangled mass, and it occupied eight long days for one man to mow it. It appears to be extremely prolific in seed. I think it would have been better to have pastured it until the first of June for a seed crop, as it would not then have grown so tall or been so badly laid.

In regard to its adaptation for bee pasturage I find it excellent, for during about four weeks it produced a multitude of blossoms, and the bees literally covered them from morning till night. Out of curiosity, on the 24th of June, I drove a common sized swarm of bees into a hive filled with empty comb, and having weighed them, set them in one corner of the clover field. After the lapse of a week I weighed them again, and found that they had gained twenty-seven pounds. This additional weight was, of course, all honey, for there was no comb to build, nor could there have been any weight of brood in that short interval of time."

## Soiling vs. Pasturing.

Let me recite the experience and practice of a friend of mine. Coming into possession of about nine acres of land, in the neighborhood of a good market, made by the demands of a large literary institution, he cast about as to what was to be done. Two cows and a horse was the stock in trade, for neat cattle. He was obliged to pay per season, men for pasturage, what they thought it was worth, and at the same time, it was no small job to drive his cows back and forth. That determined him to keep his cows in the barn. The greatest trouble was the rapid accumulation of manure. By good husbandry he properly secured that,—he kept feeding it to his crops. Finding his crops increasing, he added another cow. Another cow only made more manure. More manure, husbanded in the same way, made more crops, and the third year he added another cow. Now began another serious difficulty. His barn was too small. Still, at the end of the fourth year he put in another cow, and set himself to work to get up a new barn, and when I last saw him, he had a new barn with modern improvements, of good size, a horse, a pair of cattle, and five cows, and yet had not thought of buying more land, but wanted one more cow. Now people who do not want a large accumulation of manure and a gradual increase of crops, should not adopt that style. But it seems to me, that in our towns, where homesteads are in small lots and not easily procured, no better course could be pursued than soiling the cow, and at the same time fattening the soil.—*New England Homestead*

## Stock Department.

### Stable Drainage.

NOTWITHSTANDING all that has been written on the important subject of stable architecture, there are very few stables to be found in the country where a really efficient provision is made for removing and utilizing the liquid manure that is furnished by horses and cattle, who pass a great portion of their time confined in stalls. Not only is there, in consequence, a great loss of a most valuable fertilizer, but the liquid excrement accumulates and rapidly putrefies, giving rise to various noxious gases, which contaminate the air, and cannot fail to prove injurious to the animals who are compelled to breathe the poisoned atmosphere.

In some stables we find no pretence whatever at drainage of any sort. In others, perhaps in the majority of such buildings, drainage is attempted, but on various accounts is ineffectual. For example, the floor is made of common pine plank, a soft material, which the trampling and kicking of horses soon wears into hollows, in which the urine stands, a constant source of discomfort to the horse, and trouble to the groom. These floors, in most cases, slope back to a gutter in the rear. This arrangement compels the animal confined in the stall to stand always up hill, and puts a very uneasy strain on the sinews of the hind legs. To relieve themselves of this strain, we constantly find horses hanging back, and getting as far from the manger as the halter will allow. Then, again, either from shrinkage, or original carelessness in fitting the planks, the joints in the floor and on each side of the gutter behind, are so open as frequently to allow more liquid to pass through below than is carried away in the desired direction. This very large proportion of the urine soaking through the floor, completely saturates the ground underneath; and thus, besides being entirely lost to the farm, accumulates and putrefies in a hidden mass of filth, enough to gender the most malignant forms of disease. Besides all this, it too often happens that the liquid manure which does find its way outside the stable is, for want of proper arrangements to receive and store it, allowed to flow over the farm yard, or is washed away by the first heavy shower of rain that falls. Now, this state of things, so common on our farms, is both a serious waste of valuable material, and a great detriment to health; and might, we think, by a little better arrangement in the first construction of the stable, be altogether, or in great measure, avoided.

In England, most of the stable floors are made with stone, and in a former number of THE CANADA FARMER, we alluded to the advantages of this plan, and its prevalence abroad. No doubt, in Canada, the greater abundance of wood, and the necessity from limited capital of employing the cheapest material, will, for some time at least, render the use of wood floors very general, if not universal. But wood will not always and everywhere be the cheapest material to use even in Canada; and there is no question that we put up most of our structures in too temporary a fashion. We do not even build for one generation, still less for posterity. Setting aside, then, the use of stone for flooring as not feasible, we would suggest the employment of hard wood, especially oak, in place of pine, as being less liable to be worn into hollows. Again, in many of the best constructed stables abroad, the floors, instead of sloping back, are made to slope from the side towards the centre, where there is either a hole and grating connecting with a drain below, or a narrow gutter inclining back towards a drain in the rear. Could not we, in Canada, take a hint from this arrangement, and so relieve our stable animals from the uneasy uphill posture to which they have hitherto been condemned? At all events, whichever direction of slope we adopt, there is no reason why the joints should not be tight, so as to prevent the escape of

liquid into the ground below. They might be tongued and grooved, and still further rendered water-tight by caulking, and the employment of some cement that would resist the action of the urine.

Having thus provided for the effectual removal of the liquid manure from the stables, the next point is how to retain it in a convenient place for use on the farm. There is no question that, where the number of animals kept will warrant the expense, the construction of a proper tank is the best means of storing the most valuable fertilizer that the farm produces. But where the farmer has not the means to construct such a tank, or does not think his stock sufficiently numerous to justify the expense of the tank, pump, and liquid manure cart, still, by a slight modification of the ordinary plans, much may be done to prevent the escape and waste of the liquid manure. Where this cannot be received in an appropriate cistern, it should be taken up by absorbents provided in sufficient quantity to let none of the fluid run off. The solid manure from the excrements and bedding forms one most obvious and convenient medium for the purpose; and the manure heap, into which the fluid is conveyed, should be collected on ground hollowed out, to prevent the too ready escape of the liquid draining from it. Other materials, such as saw-dust, withered leaves, tan-bark, and dry earth, are excellent absorbents, and may be advantageously employed to take up the liquid manure. This fluid, as it comes from the stable, is generally mixed with a considerable portion of solid matter; the flow is therefore sluggish, and consequently, stable drains should be as straight as possible, and the fall as steep as the ground will admit, in order to facilitate the escape of the liquid.

There is another point to which attention should be paid. Some farmers appear to think—indeed the opinion is not unfrequently expressed—that the odor from a manure heap is particularly healthy. No wonder, therefore, that the unsavory mounds are generally in such close proximity to the stables, that the atmosphere which the animals breathe is liberally supplied with the pungent emanations from the decomposing mass. It is a great mistake to suppose that any such impurity can be other than highly injurious, especially to animals in confinement. Too much attention cannot be paid to the important matter of the purity of the air in stables; and ample provision should always be made by a proper ventilation for a constant change of air, and the removal of all noxious vapors. In view of this consideration, then, let the farmer not be afraid of the additional trouble of having his manure heap some little distance from the stable door or window. The increased labor of removing the manure will be counterbalanced by the improved health and comfort of the animals.

We would here again repeat the advice given in a former number of this journal, to erect manure sheds, or some efficient protection against rain, and so prevent the waste of the most valuable ingredients of the manure heap by washing out. We refer our readers to the notice which appeared in the Feb. 1st number of THE CANADA FARMER, of Professor Voelcker's recently published views on manure, and the best method of applying it. He shows that in the exposed manure heaps of the farm-yard, a large portion of the soluble constituents of the mass, which are its most valuable fertilizing ingredients, are dissolved and washed out by every shower that falls, and thus the efficacy of the manure when afterwards applied to the land is very greatly diminished. We believe that on this subject Professor Voelcker's views are thoroughly sound and practical, and a fresh item has been added to the debt which the agricultural interest owes to the enlightened views and wisely directed labors of such philosophical thinkers and earnest workers. Thanks to the press, and to agricultural journals especially, the benefits of such labors are not confined to any one country or community,

but are diffused over the civilized world, and come within the reach of every one who is willing to read, learn and profit. We are not, surely, too sanguine in predicting, that when our Canadian farmers generally keep stock of approved kinds, and in fair proportion to the extent of their land—the animals of course being heedfully tended with due regard to their health and comfort—when every atom of solid and liquid manure, thus furnished, is carefully husbanded, and applied to the land without losing any of its fertilizing qualities, we shall hear less frequently than we now do of worn-out land and unprofitable farming.

### Walking and Trotting.

WE were unable, from want of space, to insert the whole of the letter on "Fast Trotters," from our correspondent "Y. Z.," in our last issue. We now give the concluding paragraphs, which contain some excellent remarks on the importance of the walking qualities of the horse:—

"Sonris" has made a great mistake in saying fast trotters are slow walkers. I think he means to say they are what we call fair, square walkers, not apt to take little, short, prancing steps. They find no difficulty in putting one fore and one hind leg well forward at the same time, and when they get them there they have muscle enough to lift their bodies without an effort. My own experience is, I never saw a colt that could be made to trot fast but could also be made to walk fast; exactly the same formation is required to make a fast walker and trotter. I have seen trotting horses that were poor walkers, but it was because they had been trained to trot, to the utter neglect of their walking qualities. There is not the slightest doubt that the fastest natural trotters are the fastest natural walkers. Were it otherwise, I would not argue in favor of trotters for a moment. I perfectly agree with the Ed. CANADA FARMER—walking is the most desirable gait a horse can possess for agricultural purposes, in Canada. I once had a good deal of riding on horseback, in a mountainous country; the gait ridden was principally a walk, the horse I rode was about half blood, and well formed; he was about three and a half years old when I commenced riding him; at four and a half he could trot a mile in less than three minutes, and out-walk anything I ever met with that walked fair.

It would be just as absurd to say that good trotting horses are the best for ploughing heavy clay land as it would be to say the Clydesdale is the best for the road. The breeder must consider for what purpose his horse is wanted, and exercise his judgment accordingly. He must also be governed to a great extent by the mare he has to breed from. I will not venture to say what crosses are best, for it is a question which very few agree upon.

Y. Z.

### Trapping Sheep-Killing Dogs

Dogs will sometimes get together by night and stay away in search of sheep, and on finding them, will attack and kill most generally more or less of them, and injure others. I would recommend those having sheep killed to place them in a pile together, or to leave at least one of them where the dogs have left it; then put four or six lengths of fence around the dead sheep, made of sawed scantling. Commence by laying the scantling on the ground, and as you lay them up, draw your scantling in, the width of them every time around, and build a fence high enough in this way that a dog cannot jump it, then lock the corners well, and you have a pen that dogs can go over into from the outside readily, and when once over, they cannot get out again until they are helped out. In this way, in a few nights, you will be quite likely to get the very same dogs that killed your sheep, as they will have the curiosity or desire to go over the ground the second time.

It will be better to keep still about having your sheep killed, for if you make any search for the dogs you need not be at all surprised if you find that every man's dog is carefully shut up over night. It is not at all likely that the dogs will have had the blood stains washed from them, or any particles of wool removed from between their teeth, on their return home in the morning, after having been out over night in sheep-killing.—Cor. in Country Gentleman.

Rural Architecture.

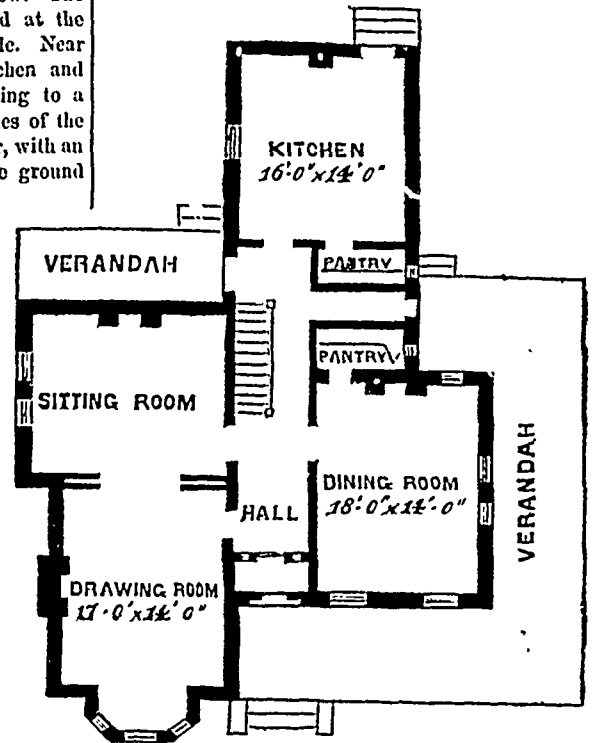
Design for a Country House.

The previous designs prepared for the CANADA FARMER were for a cheap class of houses. We now proceed to give a series of designs for a somewhat better sort, as we consider there are plenty of our prosperous farmers

drawing-room is relieved by a bay window. The kitchen is in the rear of the house, and at the end of the main hall, which is six feet wide. Near the rear of this hall, and between the kitchen and dining-room pantries, is a passage leading to a spacious verandah, which surrounds two sides of the house. There is also a verandah in the rear, with an entrance to it from the main hall. All the ground floor rooms are provided with fireplaces.



FRONT ELEVATION.



GROUND FLOOR.

who are quite able and have the taste to build in a style superior to that of the square or oblong box. We do not mean to depreciate this kind of house, but we prefer to see something of the artistic associated with the useful. Every one acknowledges the charm that is imparted to the suburbs of our towns and cities when the landscape is dotted over with neat and picturesque villa residences. And we are fully convinced that to make our dwellings attractive, so far from being a mere expenditure of money on the gratification of the fancy, is a part of the duty which every man owes to his family and his country.

The accompanying design of a suburban or farm house is capable of being constructed in either brick, wood or stone, and at a reasonable cost.

On the first floor we have four large bed-rooms, a bath-room, and three wardrobes.

The cellar will be under the kitchen extension, with a way to it under the main stairs.

The design is gothic in character, of the domestic style; the building is nearly equal to a two story house, as the bed-rooms will be ten feet in height from floor to ceiling; and the roof being very steep, very little slope will appear in the rooms. This style of finish is almost as good, and certainly very much cheaper, than two full stories.

The size of all the rooms is marked on the plans.

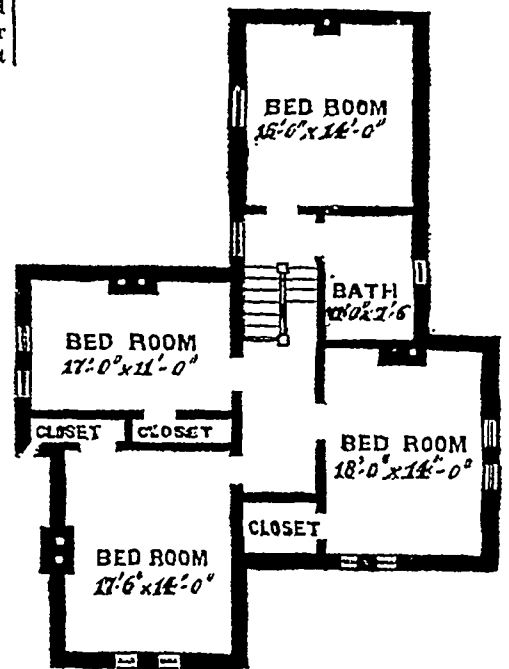
If the building is erected of wood, the sills should rest on stone or hard brick foundations, as cedar posts will rot or settle in time. A frame house built

sketch, is almost a necessity in this country, and might be constructed in a very simple or elaborate manner, to suit the fancy. A handsome verandah can always be made by using turned posts, say five or six inches in diameter, and setting between them brackets or arches, as shown.

It will be seen that the front window over the bay is protected by a hood. This is not only a pleasing feature in a house, but it has also its uses; for instance, the upper sashes of windows, with hood, can always be left a little open without any chance of the



SIDE ELEVATION.



UPPER STOREY.

The plan is broken in outline, and is well arranged for a small family. By referring to the ground plan, it will be seen that all the rooms are of a comfortable size, and their relative positions arranged with a view to economical management.

The dining-room is in convenient proximity to the kitchen, the sitting-room or "parlor" is opposite the dining-room, and is connected with the drawing-room by folding doors, so that, if required, a large room can be obtained. The formal squareness of the

on brick or stone foundations will, if framed with care, and good materials are used, last an indefinite number of years.

When a house is plastered on the exterior, the cornices should have good bold projections, say at least three feet. An agreeable effect can always be obtained by colouring the plastering with some quiet neutral tints, to harmonize with the character of the house and the surroundings.

A verandah, such as shown in the accompanying

rain beating in; they also defend the windows from the hot rays of the mid-day sun, without shutting it entirely out.

The bay window is also a very useful feature in a Canadian house; there can scarcely be too many of them for the comfort of a house, but as they are rather expensive, they cannot be indulged in too freely.

A house of the above description, if not finished in an elaborate manner, could be built of wood, on foundations of stone, for about \$2500.

## The Dairy.

### Dairymen's Convention.

PURSUANT to public notice, an important meeting was held in the Town Hall, Ingersoll, on the 31st ult. and 1st inst. for the purpose of organizing a Dairymen's Association and otherwise promoting the dairy business interest in the Dominion of Canada. Upwards of two hundred Dairymen from various parts of the country were present, and the greatest interest was manifested in the proceedings. The Convention was called to order soon after 10 o'clock, on the first day of meeting, and a temporary organization effected by the appointment of W. Niles, Esq. of Nilestown, Chairman, and James Noxon, Esq. of Ingersoll, Secretary. A large Committee on organization and general business was then appointed, after which the Convention adjourned until half-past one. On resuming, the Committee reported when it was resolved that the consideration of the report be deferred until after the hearing of some addresses, out of which hints might be obtained that would help to shape organization and business. This action was taken, more especially, in order to afford all present an early opportunity to hear X. A. Willard, Esq. of Little Falls, New York, who had come on special invitation, to address the Convention, and who, from his thorough acquaintance with all matters connected with the dairy business, was expected to throw much light on the subject. Mr. Willard was therefore at once introduced to the meeting, and proceeded to deliver a carefully prepared and most interesting address, which at the request of the Convention, he has kindly consented to put in shape for publication in the CANADA FARMER. Our readers may expect its appearance in our next issue. The Editor of this journal was then called on, and spoke at some length, taking occasion to reciprocate some well timed and happily expressed sentiments of international friendship to which Mr. Willard had given utterance at the commencement of his address, and taking up in detail several important practical matters connected with the development of dairying in Canada. He especially dwelt on the absolute necessity of the most scrupulous cleanliness in every part of the cheese-making process, from the milking of the cow to the arrangement of the curing room. At the conclusion of his remarks, he drew attention to the subject of Sunday cheese-making, regretting that the practice very largely prevailed among American dairymen, and urging several weighty considerations against such a practice coming into existence in this country. After the delivery of these addresses, the Convention proceeded to consider the report on organization and general business, and having pretty thoroughly discussed the various recommendations embodied therein, unanimously adopted the following preamble and resolutions, thereby organizing "The Canadian Dairymen's Association."

Whereas it is deemed expedient to form a Canadian Dairymen's Association, through which, as a medium, results of the practical experience of dairymen may be gathered and disseminated among the dairying community, therefore be it

Resolved, that we, the undersigned, do hereby associate ourselves together for mutual improvement in the science of cheese-making, and more efficient action in promoting the general interests of the dairy community.

Article 1. The name of the organization shall be "The Canadian Dairymen's Association."

Art. 2. The officers of the Association shall consist of a President, twenty Vice-Presidents, a Secretary and Treasurer.

Art. 3. The President, Vice-President, Secretary and Treasurer shall constitute the Executive Board of the Association, seven of whom shall form a quorum for the transaction of business.

Art. 4. The officers of the Association shall be elected at each regular annual meeting, and shall retain their offices until their successors are chosen.

Art. 5. The regular annual meeting shall be held on the first Wednesday in February of each year, and at such place as the Executive Board shall designate

Art. 6. Any person may become a member of the Association, and be entitled to all its benefits by the annual payment of one dollar.

The following officers were then elected:

PRESIDENT.—C. E. Chadwick, Esq., Ingersoll.

VICE-PRESIDENTS.—M. H. Cochrane, Montreal; Henry Wade, Port Hope; T. H. Willmot, Milton; A. G. Muir, Grimsby; Thomas Valentine, Stratford; J. H. Scott, Lobo; James Harris, Ingersoll; Benjamin Hopkins, Brownsville; George Galloway, West Oxford; Richard Manning, Exeter; James Collins, Dereham; Steven Hill, Paris; John M. Ramer, Cedar Grove; — Graham, Belleville; John Adams, Ingersoll; P. Bristol, Hamburg; J. M. Jones, Bowmanville; H. Farrington, Norwich; Hon. David Reesor, Markham.

SECRETARY.—James Noxon.

TREASURER.—R. A. James.

On motion the Executive Board was empowered to choose delegates to represent the Association at the American Dairymen's Association from year to year.

Mr. Niles then vacated the chair, and Mr. Chadwick, President of the Association, took the official position to which he had been elected. In doing so he returned thanks for the honour done him, and pointed out the benefits likely to result from the organization, if properly worked. A vote of thanks was then passed to Mr. Niles for his services as temporary Chairman, when it was moved by Adam Oliver, Esq., seconded by Hon. D. Reesor, and

Resolved, That the Executive Committee be instructed to publish in pamphlet form, to distribute among the Dairymen of the Province of Ontario, a detailed statement of the number of dairies and factories in operation in each township, together with an alphabetical list of owners' names; the number of cows in use, and the estimated amount of cheese likely to be made this present year.

The Association then proceeded to enroll its membership, when upward of seventy persons gave in their names, and paid each his dollar to the Treasurer, according to Article six of the Constitution. After the completion of the roll of members, adjournment was had until half-past seven in the evening.

On reassembling, the report of the Committee respecting topics of discussion was taken up. Three subjects were submitted to the attention of the meeting; viz.: the best course to be adopted toward securing a cheese market, the enactment of a law against the adulteration of milk; and the question of Sunday labour. In regard to the best method of obtaining a market for the cheese manufactured, Mr. Farrington was of opinion that the Association should send an agent to England, to open up channels of information and establish a reliable business connection for the Dairymen of Canada. Our New York neighbours had found it necessary to do this, and he knew of no other effective mode of protecting and advancing our interests. Direct communication between the market and the manufacturer was required, in order that the manufacturer might know what prices to ask or to accept. An agency would establish such communication. Hon. D. Reesor approved of the course suggested by the preceding speaker, but thought the step would be found expensive. Some \$1,000 or more would be required to send an agent to England and pay his salary and expenses for a year. Still he believed it would be a wise outlay if the means could be procured. He then proceeded to speak of the development of the factory business in Canada, the demands and requirements of the English market, urging strongly the importance of producing a prime quality of cheese, that it might bring the highest price going, and be as remunerative as possible. Mr. Farrington said he was so convinced of the propriety of sending an agent to England, that he would be responsible for any sum not exceeding fifty dollars toward the cost, and he believed, if all the factories in Canada would bear their part, the expense would fall but lightly on each. Hon. D. Reesor enquired how many cheese factories there were in the Province of Ontario. The Secretary, Mr. James Noxon replied, that he estimated them at about 235, and he thought twenty-five millions of pounds of cheese would be likely to be manufactured at them, the present season. He approved of the agency proposed, and would give the same guarantee as Mr. Farrington had done toward the cost of it. Such a course would give a character and reputation to Canadian cheese, and if we produced a superior article it would be sure to bring a good price. Mr. Davis, of the firm of Davis & Co., Toronto, said that they could only succeed by making cheese that would be in accordance with the requirements of the English markets. The firm of which he was a member was ready to ship any quantity of cheese to England at moderate profits. If the cheese was good, plenty of buyers would be found, if it was not, a dozen agents could not sell it. It was highly de-

sirable that Canada should secure the same high reputation for her cheese which she has for her ham, bacon and flour. Mr. Faulkner, of Utica, N. Y., said he had been identified with the cheese interest since 1837. He had lately visited the principal cheese factories in the neighborhood of Ingersoll, and was happy to say that they compared well with many of the best cheese factories in New York State. The business of cheese-making had grown to such enormous dimensions of late, that it was only by making a good article that a ready sale could be obtained. Buyers were particular, especially at this season of the year, but good cheese would always find a ready sale. He suggested the idea of dairymen holding meetings in their different neighborhoods and discussing amongst themselves the latest and best methods of making cheese. Mr. Farrington warned the dairymen not to send a pound of cheese to market on commission at this season of the year; business was always dull about this time, but after the middle of September prices would doubtless take a rise. Mr. Davis said it was very desirable that the dairymen should have boxes and sale boards on hand, as buyers often had to ship at a day or two's notice. He recommended, also, that the boxes be branded with the name of the factory where the cheese is made. He thought their cheese was not of a high enough color. Perhaps Mr. Willard would tell them what colour was most preferred in England. Mr. Willard replied that the London market desired a highly coloured cheese. In Manchester they would take cheese of a paler colour, but the London market was the best, and to meet its wants, it would be well to aim at a rich cream-colour, not so high, however, as to be red. Mr. John Haskett said that the firm he represented, that of Buck, Robertson & Co., of Montreal, was prepared to ship cheese direct to England. He would be at Ingersoll from time to time, and would be prepared to buy any quantity of good cheese at a fair price. Mr. Clarke approved of appointing an agent to open the way for the advantageous disposal of Canadian cheese in the English market. In business two things were necessary, to have a good article for sale, and then to advertise it effectually. He considered that our factory-men had a good article of cheese to sell; now they wanted to make their wares thoroughly known. For that purpose he thought an agent would be of great service. In his opinion an agency need not be so costly an affair as some appeared to think. It was not essential that he should spend a year in England. A few weeks, or at most, months, would accomplish what was wanted. He thought the proposed agency need not cost over \$2,000, which would only be \$10 each for 200 factories. Mr. Willard's visit to England had secured for the New York factories an average of two cents per pound higher price for their cheese, which had netted a single factory about \$8,000, and greatly enhanced the gains of all. Yet he believed Mr. Willard's visit did not cost the American Dairymen's Association more than \$2,000 in greenbacks. He recommended immediate and energetic action in this direction. He further suggested that Mr. Harris's mammoth cheese be sent out in charge of the agent. It was, he understood, first-class as to quality, and this, added to its extraordinary size, would make it a capital advertisement. Mr. A. H. Pettif, of Grimsby, asked what sample of cheese would do to ship to the English market. Mr. Davis replied that the cheese should be of a close texture, very rich in quality, of a proper color, very clear, of a flavor free from everything that might be called bitter, or sweet, or rancid. A good flavor was very desirable. Mr. Charles Banbury said there need be no apprehension that cheese-making would not be remunerative. He believed it would be, even at a lower rate than what they were now receiving. He had sold cheese at one time at eight cents, and thought he was doing well. He advocated the establishing of a market at Ingersoll, where buyer and seller could meet, thus saving a great deal of trouble to both parties.

It was then moved by Mr. Niles, seconded by Mr. Clarke, and

Resolved,—That in the opinion of this Association it is highly desirable, if practicable, to send an agent to England, and that the Executive Board be instructed to use its best endeavors to accomplish this object; and, if possible, to secure the transmission of Mr. Harris's Mammoth Cheese to the English market.

After some further discussion, the resolution was carried, with but one dissenting voice.

The subject of a law to put a check upon the adulteration of milk, next came up for discussion, when it was moved by Mr. Clarke, seconded by Mr. Niles, and unanimously resolved:

That the Executive board be requested to take such action as may be necessary to secure the passage of an Act by the Legislature at the approaching session of Parliament to protect cheese manufac-

turers from the adulteration of milk by unprincipled persons—said Act to be similar in its provisions to the law on this subject now in force in the State of New York.

The mover of the above resolution stated that the New York enactment consisted of a single paragraph, and was as follows:

"Whoever shall knowingly sell, supply, or bring to be manufactured to any cheese manufactory in this State, any milk diluted with water, or in any way adulterated, or milk from which any cream has been taken, or milk commonly known as skimmed milk; or whoever shall keep back any part of the milk known as 'strippings,' or, whoever shall knowingly bring or supply milk to any cheese manufactory that is tainted or partly sour from want of proper care in keeping pails, strainers, or any vessel in which said milk is kept, clean and sweet, after being notified of such taint or carelessness; or any cheese manufacturer who shall knowingly use, or direct any of his employees to use, for his or their individual benefit, any cream from the milk brought to said cheese manufactory, without the consent of all the owners thereof, shall, for each and every offence forfeit and pay a sum not less than twenty-five dollars, nor more than one hundred dollars, with costs of suit, to be sued for in any court of competent jurisdiction, for the benefit of the person or persons, firm or association or corporation, or their assigns, upon whom such fraud shall be committed."

The question of Sabbath work in cheese factories was next taken up, when a memorial from the Ministerial Association of Ingersoll was read by the Secretary, urging on the meeting that it should discontinue all violations of the sanctity of the Sabbath in connection with the business of cheese-making. Mr. Niles moved that the memorial be received, and as far as possible its sentiments adopted. Mr. Clarke seconded the motion, and in doing so reminded the Association that Sunday cheese-making was as much forbidden by the law of the land as the carrying on of any other business of a public nature. The law took no cognizance of private violations of the Sabbath, but it did of any publicly transacted business, and the operations of cheese-factories clearly came within reach of the statute in such case made and provided. The resolution was unanimously adopted, and very general concurrence in the impropriety and needlessness of Sunday cheese-making was manifested by the factorymen present.

At the request of several gentlemen, Mr. Farrington then explained some of the more important practical principles of cheese-making as carried out by him in his factories. The Association then adjourned, to meet next morning at 9 o'clock.

At 8 1/2. A small number of members assembled this morning at the Town Hall, pursuant to a notice of adjournment, the majority having left the previous evening for their homes. Hon. D. Reesor moved, That with a view of having this Association fairly represented in every county in Canada, the Executive Board be authorized to add to the number of Vice-Presidents from time to time. Mr. Niles seconded the motion, which was carried after a brief discussion.

The names of Messrs. Niles and Carlyle were then added to the list of Vice Presidents, after which the Association adjourned *sine die*.

### Cheese Making in Illinois

THE Chicago Republican says:—The effect of the diversion of milk from city consumption into cheese manufacture has been exceedingly favorable to the dairymen. The adoption of the associated dairy system, and the erection of factories all along the Fox River valley, gives dairymen a choice of markets, and accommodates many farmers too far from railways to send milk to the Chicago market. The Elgin Milk Condensing Company is buying about fifteen hundred gallons per day, for which ten cents per gallon is paid, and which is condensed, preserved, and manufactured into cheese and butter according to the demands of the market. A few days since, this company received an order from the United States Government for two thousand dozen cans of preserved milk for army use on the plains. This is condensed, and sugared milk put up in pint cans, soldered tight, and in which it will keep perfectly any length of time, in any climate. Large quantities of condensed cream are sent to this city to supply our ice-cream saloons. Cheese for Southern and Northern markets are made here from the milk received that is not required in condensed form by the demands of the market. Nothing is lost. If cream changes before condensing, or if there is no other use for it, a power churn soon converts it into butter of excellent and uniform quality, which, made with all the appliances of the best butter dairies of the East, sells several cents per pound higher in market than the average grades of Western butter.

## Veterinary Department.

### Lameness in Horses.

#### SANDCRACK.

SANDCRACK is aptly defined by Delabere Blaine as "a solution of continuity between some of the horny fibres of the hoof, generally in a direction parallel to their growth—that is, from above, downwards. Now and then, though but very seldom, these cracks exist in a horizontal position."—"Veterinary Art," 5th Ed. The name originates in the belief that such cracks were peculiar to sandy districts. Kirtel d'Arboreal states that horses sent from France to serve with the army in Egypt became numerously affected with sandcracks, occasionally exhibiting several in each foot. English horses during the Crimean campaign also suffered much from the same causes. Amongst the lighter descriptions of horses sandcracks occur towards the inside quarter of the fore feet. Sustaining so great an amount of jar, this is the most common seat of the fissure. Occasionally, however, it is met with towards the toe of the hind feet, especially of heavy draught horses. In all cases the prolific cause is the prevalent fashion of rasping down the crust every time the horse is shod. Thin, brittle, light-coloured hoofs are especially liable to crack. Treads and other accidents which injure the coronary band induce a weakened growth of horn, and hence a liability to sandcrack. Occasionally the mischief is produced suddenly, as when the horse is trotted or galloped on hard ground. More frequently it comes on and extends gradually. Sometimes the crack is quite superficial, and does not reach an inch in length. Sometimes it extends from the coronary substance to the ground surface, gapes wide enough to admit a penny piece, and reaches to the quick. In such circumstances the sound horn moves at every step, and presses on and pinches the sensitive laminae, causing acute pain and lameness. Blood often oozes from the bruised vessels, and from the irritation induced granulations sprout. Even the slightest sandcrack, when neglected, may thus become serious, and interfere with the animal's usefulness; all cases are therefore properly held to constitute unsoundness. In the purchase of horses such cracks should be looked for, particularly where the hoof has recently been freely rasped, and oiled or waxed over—expedients often adopted to conceal such defects.

Whilst still slighter and superficial, sandcracks should be prevented extending either in length or depth. With a fine drawing knife the cracked horn should be cautiously pared down; whilst at right angles to its two extremities an incision is made either with a knife, rasp, or hot iron. The crack is thus isolated, and its further extension prevented, on the same principle on which a crack in a glass is endeavoured to be circumscribed by making a scratch across its ends with a diamond. To avoid the jar which would farther increase the mischief, the horse should, if possible, be kept at slow work. The jar is also materially lessened by shortening the toe and using a bar shoe. Where, in spite of such measures, the crack appears to extend, or the horse cannot be spared from work on the road, the breach should be bound firmly together by some fine wire wound round the projecting nails left unclenched. Wire for such purposes is stronger than twine, and when thus carried tightly across the crack from the nails left unclenched on either side, it is not so apt to be displaced as when the wire is bound merely round the hoof. When the sensitive laminae have been injured, and bleed by keeping the animal at work, perfect rest will be for some time requisite; if there is much tenderness, a poultice may be applied for several hours, and followed by cold water dressings. If repair goes on tardily or granulations appear, a solution of nitrate of silver or other such caustic may be used occasionally. To stimulate a vigorous growth of healthy horn, and thus grow out the fissure, gentle blisters should be rubbed into the coronary substance round the top of the hoof at intervals of ten days.—North British Agriculturist.

### Pleurisy in the Horse.

In our last number we briefly noticed the nature and treatment of pneumonia, or inflammation of the lungs; the covering of these organs, the pleura, is also liable to inflammation, and the name Pleurisy is applied to this disease. Pleurisy often occurs in connection with pneumonia. In the early stage of inflammation of the pleura, the symptoms are similar to those of pneumonia, viz: shivering and hurried breathing, the pulse is hard and wiry, and pressure

upon the intercostal spaces—that is, between the ribs—gives the animal great pain; this last is a decided symptom of pleurisy, particularly if the horse, while standing, places his fore-feet outwards, and any attempt to alter this position gives him extreme pain, so that to a casual observer, he looks as if he were foundered. These symptoms may be noticed in the course of two or three hours from the first attack, in a short time other symptoms are shown, and a well-marked one is a prominent line, extending from the outer angle of the haunch, forward and downwards along the margins of the false ribs; this ridge is produced by the abdominal muscles being brought into action; for a horse, when laboring under this disease, keeps his ribs as stationary as possible, breathing chiefly by the movements of the diaphragm, thus avoiding the pain occasioned by the distended costal pleura. In some cases he shows pains similar to colic, will lie down, roll about, and get up and look to his sides, while the pulse, from being hard and wiry, becomes quickened and smaller. A cough of a suppressed character, showing that it causes the animal great pain, is an almost invariable attendant on this complaint. The ear applied to the sides of the chest can easily detect a distinct friction sound, caused by the rubbing together of the roughened surfaces of the pleura. This sound disappears as the exudation of lymph in the progress of the inflammation diminishes the friction. Recovery from pleurisy may take place in three or four days; and the signs of convalescence are, abatement of the fever and difficult breathing, the pulse becoming slower and somewhat stronger, and the skin resuming its sleek and glossy character. In some cases the appearance of amendment is deceptive. If the pulse, instead of becoming slower, is gradually increasing in frequency and diminishing in force, it denotes that water is forming in the chest, (Hydrothorax). The apparent relief is caused by the exudation relieving the blood-vessels, and also keeping the two pleural surfaces from rubbing against each other. The signs which indicate water in the chest are, the eyes look clear and sparkling, and unnaturally prominent, the skin is smooth, the horse soon loses flesh, the spaces between the ribs appear to bulge out, and the loins and back are elevated at every inspiration. As the disease advances, swellings of the legs and breast take place, and there is a re-gurgitation of blood in the jugular vein, the head is extended, and there is flapping of the nostrils, and the pulse continues to get weaker and quicker.

The treatment of this severe disease will form the subject of another article in our next issue.

73—A cow died at Brimfield, and upon examination a common dining fork was found in her stomach, the tines of which had penetrated to her heart.

OPERATION ON A HORSE.—An interesting surgical operation on a horse was performed a few days ago, by Mr. Andrew Smith, Veterinary Surgeon of this city, at his stables, Temperance Street. The horse is a valuable animal, but was injured some time since, having sustained a severe sprain of the off fore foot. This, by improper treatment, had caused the fetlock to bend over to such an extent, that the front almost touched the ground, and made the animal walk on the point of his toe. The animal was thus useless, and Mr. Smith determined to try a surgical operation in the hope of rendering the leg straight. This he did by separating the flexor tendons, and applying a little pressure, when the leg resumed its natural position, and is now perfectly straight. All that now remains to make the experiment perfectly successful is for the tendons to unite, and that this will take place has been successfully proved by several eminent surgeons in Britain, although it was, at one time, a point involving some dispute. Although useful before only as food for powder, there is no doubt but the horse will soon be rendered almost equal to his former self, and prove a useful member of the horse community again. The operation has been watched with interest by members of the medical profession, and several have congratulated Mr. Smith on his success.



## Poultry Yard.

### Maturing Poultry.

WHEAT screenings and cracked corn, I find to be the best adapted feed for chickens; this should be fed to them as often as twice a day; while in the interim something should be placed at their pleasure to pick at. I dissent from the idea that fowls should ever go hungry in order to grow fat or to lay eggs. I have never learned how to fat or bring fowls into a porturient condition by feeding little or nothing! Broom-corn seed, well ripened, affords my fowls a constant supply of wholesome and cheap provender, for lunch, between their regular feedings of screenings or corn, and I find my corn and buckwheat, etc., do not disappear so quickly by voraciousness as where they have to rely wholly on stated feedings.

Good authorities have laid down one rule among many good ones, which I appeal from to the good sense of my brother poulterers, so far, at least, as it regards growing chickens, that is:—"Never keep feed before them all the time." Working on the system of human physiology, this sounds very well; but an infant receives its sustenance when it cries for it; I believe our infant chickens being able to help themselves, without crying for it, should be permitted to do so. Boiled feed, such as potatoes and meal, with small or large pieces of meat, as can be afforded, hasten the growth of poultry very much; use as much pepper, and a little more than would be pleasing to our palates as seasoning, but it is almost useless to say to any one, *use no salt*. Farmers who make their own butter, and have sour milk, should remember to divide a part of this refuse material with the hens, for, while pigs make the ham, we cannot have ham and eggs without the hens.

There certainly is a great difference in fowls about maturing, and without stating any particular preferences in this article, I will remark that, for early market uses, the Asiatic varieties are the best. Yellow-meated poultry, on account of its rich appearance, always brings the highest price in market; and the reverse of this is the case, in many markets, with eggs. In the case of the meat, the only difference is in the imagination; while, in the case of eggs, imagination is greatly at fault in making choice of white-shelled eggs, for the yellow shell is a mark of greater nutriment as really as yellow corn contains more oil than the white-flint variety.—*Cor. Country Gentleman.*

The editor of the Woodstock Patriot makes merry over the mistake of an old Shanghae hen of his that has been sitting for five weeks upon two round stones and a piece of brick. "Her anxiety," he says, "is no greater than ours to know what she will hatch. If it proves a brick yard, that hen is not for sale."

HOW TO STOP HENS FROM SETTING.—Our lady friends, who generally have charge of the poultry department, are sometimes worried and tortured by the obstinacy of hens that persist in setting when they are not wanted to perform that duty. Many plans have been tried to prevent hens from setting, such as tossing them in the air, driving them from place to place, but the correspondent below says he has found an effective cure. He says: I fasten a string to the hen's leg, say, four or five feet in length, and tie the other end to a stake driven in the ground, close to the path where you are in the habit of passing frequently, and scare her as often as you go that way. One day effects a cure.—I. A. COLLINS, Cardington, Ohio.

FOWLS IN FIELDS AND GARDENS.—A writer in the Farmer (Scottish) gives an interesting account of his experience in poultry-keeping, and the good service they did him in ridding his garden of various insects. The birds with which he commenced were silver-pencilled Hamburgs, which, until they were taught bad habits by the introduction of a number of barn-yard fowls, showed little disposition to scratch or otherwise damage the flower-beds. His conviction is, that unless they are allowed the run of the garden in disproportionate numbers, the service they render very far outweighs any injury they may do to seed or flower-beds. In due proportion, independently of the commercial profits of raising poultry for the market, they are undoubtedly the farmer's friends. Ducks, which are most industrious and voracious devourers of insects, have this advantage over their feathered congeners, that they cannot scratch, and have very limited powers of flight over fences and other barriers into forbidden precincts.



### Agricultural Tour in Elgin.

To the Editor of THE CANADA FARMER:

SIR,—I left Port Rowen, in the County of Norfolk, on the 26th of June, and reached the picturesque village of Vienna, Township of Bayham, East Elgin, in the afternoon, where we had a small but somewhat interesting meeting. Considerable business is done here in the lumbering and mechanical operations; but the village has suffered severely of late years from fires. Only a few years since, this locality was a dense forest, like some other Townships in Norfolk and Elgin, and therefore no high state of agriculture can reasonably be looked for; yet I saw a number of farms in good order, stumps rapidly diminishing, and other indications of progressive improvement. The lumbering resources of this district are rapidly diminishing, and on several occasions it was remarked that its agricultural capabilities would thereby become proportionately developed. Mr. W. McCausland drove me, after the lecture, to his father's residence at Luton, passing through a somewhat older and fast improving section of country. Mr. Richardson, near the village, had the finest field of Indian corn that had come under my observation this season; his cultivation and management generally are superior:—he has commenced tile draining, and everything indicated progression. I observed that Mr. McCausland and his neighbours had some excellent grade stock, with a strain of Durham blood; the cows being generally good milkers.

Next day we had a meeting in the neat and thriving village of Aylmer; it was well attended, and several of the leading and intelligent farmers of the neighbourhood offered many useful suggestions and detailed the results of their own experience. Turnip culture is declining in this part. Maize is raised extensively; it is considered less expensive and more certain than turnips, carrots or mangels, and is used extensively in feeding. A good deal of interest is being felt in this section in the improvement of stock, and attempts are being made to establish stated cattle markets. A few weeks ago a horse fair was got up, at which quite a considerable amount of business was transacted, and on the day of our meeting a similar attempt was made in regard to cattle, the number and quality of which must be considered, under the circumstances, very encouraging. The time has already come, in some of the older parts of the country, for the practical consideration of the several important questions involved in the establishment of periodical markets and fairs. Mr. James Armstrong, President of the County Society, drove me to his residence, and on the way, we called at Mr. James Pound's cheese factory, just got into operation and promising good results. A little further on, (apparently too near the former), we looked at Mr. Mill's factory, a new but smaller establishment, but capable of doing a considerable amount of business. One of the completest establishments of this kind that I have anywhere seen is Mr. J. York's, near Union, which has only commenced this season. A copious supply of cold spring water comes into the building, by its own gravity, through iron pipes, and warm water is supplied in a similar manner from a steam boiler situated outside of the principal building. Mr. York seems to have his arrangements very convenient and complete, and will doubtless produce a first-class article.

I had the pleasure of inspecting Mr. Armstrong's farm, consisting of upwards of 300 acres, and of a day's drive with him over a considerable portion of the Township of Yarmouth. The soil generally is light, surface beautifully undulating and well water-

ed. Mr. Armstrong has a few good Durham cattle, including a useful four-years-old bull, purely bred, the rest being Durham grades, good alike for the dairy and the butcher. He keeps a large flock of sheep, Leicesters crossed with the Cotswold, with a few pure of the latter. Soil—a light loam, in some places inclined to sandy. Ploughs sod for peas, which are grown extensively and of good quality, followed by wheat. Plaster is used very extensively, 100 lbs. to the acre annually, on all meadows and pastures, with excellent effect. In ploughing sod, when there is much vegetable matter, and after spreading dung, Mr. Armstrong invariably sows plaster on the surface, to fix the ammonia generated by decomposition, and feels satisfied of the advantages of the practice. The pasture, even in his partially cleared woods, appears to be wonderfully benefited by a dressing of this substance, the white clover and other grasses being at least doubled in amount by its application. He pastures the first year's grass, and mows the second, thereby getting a thicker pasturage and a finer quality of hay. He raises but few roots, except potatoes; feeds animals with corn and coarse grains, and studies to return as much manure and vegetable matter to the soil as possible, thus enriching it at the least amount of cost and labour. In this way, abundance of food is obtained for live stock, a good return of grain is generally ensured from a moderate area under thorough cultivation and in due regard to rotation, and what is of so much importance, the fertility of the soil increased, rather than, as is too commonly the case, impaired. These practical hints admit of a wide and beneficial application.

The meeting at the Town Hall in St. Thomas was but thinly attended, nevertheless several matters of great importance were pretty thoroughly discussed. Farmers were busy in their hay, and weather threatening. Crop generally very heavy. I had much personal intercourse with farmers and others in this interesting locality. St. Thomas is one of our prettiest little towns of recent origin, and commands the business of a surrounding country, very fertile and fast improving. It has a flax mill doing a good business. The culture of flax is extending in this locality, and the difficulty of handling the crop, often from two to three tons per acre, is not felt so much here as in remoter and less populous districts. The Court House and ornamental planting of the grounds, present an example of good taste one does not often meet with, deserving a wide imitation. Hop culture is being commenced in this locality; eighteen acres were planted near the town last spring. Draining tiles (pipes) are manufactured of good quality, and at reasonable prices, and they are being used more or less at various points; a fact highly creditable to farmers of so new a country. The meeting at Fingal may be considered a failure as regards numbers; but I had many opportunities of much interesting conversation with a number of farmers resident in the vicinity.

I am indebted to the kind attention of Mr. Philpotts, Secretary of West Elgin Society, and to Mr. Samuel Williams, of Iona, for opportunities of seeing the country and of gathering information. Mr. Williams has an excellent herd of Durham grade cattle, and a small flock of well bred sheep. His pure bred bull gets valuable stock; and the practice of several of the Township Societies keeping pure bred Durham bulls for the use of members, is evidently fast improving the horn cattle of the district. Pity so valuable a practice were not more generally adopted. Mr. Williams is a very successful apiarian, and both he and his brother are favourably known for producing a superior quality of maple sugar. His maple sugar bush is very fine, and in the centre is a regular manufactory; a brick furnace, coolers and boilers, and shed containing 700 tubs for collecting the sap. This must be quite an interesting scene during the sugar season; about a ton of that article being made annually. It is exceedingly pure, and almost white; and I have just sent several specimens of it to friends in England, who will regard them as a great curiosity. I had an opportunity, through the kindness of Mr. Sanders, of seeing the late Col. Talbot's old residence on the Lake shore, with several other localities

now possessing a sort of historical interest in connection with the early settlement of this part of the country. I observed in Mr. McBeth's garden the finest specimen of an English hawthorn hedge that I ever met with on this side of the Atlantic; it is very wide and thick at the bottom, and when it gets sufficiently high will make a fence perfectly impregnable. His red cedar hedges are remarkably fine. We spent an hour or two very agreeably with Mr. Bobier, an old and enterprising settler, who farms a heavy soil in an excellent manner, drains with tiles, has some pure Durhams and superior grades. I took up my abode for the night with Mr. John Pearce, of Tyrconnel, who has some excellent Durham grades, and a good pure Durham bull. Mr. Pearce has just commenced a cheese factory, which from the specimens I tasted, although, of course, much too new, promises to turn out a good article.

The meeting at Wallacetown (July 4th) was held in the Town Hall, and well attended. Mr. Randall, President of the County Society, occupied the chair. After discussing various topics, my proposal for the members of the Agricultural Society to meet steadily in the winter for mutual encouragement and improvement was very favourably received, and I trust will lead to a practical result. On the advantages of flax culture the meeting was much divided; the greater portion, perhaps, inclined to be sceptical. Wallacetown is quite a business and improving village. Mr. Bobier has just put into operation a good sized cheese factory, and the County Agricultural Society have procured several acres of ground within the village limits, on which, it is proposed, to erect permanent buildings for the Exhibitions; a practice that is spreading in different parts of the Province. Mr. Wm. Pearce has a well cleared farm in the immediate neighbourhood of the village, a capital herd of cows and young stock, in which Durham blood predominates, an extensive orchard and garden, with flowers and shrubs, bees, &c., all indicating a degree of taste and comfort that contrasts strikingly with the wild wilderness which existed here only a quarter of a century ago.

July 5th.—Mr. Coates, Secretary of the Aldborough Society, drove me to Rodney, quite a new place in the centre of that Township, some seven or eight miles from the Lake shore. Here we had a large and highly interesting meeting, at which some important subjects, such as draining, road-making, rotation of crops, &c., in their local applications, were ably discussed by several of the principal people in the Township, which is much kept back for the want of a few good leading roads, without which, and some deep surface drainage, thousands of acres of very fine land must continue to remain worthless. Only one-fourth of this Township is said to be cleared, the rest being covered by a dense forest, held chiefly by companies and non-residents. Wild land can be bought for \$5 to \$8 per acre of excellent quality, capable in a few years, by draining and opening roads, of being made some of the most productive farms in the country. Messrs. Humphrey and Stewart, some four years since, erected a capacious steam sawmill in the woods, about a hundred acres of which are now cleared, which, with a tavern, store and blacksmith's forge, and a dozen cottages, constitute the village of Rodney; and the amount of sawn lumber, consisting of chestnut, white oak, ash, tulip or white wood, and black walnut, which they prepare for the Boston (Mass.) market, is immense. There is no pine whatever in this region, nor further on to the west, and black walnut is getting in most places scarce, and consequently dear. I was told, in the neighbourhood of Fingal, that a farmer had refused an offer of \$150 for a single curly black walnut tree; and that Mr. Ward had offered, without effecting a bargain, \$2,200 for about 80 trees, standing on 200 acres, being at the expense of chopping, removing and making good all damages himself. Only twenty years ago, I saw, in the adjoining County of Kent, some splendid planks of black walnut being used, with other kinds of wood, for making roads! That day is past, and what astonishing progress has this fertile peninsula of Canada made since, not only in the facilities for locomotion—the Great Western and Grand Trunk railways intersecting it in the most important directions—but in its farms and homesteads, mills and workshops, its inexhaustible supplies of petroleum, together with all those educational, social, and moral appliances which, with great material resources, make an intelligent, enterprising, fine and prosperous people. I left this section of the county after spending a very pleasant three weeks, gaining much and imparting, I trust, a little, useful information, and forming an extensive and agreeable personal acquaintance with many of the leading farmers, mechanics, and public men.

Yours, truly,

GEO. BUCKLAND.

Toronto, August, 1867.

**ANOTHER METHOD OF DRAINING QUICKSAND.**—Mr. P. C. Dempsey, of Albury, informs us that he has succeeded in draining quicksand by placing the tiles on a plank, and covering with wet clay, being careful to pack it very hard. He has tried both board-pipe and stone, but failed in every attempt. We shall be glad to learn the result of his experience in fruit growing, of which he proposes to give some account.

**PLATT MIDGE-PROOF WHEAT.**—We find from a letter dated August 2nd, that Mr. Giles Membery considers himself aggrieved by the suggestion thrown out by a correspondent in our issue of July 15th, in reference to the probable origin of the Platt Midge-Proof Wheat, and wishes to know the name and address of that correspondent. We cannot furnish the information, as the letter has not been preserved; but do not suppose it was the writer's intention, as Mr. Membery seems to think, in any way to impeach that gentleman's veracity. On referring to the first statement regarding the wheat in question, we find that Mr. Membery merely expressed his belief that Mr. Platt imported the wheat from France. Other correspondents subsequently reported the possession of a kind of wheat apparently very similar, and to reconcile these statements the writer of the letter in our issue of the 15th suggests the idea that all the varieties may have had one common origin—from the Russian department of the world's fair in 1851. Without at all endorsing that suggestion, which at the time we considered improbable, we should be sorry to think that any doubt was implied of Mr. Membery's perfect good faith. Had that view of the question occurred to us we should not have been willing to publish the letter.

## The Canada Farmer.

TORONTO, CANADA, AUGUST 15, 1867.

### The Canadian Dairymen's Association.

By a reference to another page of our present issue, it will be seen that an important organization under the above title was formed at Ingersoll on the 31st ult. The convention at which this measure was taken was a large and respectable one, fairly and fully representing the important interest it was called to promote. For some time past our leading dairymen have felt the necessity of concerted action for the promotion of their business, which has now attained large proportions. The establishment in various parts of the country of cheese factories, has put a different face upon things as it respects the home yield of dairy products. Only a short time ago, we did not make cheese enough to supply the Canadian market; now we have a large stock on hand, calling for disposal and waiting for shipment abroad. The accumulation of this article and the want of a remunerative market constituted the chief reason for calling a convention of cheese-makers, and organizing an association. Something very like a panic had sprung up among factory men, because of the large stock on hand and the small demand for it. An outlet must be found or made, or cheese-making would prove a losing business. But, while prudent business foresight is called for on the part of dairymen, there is no cause for apprehension. England is the chief foreign market for their product, and there is little danger of its failing, or becoming, except temporarily, glutted. John Bull is a cheese-eating animal, and can consume an enormous quantity. Indeed, there seems to be scarcely any limit to his capacity in this respect. The only just ground for fear is lest our dairymen may have made an inferior quality of cheese in too many instances, or may have failed to give it proper attention, so as to keep it in good marketable condition. A prime article

will always command ready sale at the highest current rates, while an inferior article must be dull of sale and low in price. It is important that our factories should be able to keep their stock on hand, to await favourable opportunities and avoid forced sales. This, from the limited capacity of the curing and storing rooms, is very difficult in most cases. Hence, manufacturers are too much at the mercy of dealers and middlemen, who very naturally take advantage of a superabundant supply to cheapen the price and enhance their profits. One great object of the recent movement among factory men was to take measures to keep themselves posted as to markets, and render themselves independent of dealers and middlemen. It was also felt to be important to secure for Canadian cheese an established reputation in the British market, that brisk demand might be created for it, and the best prices secured for it. In order to accomplish these results, it was felt that it would be well, if possible, to send a representative to England, who should obtain information, establish business connections, and open up channels of trade. The American Dairymen's Association made this one of its first objects, and in the person of Mr. X. A. Willard, secured an agent, who, by visiting England, rendered most valuable services to the dairy interest of the United States. Mr. Willard was present at the Ingersoll convention, and by his presence, address, and replies to questions, added much to the interest and usefulness of the occasion. Could a similar course be taken by the Canadian Association to that pursued by its American predecessor, it is believed that like important benefits would be secured. The only obstacle to this undertaking is the cost of it, and this may easily be surmounted. If each factory would subscribe a small sum, and if the merchants interested in dairy products, the Boards of Trade, and Agricultural Societies, would lend it a helping hand, it would be accomplished without fail or delay. The matter has been entrusted to the Executive Board, and we trust they will lose no time and spare no pains to carry it through. We suggested, at the convention, that to send the mammoth cheese to the London market would be one of the best means of advertising Canadian cheese, and we hope the suggestion will be carried out. Wise and energetic action cannot fail to secure for our dairy products a high place in the consideration of British merchants, and we shall be blind to our own interest if we do not bestir ourselves in the matter.

One very important object of the Association just formed, is to diffuse information among its members as to the best method of cheese-making. All the difference between an inferior and choice article depends, other things being equal, on the skill of the manufacturer. Given pure milk, a proper vat, and other necessary appliances, and one maker will produce a poor and another a superior quality of cheese. Great closeness of attention, skill, and particularity, are needed to make first-class cheese. It is to be feared that not a few of those who have entered in this business are very green and inexperienced at it. By bringing them into contact with more skilful and experienced cheese-makers, very great advantage may be secured. The benefit of this was plainly shown at the recent convention. Very great anxiety was manifested by a number of factory men to get hold of the views and methods of older hands at the business. We believe that if the Association were to send a man like Mr. Farrington as a travelling missionary to visit the several factories, and give directions to the parties engaged in them as to the best modes of manufacture, it would be of vast service. The meetings of the Association from time to time will afford opportunity for comparison of notes, correction of mistakes, and diffusion of useful information. We hope every factory-man in the land, and every proprietor of a private dairy, will join the Association. The interest of one is the interest of all, and by hearty co-operation this new and im-

stant branch of trade may be made a permanent commercial interest of no small magnitude. But, if this is to be the case, we must make first-class cheese, and so build up a high reputation in the English market. We can do this if we will, and success is attainable only on this condition. If we content ourselves with inferiority, or even mediocrity, the Canadian dairy business will never amount to much, and we shall have the mortification of being outstripped by those whose cows, pastures, implements, heads and hands, are not a whit superior to our own.

### The Harvest

During the past fortnight the weather has been for the most part extremely sultry, relieved, however, by occasional thunder storms and refreshing rains. Harvest operations have progressed with the usual activity of the season, and on the whole with encouraging prospects. The accounts we receive from different quarters are of somewhat varied character. In some places, as in Middlesex, for example, the amount of damage to the wheat by midge has been very serious; whilst throughout other extensive sections, especially in the north, we learn that very little injury has been inflicted. The Soule's wheat has suffered most: "midge-proof" has justified its name and reputation by escaping the ravages of this insect altogether, and turning out well with regard to yield. Spring wheat and barley, as expected, are mostly short in the straw, and in some places, perhaps, a little below the average in quantity, by reason of the prevailing drought. Concerning other crops the reports are satisfactory.

The accounts from the United States are for the most part highly favorable; and our English exchanges say there is every prospect of a good harvest in Great Britain and Ireland, as well as on the European continent generally.

Under this state of things, we confidently look for the usual fall which accompanies an abundant harvest in the prices of flour and other articles of food: nor do we hesitate to confess that we rejoice in the anticipation. A vast amount of privation and suffering is entailed on a very large portion of the community by any extreme rise in the cost of food and other necessaries of life. When we would congratulate the farmer on the high price he receives for his wheat, we are checked by the thought of the thousands who must in consequence come short of bread: and what we wish to see, and must always welcome with unmitigated satisfaction, is an abundant yield, rather than a famine price. A greater number of bushels to the acre, rather than a higher sum per bushel, is the true measure of the farmer's prosperity and the nation's weal. In this respect, we have every reason to hope that the harvest of 1867—the first of our new dominion will be one to call forth our earnest gratitude to the Almighty, and to send plenty and gladness throughout the homes of Canada.

### Honest Labour

THERE is no complaint more common, and perhaps none better founded, than that a great number of young Canadians don't take kindly to *farming*. In many cases they leave their old fathers to toil alone, while they try something easier, and, as they fancy, more genteel. You can get any quantity of school teachers, such as they are, any number to peddle books or tin-ware, any number to hawk about some handy little conceit, whether in the shape of a jumping-jack or a barometer, but you cannot get as many as could be desired to cultivate the fields, and by honest toil to gain for themselves a livelihood and a home. It seems to be taken for granted that that involves too hard work, and is altogether too slow a process for such as they are. Besides, it is rather a coarse, rough life, not so gentlemanly as could be de-

sired, and needs also to be kept at far too steadily to be at all attractive. They like change—variety—something new, and another thing then. It is so dull also upon a farm; it is just work, work, continually; one can get no fun. All this is very lamentable. This restless, unsettled love of change and ease—this very complaining of the irksomeness of continued and honorable toil—is not pleasant to contemplate. It is quite true that all varieties of work need to be done; that what are thought easy and honourable situations have to be occupied as well as those which may be looked upon as less so; but it is surely not a pleasant or an encouraging thing that already, in a young country like this, something like *John Bull* should, in the minds of many, be associated with manual labour, and that there should be almost a rush, on the part of those who by natural ability and training are quite unfitted for that at which they aim, away from work which they are quite able for, and from positions which they could occupy with efficiency and success. It is quite true that what may be called the *prices* in agriculture are not so large as those in some other walks of life, and that, as many would judge, they are not so easily reached; but, then, it is never to be forgotten that the blanks are likewise a great deal fewer. We should think it is not going beyond the mark to say that there are two or three thousand merchants in Ontario who are scarcely making a living, struggling wearily and anxiously to keep up appearances, and, if possible, to make ends meet. These are not taken account of by boys from the country, or even by the friends of such. They see in the town where they do their business, the merchant having an easy, prosperous, pleasant time—never exposed to the weather, never apparently having his fingers soiled, scarcely his back bent, and they naturally say—"A capitally good thing that—far better than toiling and moiling away here and getting almost nothing after all." But they don't think of bills, perhaps, maturing, and the funds low—of the inexorable demands of position—the necessity of appearing "respectable"—had debts—keen competition, and all the etceteras that merchants know so well. They know only that so-and-so began with nothing, and has built that fine house, or that fine store, and they naturally conclude that they may do the same. What shall we say about lawyers and doctors? Why, then, we presume that the country would be still well supplied, though not another was made for the next ten years. Nothing need be said of clergymen, for the prizes in that line are neither so numerous nor so great as to cause an undue rush to the pulpit.

With a great number, however, who turn away from what *must* be the great business of Canada—farming—a laudable ambition to better their circumstances seems to have very little influence. They would like, no doubt, to make money—they would, above all things, be pleased to appear *genteel*, but the great thing is to be, *at any rate*, relieved from anything like *hard work*. In cases almost without number, all over the Province, there will be found young, strong men, occupying positions where the remuneration is comparatively trifling, simply because it is thought more respectable to do that than something else which would oblige them to take off their coats and make their hands harder and browner than they have any taste for. They are not getting more for their work than they would as farmers or farm labourers; nay, in a great many instances, not nearly so much. Still, they would rather hold on to something of that sort, for the reason already mentioned. Let them be clerks or teachers, or peddlers or agents, or in short anything that relieves them from the obligation to earn their bread by the sweat of their brow. It would, perhaps, be wrong to blame the young altogether for this state of things. Have our farmers themselves not a good deal to do with it? What an amount of complaining is there among them that farming is not a money-making

business; that in this country it does not pay; that the seasons are so short and uncertain that they cannot be reckoned on; and, in short, that there are so many drawbacks of one kind or another, that they have good reason to be dissatisfied with their lot. What can they expect, but that, indulging continually in this kind of talk, they should have their children resolving that, be what they might, they would not be farmers. Whatever may be the reason for such a state of things, and however you apportion the blame, *of the fact there can be no doubt*. Plenty of farmers can be found with two and three grown up sons, and not one to help them in their work or take their places when they die. And yet farming has been to those very fathers not such a bad thing. In nineteen cases out of twenty they have come to this country with nothing but a tolerable measure of health and the power and will to labour. They, very likely, have wrought hard, but not harder than they would have been obliged to do in the country from which they came. They may have had not a few hardships, and their share of anxiety and trouble; but at the end of twenty or twenty-five years, what have they become? Possessed of two, three, five or more thousand dollars of realized capital. They have brought up a family decently and comfortably, and they have the prospect of spending an old age in plenty. It ill becomes such to say that Canada is a poor country for the farmer, or to encourage their children to follow some other line of life under the mistaken idea that it will be either more remunerative or more genteel.

This mistaken idea of what is respectable and genteel, however, is showing itself in a great many other ways. It has been the boast of such countries as Canada that a person was thought all the more of for being able and willing to help himself. Is there no danger of our very prosperity changing all that?—of the children of those who have been by honest and persevering labor, tolerably successful, thinking that their honour consists in doing nothing and being able to do nothing?—of the daughters of successful farmers leaving the household to their mothers, and themselves playing the fine lady as well as they know how?—of the sons of successful merchants getting ashamed of the shop, getting into loose, idle, vicious habits, and leaning altogether on the "governor" to think and provide for them? Will it not be found already, even in Canada, that there are families with two, three, even four daughters, in which one or perhaps even two servants are kept, though they can be ill afforded, simply because it would be scandalous for the *young ladies* to do any ordinary house-work? Their neighbours do not do it, and they could not think of being inferior to them. In the meantime what are those girls doing? Nothing in particular; reading, perhaps, trashy sensation novels; bothering their fathers about having nothing to wear; perfectly posted in all the local gossip; delighted at the idea of a ball; flirting, of course, with young men; devoutly believing that the great end of woman's life is to get married; filled with a devout horror of being "bored," and absolutely convinced that it is entirely "unlady-like" even to try to help oneself! It is all nonsense to say that such a state of things is only to be looked for in old and very wealthy countries. It is among ourselves, and shows its presence quite as much among those who cannot "afford" such things as among those who can. It is to be met with in town and country, in city and village, producing incalculable misery, and rearing a large number of men and women who are never likely to make Canada either prosperous or strong. Does any one ask where will you find it? We answer, keep your eyes open in your own neighbourhood, and you cannot fail. You will find it in the general dislike entertained for domestic service, by which girls, in many of the humblest homes in the land, are kept together in idleness and "pinchery," rather than that they should go and be honoured and useful servants or "helps," (we don't care what you call them), in respectable families, and be trained to be real help-meets for any young men that might ask them, by and by, to be their companions in the journey of life; and up through every rank, and in almost every place, you will find it in the foolish struggle to "maintain appearances," to keep up sides with neighbours who are wealthier, to get the reputation of having what they have not, and of being what they are not. You will find it in clerks spending all their salaries, often before they are earned, and glorying in "billing

the tailor, and you will find it in men in office drowned in debt because their position required them, they fancy, to spend more than they earned. And what is the result of all this? Farms gained by honest toil mortgaged and sold, lives made miserable that ought to have been contented and happy, petty thefts from employers, by and by to swell out into extensive frauds, reckless gambling, debts contracted without any intention of ever being paid, all the sorrows of "shabby gentility" endured from year to year, the country impoverished and the people demoralized.

The cry was raised a few years ago in England, that the young men were grown so self-indulgent that they would not marry on account of the expense. The answer was given, how could they when young ladies were so extravagant and so helpless, that two, three or four hundred pounds a year of income would not begin to keep them supplied with all they reckoned indispensable? To a certain degree, can the same thing not be said of Canada? Can we wonder that clerks or young men struggling to make a position should be chary of setting up house-keeping, when from the very first, they have out of their modest earnings, to keep a "hired girl" to do what their young wives would be all the better for managing in the meantime; or, where even their position is higher, when the tyrant custom and the rage for appearances make the daughters of comparative wealth think it absolutely necessary that they should begin life in the same style in which their parents are now ending theirs.

**FINE SAMPLE OF FALL WHEAT.**—We received on the last day of July two remarkably fine samples of fall wheat, which had been grown by Mr. Joseph Kean, on his farm, north of Orillia. Most of the heads were fully six inches long, and well filled with plump and heavy berries. Mr. Kean informs us that he expects to harvest between thirty and forty bushels to the acre. The crop has been very slightly attacked by the midge. Most of the crops, we understand, in that fine section of the country are remarkably good, the season having been very propitious, and rains having fallen there much more frequently than in many other parts. This region seems, from all accounts, especially well adapted for the growth of wheat.

## Agricultural Intelligence.

### Michigan State Fair.

We would again invite the attention of Canadian farmers, and especially of those in the Western section of the Province, to the approaching annual exhibition of the Michigan State Agricultural Society, to be held this year, as we before intimated, in Detroit. The fair is to commence on the 10th of September next, and to continue four days. This arrangement will bring the exhibition within easy reach of very many of our western farmers; and those who have the opportunity of visiting Detroit on the occasion will, no doubt, find much to interest them. The citizens of the border city have made great exertions to render the event attractive and successful, having subscribed over \$11,000 towards the expense of the necessary buildings; and the committee of management are doing all in their power to make the coming fair one of the best that has ever been held in the State. Over \$12,000 are offered in premiums; and every encouragement has been held out to Canadians to compete with their neighbours in this eminently peaceful contest. The society have not only given all the right to enter and become members on the same terms as citizens of the State, but it has also been arranged that live stock and articles of whatever kind, designed for exhibition, are to be admitted duty free. A correspondent in the *Turf, Field and Farm*, gives the following account of the preparations for the exhibition. The extract also includes the names of the officers of the society and managing committee, respecting whom we have received inquiries, and are glad to be able to furnish the desired information:—

The arrangements for the accommodation of visitors are on an extensive scale, and consume nearly four

hundred thousand feet of lumber. Two hundred and fifty stables for horses, each stable six feet wide by fourteen feet in depth, a range of two hundred stalls for cattle, a range of two hundred covered pens for sheep, and a handsome poultry house, a hundred feet in length, are designed for the accommodation of the live stock. A floral hall, extending 150 feet each way, is designed for the exhibition of the fine arts, flowers, music and other collections of a like nature. This immense building is flanked on one side by a hall for agricultural productions one hundred feet long, and a hall for fruit 120 feet in extent; on the other side, by a hall for domestic manufactures one hundred feet long, and a hall 150 feet in length, for mechanics and machinery. In the rear of this hall stands a hall, 120 feet long, for the exhibition of carriages, waggons, and work of that class. In front of the judges' stand, on the opposite side of the track, a range of roofed stands extend 300 feet, capable of holding from 3,000 to 3,500 persons.

The State Agricultural Society of Michigan is noted for the good order and general completeness of its exhibitions, and the excellence of its arrangements. Its president this year is W. G. Beckwith, Esq., of Carropoles, one of the best and wealthiest farmers in the State. The secretary is R. F. Johnstone, of Detroit. The business management is conducted by a business committee, the members of which are J. A. Walter, Esq., of Kalamazoo, a gentleman who not only takes a most active and liberal interest in the conduct of the society's business, as the chairman of its business committee, but is also an active member of the Kalamazoo Association for the improvement of the horses of the State; the Hon. R. C. Barker, of Detroit, who is well known, not only as a successful merchant of this city, but who is a breeder of live stock on a very large scale, and takes a most active interest in agricultural matters, and the Hon. W. J. Baxter, of Jonesville, a gentleman of the legal profession, who has given a large share of his time and talents to the interests of the society for the past six years. These gentlemen are backed up by an executive committee, composed in great part of representatives of the agricultural interest from the several sections of the State.

### Meeting of the Royal Agricultural Society of England.

Our recent English exchanges devote considerable space to the meeting and exhibition of the Royal Agricultural Society, held during the third week in July, at Bury St. Edmunds, one of the principal towns of the county of Suffolk; and all agree in reporting it to have been in many respects a very successful gathering. The town of Bury possesses many points of historical interest, having been the scene of important events in the earlier period of christianity in England, and the site of a monastic institution, of considerable influence and splendor under royal patronage, and of which some interesting remains are still standing; but the special honor which it claims is having been associated as much as the celebrated Runnymede with the granting of Magna Charta. It was here the English nobles met and bound themselves together in a solemn league to wrest from the tyrant king the great charta of their rights and liberties, which were afterwards confirmed at the same town when the king met his nobles there. Bury St. Edmunds, therefore, was a fit scene for the annual meeting of this great English society, and would bring into strange association some of the earliest memories of the British people, with the evidence of the vast progress and grand achievements of modern civilization and science.

The exhibition covered an area of between forty and fifty acres. In the animal department, it is hardly necessary to say, there was a magnificent display, such as no other country in the world could bring together. The show of horses, however, was considered inferior to that held some time since in Islington. Cattle, in accordance with the existing regulations were absent. Sheep in nearly all the classes were remarkably excellent, and swine, though not very largely represented, formed altogether a first class collection of the most approved modern breeds. As might be supposed from the locality, Suffolks predominated. In regard to the show of implements, which alone covered an area of forty acres, all the

papers characterize it as the largest and the best that has ever been held. Two new features marked the present exhibition: one was the introduction, or, as we believe we should say, the re-introduction, of poultry into the classes exhibited, thus recognizing their importance as a part of agricultural business; and the other was the establishment for the first time, in connection with this great annual event, of an horticultural exhibition by the London Royal Horticultural Society. On the whole, the various departments of agriculture were never more completely represented.

### Sale of Thorough-bred Stock in Halton.

On Wednesday, the 24th of July, Messrs. Kirby & White, near Milton, in the County of Halton, disposed of a large number of thorough bred stock by auction. The animals consisted of Durham cattle, and sheep of the Leicester, Cotswold and Lincoln breeds—some of which Mr. Kirby imported from England. Several eminent stock-breeders, residents of Halton, as well as many from various and remote parts of the Province, were present at the sale. The following were disposed of:—

**BULLS.**—"Candidate," four months old, sold to William Colwell, Halton, for \$85; "Confederation," 3 months old, sold to D. Stirton, at \$75; "Blair Athol," 2 months old, sold to Alex. Waldie, Halton, at \$65.

**COWS AND HEIFERS.**—"Florence," aged, sold to F. Huston at \$95, "Bracelet," yearling, to John Snell, at \$90; "Modesty," six months old, to John Snell, at \$140; "Melody," 5 months old, to John Arthur, at \$86; "Rosebud," yearling, to John Snell, \$150; "Butterfly Bloom," 2 months old, to William Colwell, \$60; "Virtue," one month old, to William Colwell, \$66; "White Rose," 11 months old, to D. McNair, \$110; "Young Duchess," 23 months old, to Wm. Elliott, \$170; "Duchess Bloom," 3 years old, with calf at foot, to Wm. Colwell, \$240; "Mersey Cow," 7 years old, to Mr. Hardy, \$290; "Phoebe," 6 years old, to Wm. Colwell 205.

**SHEEP.**—Ram, imported, 2 years old, sold to Robert Stevenson, \$72; ram, imported, 2 years old, to D. Surton, \$80. Some 10 or 12 shearing rams were sold at prices varying from \$30 down to \$15—the purchasers being mostly from the neighbouring township of Nassagaweya. Mr. Robert Kirby, of Puslinch Plains, purchased three shearing ewes at the respective prices of \$50, \$46 and \$44. The sale, as a whole, was very successful, and the treatment tendered to those attending it was of the most praiseworthy character.—*Guolph Mercury.*

### New York State Agricultural Exhibition.

UNUSUAL opportunities will be afforded this year to Canadians for visiting and taking part in some of the most important agricultural competitions of our neighbors across the lines. As already notified, the Michigan Agricultural Society will hold their annual exhibition in Detroit; and that of the New York State Agricultural Society will be held in another border city, Buffalo, within easy reach of a large section of this country. The fair is to commence on October the 1st, and to extend over the 4th. Every facility, we understand, will be afforded by the various railway companies for the transport of stock and articles for exhibition, while the authorities at Washington have directed that all such articles should pass duty free. In addition to the usual attractions in various departments, it has been resolved to hold discussions during the fair, on Tuesday, Wednesday, and Thursday evenings. The subjects for discussion are, 1st. Whether the culture of the apple has not employed as much of our State as is profitable to a State. 2nd. Cooking and cutting food for stock—its importance. 3rd. Soiling cattle—is it profitable?

We hope many of our farmers and others interested in the progress of agriculture will avail themselves of this excellent opportunity of paying our neighbors a visit, as well as enter the lists with them in peaceful and friendly competition.

The corresponding Secretary of the Society is Benjamin P. Johnson, of Albany.

**FALL EXHIBITIONS.**—The West Riding of Northumberland Agricultural Society will hold its annual exhibition at Cobourg, on Tuesday and Wednesday, the 15th and 16th of October.

**TRIAL OF PLOUGHS AT UTICA.**—Under the auspices of the New York State Agricultural Society, there is to be a trial of ploughs at Utica, to commence on the 1st of September, and to be followed by a trial of harrows and cultivators.

**TRIAL OF REAPERS AT THE PARIS EXHIBITION.**—The following information from Paris has been received under date of July 30:—This afternoon a trial of the reaping and mowing machines of the world took place on the Emperor's farm at Vincennes. Over a dozen machines from France, Spain, England, and the United States, entered into competition for the International prizes. McCormick's reaper performed its allotted task in twenty-four minutes, and Wood's reaper in twenty-six minutes. The prizes will undoubtedly be given in accordance with these results. The American machines worked better and faster than any others.

**IMPORTATION OF SHEEP AND PIGS.**—The writer had yesterday the pleasure of seeing a number of choice sheep and pigs, imported for improvement of stock by Mr. M. H. Cochrane, for his farm at Compton. The sheep were in number thirty-nine; and we were sorry to learn that some two or three of the finest had died on the voyage. They will go to Compton by rail to-day. The kinds of sheep are Cotswolds, Lincolns, and South Downs. The specimens of their kind are the finest that could be obtained in England, and it is confidently believed that no superiors to them will be found on this continent. The pigs, of which there are eight, are the Berkshire breed, and these are also the choicest specimens of a choice kind, very difficult to get in this country or in the United States. Of course, Mr. Cochrane in these importations has expended a considerable amount of capital, which, whether he gets the profit or not, will be of benefit to the country, for stock of this kind cannot be brought in without leaving its mark.—*Montreal Gazette.*

## Entomology.

### Horse Flies—Cherry and Pear Aphid.

To the Editor of THE CANADA FARMER:

SIR,—I send you herewith what I consider a singular variety of Gad Fly, which was caught here in the act of biting a calf, which biting or stinging operation caused the animal to bellow so loudly as to attract attention, and thus led to the capture of the bloodthirsty marauder. Can you furnish me with its name, or anything as to its nature and habits? It has been kept a week in spirits of wine, but when I saw it first, it was all over of a deep blue-black hue. I may notice that this season's heat has developed the common Horse or Gad Fly in prodigious numbers, and of extraordinary size, some being as large as a bumble-bee. They were to be seen lately in houses, and crawling on windows as common as blue-bottle flies.

(2.) While on this subject, may I also ask you the name of the black louse, which has this year appeared in extraordinary abundance on the under side of the leaves of the cherry and pear trees? I suppose it is of the *Aphis* family, and also of the sweet milkers; for wherever they have been seen, I have noticed the common ants busily engaged in hundreds and thousands running up and down the stems of the trees affected with this black parasite, doubtless for the purpose of obtaining from them their liquid stores. To-day I visited an orchard in which more than half a dozen of young, and some middle-sized pear-trees, are totally stripped of their foliage by the same insect.

A. FISHER.

Drumbo, Oxford, July 27th.

**NOTE BY ED. C. F.**—The large and most ferocious-looking fly sent us by Mr. Fisher is a specimen of the most formidable Gad or Horse-fly that we have in this country; its name is the Black *Tabanus* (*Tabanus atratus*, Fabr.) The specimen before us, a female, is an inch long, and its wings expand to a trifle over two inches. Its whole colour is black, the body, when fresh, being covered with a blue-black bloom like that of a plum. The eyes are of enormous size,

occupying nearly the whole of the head; the proboscis, or biting apparatus, extends downwards from the mouth, and consists of two long lip-like lobes, that enclose between them (according to Westwood) six lancet-like instruments in the female, but only two in the male. In the specimen before us there can be plainly seen with the naked eye the whole proboscis, being one-fifth of an inch long. No wonder the calf which it attacked bellowed loudly from pain, when pierced with such a formidable apparatus as this; the torture produced by it must, we should think, be perfectly unendurable. Though thus frightful in their perfect state, it is cheering to find that they are useful to man in their larval condition. According to Mr. Walsh, the larvae of many *Tabani* live in the ground and prey upon innumerable subterranean noxious grubs of Cockchafers, Blistering-beetles, Tipala-flies, etc.

(2.) The black louse affecting the under side of the leaves of cherry and pear trees is, as Mr. Fisher rightly conjectures, an *Aphis*; that on the cherry is doubtless the *A. Cerasi* of Fabricius; while that on the pear is a closely allied species, if not the same. They differ from that on the apple in being almost entirely black; while the latter is green, except in the case of the winged specimens, which have the head and thorax black, and the abdomen green.

Aphides, or Plant-lice, are the most numerous and prolific, and the most widely distributed of all insects. Every plant has its own peculiar species, and every species appears in countless numbers. In the autumn their eggs are laid upon the twigs or branches, which the future progeny are to attack, and early in the spring the young lice commence their ravages upon the tender buds, stalks, and leaves, inserting their beaks into the sap-vessels and drawing out the life blood, as it may be termed, of the plant. Like some degraded members of the human race, they live entirely by imbibing liquid! All the lice produced from these eggs are, strange to say, females, and these in less than a fortnight arrive at maturity, and commence giving birth to living young, which are also females. Every day, during its brief life of about a month, it produces two living young ones, which, in their turn, arrive at maturity, and increase the population in the same ratio. Thus it has been computed that from a single female, by this process of geometrical progression, there are produced in seven generations no less than 720 millions of plant-lice! As long as the summer lasts, no males are produced, the original fecundation of the females in the eggs apparently sufficing for the numerous generations that follow; late in the autumn, however, winged males are born, and these, uniting with the females, become the parents of the eggs for the following year. Their natural history is thus perfectly anomalous, and contrary to all experience in other races of insects. Were it not that Providence has appointed a legion of other insects to prey upon these plant-lice, and keep them within due bounds, every particle of vegetation would soon be swept from the face of the earth, and man and the animals, from want of food, would speedily perish likewise. Among their foes may be mentioned all the species of Ladybird (*Coccinellidae*) in both their larval and winged states; the larvae of *Syrphus*-flies, Lace-winged flies, Ichneumons, etc. A description of them would be too long for our present limited space; but we purpose ere long to give a detailed account of them, together with numerous illustrations.

On page 47 of the present volume (C. F. vol. iv., No. 3, Feb. 1, 1867) we have given an account of the ants that milk the *Aphides*, and are in constant attendance upon them, as related by our correspondent.

### The Wheat Midge.

The common Wheat-midge, (*Cecidomyia Tritici*), is an insect which was introduced into this country some twenty or thirty years ago from Europe, and which, according to returns from the different counties of the State of New York, which were thoroughly sifted and footed up by the Secretary of their State Agricultural Society, destroyed in one single year in that single State the enormous amount of fifteen million dollars' worth of wheat.

In England, the largest amount of wheat it was ever known to destroy in one single year was one-twentieth of the entire crop. Such a small per centage as that, American farmers would not think worth talking about; but here the Wheat-midge often takes over half the entire crop.

The reason is simple. In England there are no less than three parasitic insects preying upon the Wheat-midge; in this country there is not one, because it wisely immigrated here without its parasites. One would think that common sense would indicate to our Government the wise policy, as a matter of dollars and cents, of importing the parasites, particularly as the whole operation need not cost more than a few thousand dollars. But no. Although this plan was long ago recommended by some of the best entomologists in the country, Dr. Fitch, for example, it has never been adopted, and probably never will be. Why? Because our Legislatures think that insects are such very minute objects, that they are unworthy their notice; forgetting that the plague of flies, the plague of lice and the plague of locusts were three of the worst plagues that God in his wrath sent to afflict the rebellious land of Egypt.

The Wheat-midge itself, in its perfect or winged form, is a small two-winged fly, shaped much like a mosquito, but considerably smaller, and with an orange-coloured abdomen. It comes out in June from under the ground, where it has lain all winter, the time varying a little according to the latitude, and lays its eggs upon the ears of wheat when they are in blossom. These quickly hatch out into the orange-coloured little maggots which do all the mischief, sucking out the life-blood of the future kernel, so that it shrinks up to nothing.



The accompanying illustrations represent: *a*, the kernel of wheat infested with the larva of the Wheat-midge; *b*, the larva of the Wheat-midge, highly magnified.

When well fed they mostly go underground and construct a very filmy cocoon, which adheres strongly to the surrounding earth, and inside which they transform next spring into the pupa state. But a few remain in the ear and construct their cocoon there, which fits so closely to their bodies, that it is only visible where it projects a little at each end, the cocoon itself being transparent, and finer and more filmy than the most delicate gold-beater's skin. The practical inference to be drawn therefrom is, that when farmers are cleaning wheat, which is infested or suspected of being infested by the Wheat-midge, they ought always to burn up or otherwise destroy the "tailings." For these "tailings" will doubtless contain many of the larvae that have stayed in the ear, which, if not destroyed, might hatch out next season into the perfect fly, and propagate the breed.—*Practical Entomologist.*

### The Three-lined Potato Beetle.

(*Lema trilineata*, Oliv)

In our issue of July 1st (page 202) we gave a brief description and figure of the "Striped Cucumber Beetle." An insect very similar to this in its general appearance is now committing considerable ravages upon the leaves of the potato in the Township of Toronto. It is a little over a quarter of an inch long, of a deep yellow colour, like beeswax, with three black stripes on the wing-covers, and a black dot on each side of the thorax. It differs from the Cucumber-beetle in being entirely yellow, and the under side and head not being black; it is also a little larger, and of a darker yellow. When held in the fingers it produces a curious creaking sound.



This insect devours the leaves of the potato both in the perfect and larval states. The grub has the very singular habit of covering its back with its own excrement, and thus presents a most disgusting appearance. This peculiarity is no doubt intended to protect it from its enemies, and perhaps also to shade it from the heat of the sun. It is social in its habits, half a dozen or so being generally found together, eating away in a row on the edge of a leaf, almost always on the under side. There are two broods in the year.

**Remedies.**—We should recommend dusting with ashes or lime, which will readily stick to the slimy bodies of the larvae. Brushing off the grubs into a pail or other vessel, and then killing them with boiling water, has also been employed to advantage.



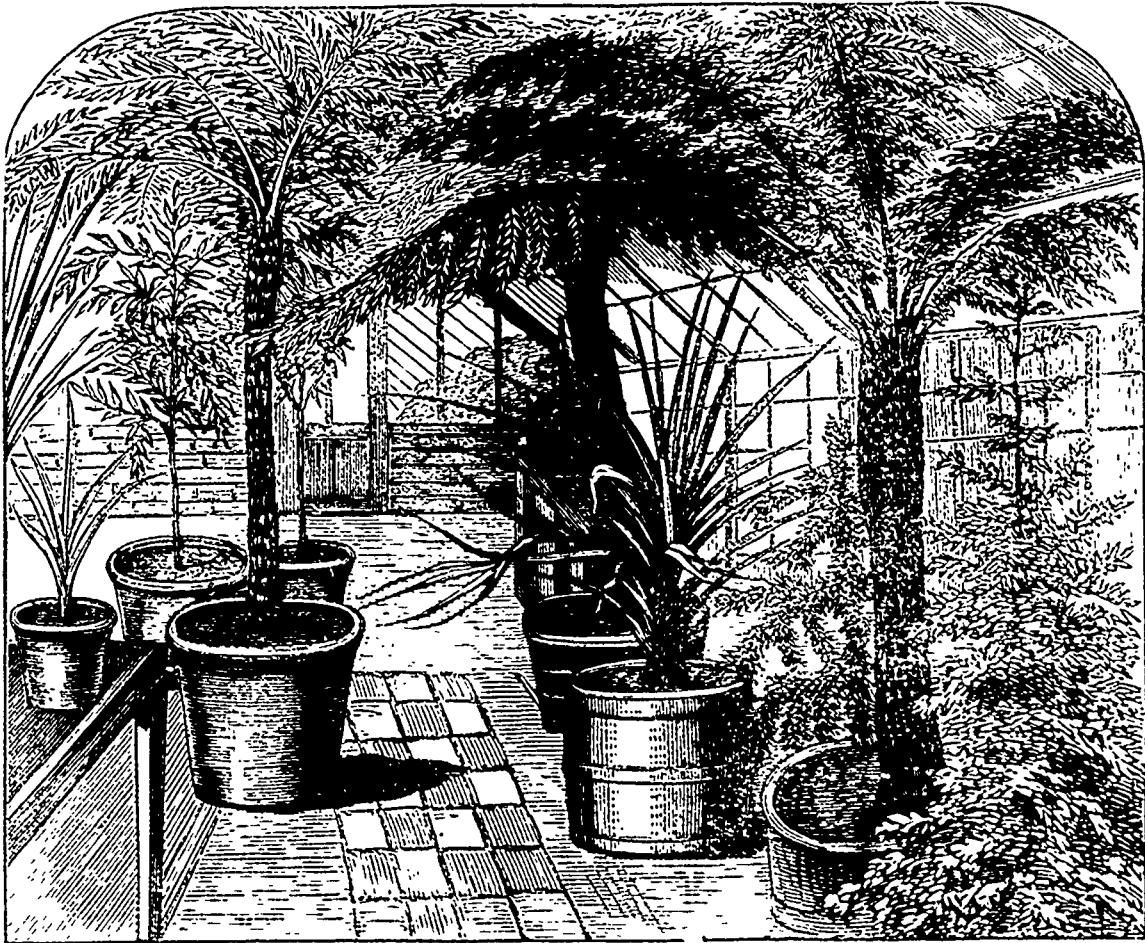
Ferns.

There are few plants more generally interesting and attractive to all lovers of nature than ferns. Though destitute of flowers, the deficiency is made up by their graceful forms, their luxuriant vegetation, and the charm they impart to those localities where they spontaneously grow. The very name calls up a thousand charming pictures, and presents to the imagination now a wide expanse of undulating moor, where the heather and the brake divide the ground between them, and furnish the favorite haunts of the grouse and the deer, and now some cool and shady retreat, made musical by the flow of waters, and thickly strewn in wild profusion with the most lovely forms of vegetable life that nature, lavish in beauty, can produce. Here from moist banks or umbrageous recesses springs up the elegant shield-fern, forming by its cirelet of fronds a green chalice whose graceful outline the sculptor might select as a model for the choicest works of art; here towers in regal pre-eminence, unsurpassed in beauty by any of its race, and rearing its head above them all amid the

mato them higher than 1-36th; and in New Holland, Brown finds them 1-37th. They decrease in proportion towards either pole, so that in France they are only 1-63rd; and in Egypt not more than 1-971st. Northwards of these countries their proportion again augments, forming 1-31st of the plants of Scotland, 1-35th in Sweden, 1-16th in Iceland, and 1-16th in Greenland.

They differ from flowering plants in their structure and in their mode of growth, being destitute of flowers, having no true wood, and growing only from their crown or summit. The part analogous to the stem thus slowly formed, is usually short, comparatively thick, and prostrate or under ground, but in some of the warmer latitudes their trunks are elevated many feet above the surface, and assume the dimensions of a tree, the summit being surmounted with a crown of spreading fronds, and the whole plant bearing a general resemblance to certain well-known

ferns stood the test of the severest cold that had visited Great Britain for many years; and this not under the protection of glass, or, indeed, under any covering or shelter whatever. These noble specimens of their class were grown at Killoonan, Ireland, on the estate of Colonel and Lady Louisa Tenison. They had for many years been located in one of the larger conservatories, but having outgrown their accommodations, were, perforce, removed out of doors, and during the very first winter of their exposure passed safely through the ordeal of almost a Canadian temperature. The species thus, as it were, acclimatised in Great Britain, were two species of *Oyathea*, one (*O. medialis*) a noble fern, and further remarkable from the fact of the pith forming a staple article of food among the Maori, and the other (*O. dealbata*) the most light and airy, as well as, perhaps, the loftiest of the New Zealand tree-ferns, its stem often reaching the height of forty or more feet. The accompanying illustration represents several fine specimens of tree-fern, grown in Mr. Burley's nursery, Bayswater, England.



TREE FERNS.

companioning illustration represents several fine specimens of tree-fern, grown in Mr. Burley's nursery, Bayswater, England.

The sketch also gives some idea of the very simple and uncostly structures which serve to protect them. Very little heating apparatus, we are informed, is employed, and that of the cheapest kind. We hope to see the cultivation of this most beautiful order of plants extending in Canada, and taking its due place in ornamental horticulture.

We may add, to enhance the reputation of our favorites, that even in an economic point of view, ferns are not useless pieces of beauty. Many of them possess valuable medicinal properties; some of our native species, among

leaves of the forest, the rightly named king of ferns, or Osmund Royal; and there, from the crevices of moss-covered rocks, or lining the walls of the cool grotto with a tapestry of the tenderest green, wave the slender threads and delicate leaflets of the Maiden-hair, the most graceful perhaps of all the tribe. Similar scenes will present themselves to every reader who is at all familiar with Nature in her spontaneous aspects. But it is needless to multiply examples; nor must we be led by the fascination of the subject and the charms of association too far astray from the sober paths of practical horticulture.

This class of plants presents great variety of form, with certain characteristic features that render it an easy task to identify them. They are very generally distributed over the globe. In some tropical islands, they form a large proportion of the vegetation, as for instance, in Jamaica, where they constitute one-ninth of the flora, and the Sandwich Islands, where they reach the still larger proportion of one-fourth. Upon continents, however, they are far less numerous; in equinoctial America, Humboldt does not esti-

mate them higher than 1-36th; and in New Holland, Brown finds them 1-37th. They decrease in proportion towards either pole, so that in France they are only 1-63rd; and in Egypt not more than 1-971st. Northwards of these countries their proportion again augments, forming 1-31st of the plants of Scotland, 1-35th in Sweden, 1-16th in Iceland, and 1-16th in Greenland.

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among others the Maiden-hair, (*Adiantum pedatum*). several varieties of Shield-fern, (*Aspidium*), Osmund Royal (*Osmunda Regalis*), and the Brake (*Pteris Aquilina*), have been and continue to be used in medicine; and in other regions, besides contributing their virtues to the resources of the healing art, several species furnish articles of food, and are otherwise applied by man to economical uses; as examples, we may mention that tubes of pipes are manufactured by the Brazilian negroes from the stalk of *Mertensia dichotoma*, which they call Samanbaya; the bruised stalks of the fragrant *Angiopteris excla* are employed in the Sandwich Islands to perfume the cocoa-nut oil; *Polypodium phymatodes* is also used for the same purpose; the roots of *Nephrodium esculentum* are eaten in Nipal, and those of *Angiopteris excla* in the Sandwich Islands; and many other species are also employed as food in different countries. Our native brake (*Pteris Aquilina*) and the common Shield-fern (*Aspidium Filix Mas.*), have been used in the manufacture of beer, and *Aspidium fragrans* as a substitute for tea.

## Tobacco for Lice on Animals and Plants.

A CORRESPONDENT writes to the *Country Gentleman* on this subject as follows:—

MR. SRS. EDITORS.—In your paper of April 4th, a correspondent writes, "What is the best method of killing lice on calves and cattle, and will the same thing kill fleas on dogs?"

I have found by experience that a strong decoction of tobacco will destroy vermin on either animals or plants. I have used it extensively during many years, for destroying ticks on sheep and lambs, have dipped thousands of them in tobacco water, made by boiling coarse, damaged, cheap tobacco, or stems and waste, in water, and have found it an effectual cure for the scab, which disease is caused by the working of an insect or mite in the skin of the sheep. It is a new sovereign remedy for the blue lice on cattle and horses.

Tobacco water will destroy the aphid, or plant louse. Gardeners find their greenhouse plants need to be submitted to a deluging of this wash occasionally, to place them in a condition to become healthy and vigorous. When applied to fruit trees, if coarse waste tobacco is used, add one pound of copperas to five gallons of the wash. Plug tobacco contains copperas in quantities sufficient to kill any animal, who has not accustomed himself, by slow degrees, to its use.

Almost every tree or plant is infested with an injurious insect, peculiar to itself, which preys upon its substance, and will, if in sufficient numbers, destroy its vitality. The hop, in sections infested with the hop aphid, is frequently either wholly or partially destroyed, when, by one or two thorough applications of tobacco water, by means of a force pump or garden engine, as they commence their work, the whole aphid army might be swept away. When the vine is trained low, upon seven feet stakes and twine, a garden engine is unnecessary, as the wash can be applied as effectually, and with less waste, with a common large hand syringe.

Tobacco smoke will stupify any animal, and, used in a sufficient quantity, has a fatal effect upon all which plug tobacco will destroy. Indeed there seems to be but one animal—the chief of the class mammalia upon which tobacco, in either shape, does not have an immediate fatal effect. However, if that animal would otherwise be infested with insects, even trichinosis in their nature, in the month, tobacco will keep them away. Perhaps that is their case.

If a sheep or calf is covered with a rubber or leather spread, or thick blanket, and a smoke of tobacco is made under this covering, in half an hour or less every tick and nit will be destroyed. Current worms may be served in the same manner. This is not only an effective remedy against vermin, but a good use for a most obnoxious weed.

GRASS FOR LAWNS.—A correspondent in the *Gardeners' Monthly* recommends for lawns a mixture of about one-third rye grass (*Lolium perenne*) and two-thirds Kentucky blue grass (*Poa pratensis*). For lawns that are machine-mowed, he also recommends red top (*agrostis rubra*). In preparing land for a lawn, subsoiling is of much value, for a loose subsoil never gets so hard as one of hard-pan will. If sown in the fall, a mixture of oats or rye is recommended, especially the former; when sown in spring the grass should be the only crop. In order that the roots may penetrate deeply, which they will do in proportion to the growth above ground, and to secure vigorous plants, the grass should not during the first year or two be mown very early or often.

HORTICULTURAL NURSERY FOR THE CITY OF PARIS.—The extraordinary establishment at La Muette, near Paris, destined for the supply of plants to the public gardens, &c., of that capital, has been frequently mentioned in our columns in terms of commendation. When our first notices appeared they were received in certain quarters with some amount of incredulity. The letters of our correspondents since the opening of the Exhibition have, however, more than confirmed the original statements, and shown the extraordinary activity that is manifested in horticultural matters by the municipality of Paris. From a report before us we find that in the year 1865 there were at La Muette 101 gardeners and pupils; that the number of plants sent out for the decoration of the squares and parks of Paris for the same year amounted to 1,577,500, while from a branch establishment devoted to the growth of Conifers, 3187 plants were sent out and from the nursery of Longchamp, 23,379 hardy trees and shrubs (not Conifers) were distributed. The actual cost per plant, taking one with another, amounted to only 13 centimes, or little more than a penny.—*The Gardeners' Chronicle*.

## The Apiary.

### A Swarm of Bees on a Man's Face.

A CORRESPONDENT of the *London Field* gives the following interesting narrative.

In June, 1854, Mr. Simmonds, a farmer residing at Brookland Farm, Weybridge, was dressing in order to attend the rent audit at Woburn House. Before putting on his coat, he perceived from his window an unusually large swarm of bees filling the air with their cloud and noise. It was, in fact, as he ascertained afterwards, two swarms that had come out of two distinct hives, and united in the air. He ran out in his shirt sleeves, and without his hat, to see where they would alight. The bees, after making some circles in the air, led him off to the bank of the river Wey. Thinking that the bees might cross the river, and perhaps escape, he adopted a plan not uncommon with bee-masters, namely, that of throwing dust into the air among the bees. This often makes them settle quickly. They did settle quickly, and this more so than he expected, for in a short time the whole of one of the largest swarms he had ever seen, settled upon his head, face and breast. They hung down like a great beard to the bottom of his waistcoat. Had he not been well accustomed to bees, and perfectly collected, his situation would have been a very dangerous one, for, had he at all irritated this mass of armed insects, he would, no doubt, have received a sufficient number of stings to have placed his life in peril. He was obliged to close his eyes slowly and to keep his mouth shut. Then, in order to prevent their entering his nostrils, which they endeavored to do, he slowly thrust one hand through the mass, and with his two fore-fingers managed to keep drawing and pushing them away from his nostrils as they tried to enter, he breathing all the while as softly as possible. This was necessary, as bees are generally irritated by being breathed upon.

He then began to consider what course he should take. He was some distance from his house, and no one near him or within call. His first thought was to walk slowly into the river Wey, and gently sink his head under the water, and then throw off the swarm. But a moment's consideration dissuaded him from attempting that remedy. He could not have disengaged them all, for many were between his neckcloth and his skin, and still more were crawling down his back. He found that if he walked he could not help disturbing the hanging mass, and that every little agitation, however slight, caused a hum and a hiss from some thousands. He then remembered the account given in Thorley's work on bees of a swarm settling on the face and neck of a servant maid, who escaped unharmed by the care and advice of her master, he, without irritating the swarm, having hived it from off her with a hive well smeared with honey. To avoid agitating the swarm, Mr. Simmonds slowly knelt down on the grass and remained perfectly still. He then found a number of bees were gathering in a mass under the waistband of his trousers, in the hollow of his back, to which spot the others were drawing, indicating that the queen was there. Fearing, therefore, that the tightness of the waistband—rendered tighter whenever he breathed—might crush, or at any rate irritate this part of the swarm, he slowly unbuttoned the front of his trousers.

It is not easy to conceive a more helpless condition than that to which Mr. Simmonds was now reduced. He that was the master of forty hives, from which he could usually levy what spoils he pleased, killing his thousands at his pleasure with a brimstone match, was now completely in the power of one detachment of his own army, and was reduced to the most suppliant position. Even to call for help would have been dangerous, as the bees near his mouth would have been undoubtedly irritated, and would have probably entered his mouth. At this moment he heard a railway train on the Chertsey Branch Railway, from which he was about fifty yards distant. It fortunately happened that the engine driver was known to him, and had a little commission from him to sound his railway whistle if he saw anything wrong among his cows and sheep.

The engine driver seeing Mr. Simmonds on his knees, with one arm extended as if for help, and something odd hanging from his face, sounded his whistle. This was heard by Mr. Simmonds' wife, who, supposing that some cow was ill, sent her son and a farming hand out into the fields. They soon found Mr. Simmonds in the predicament above described. In addition to the hanging mass, there was a cloud of bees still flying around him, so that to approach him was not the most agreeable office. However, they came near enough to hear him speak, which he did very gently, merely saying, "bring a bushel live well rubbed with honey, and some bricks."

While they were gone at the top of their speed for

this, he remained perfectly still. The tickling of the bees on his face was almost unbearable, and the danger of irritating those that were down his neck and back was imminent.

The most difficult part he had to perform, however, was that before mentioned, of dissuading the bees, with the aid of his two fore-fingers, from getting up his nostrils. These bees were not in a good humor, as they were breathed upon, and were also deterred from doing as they pleased, and one bee showed his displeasure by stinging Mr. Simmonds at the fork of his two fore fingers. This was not pleasant of itself, but was a serious occurrence, as it might be the prelude to a more extensive attack. He avoided making any start when he was stung, and continued to push away as gently as possible those that were near his nostrils. This was the only safe place to breathe from, as it was necessary to keep his mouth perfectly closed. Of course, the few minutes that elapsed before the return of his son and servant seemed a terribly long period to Mr. Simmonds, as during the whole of it he remained as motionless as possible upon his knees.

On their arrival, the hive was placed upon three bricks, with its mouth downward, and Mr. Simmonds slowly laid himself upon his breast on the grass, with his head close to the hive. The honey soon attracted the bees nearest to it, and a slow movement of the bees took place, till at length the whole swarm gradually gathered itself under and within the hive, except a few patches of bees, which, in walking away, Mr. Simmonds easily disengaged from his dress with his hand, and made them join their companions. Mr. Simmonds thus escaped from not only a very disagreeable but a perilous situation. It occupied two hours from the time that the bees alighted on their master to the time of his release.

## The Household.

### A Rare Husband.

To the question, 'Husbands, Guilty or not Guilty?' I plead not guilty. I have a wife and four little sprouts, equally divided between my wife and myself,—that is, the first and third are boys, the second and fourth are girls. We keep a girl most of the time, and when she cannot be found I put on my slippers and light coat, and although I weigh nearly 200 lbs., I can step as light as some girls, to say the least. I can set table, clear off table, strain or skim milk, wipe dishes and put them away, churn, work the butter when it is too hard for the wife, bring water, &c.

Washing days I am a tip-top girl, and can't be beat at mopping any time. In case the woman is sick, I am a good nurse, can make the bed, fix toast or tea, and have several times done the ironing and folding, but I confess a little awkward, and wife laughed at me heartily, but I persevered, and got the praise of doing very well. I can make good biscuits, and have made bread and pies, wife giving directions, of course. I never was an old bachelor, and wouldn't be if I were to live my life over a dozen times. I was married young, am young yet, and always expect to be. Can tend the baby like a woman, love children like a schoolmarm, love good society and try to help make it. By the way, I don't believe in husbands being such helpless mortals as some seem to be; I believe in education, music, work and religion and good clothes. W. in *Western Rural*

### On Disinfectants.

THE following are Dr. Voelcker's general observations on various disinfectants:

"1. Chlorine, nitric acid, and sulphur fumigations, in order to be efficacious, cannot be used in sheds where animals are kept.

"2. In applying disinfectants, such as chloride of lime, or carbolic acid, it should be remembered that the disinfectants must be used in quantities proportionate to the amount of matter or surface to be disinfected; a mere sprinkling of chloride of lime or carbolic acid solution does no good.

"3. When two or more disinfectants are used, care must be taken that the mode of action of one does not neutralise that of another. Oxidizing agents, that is, substances which, like chlorine or nitric acid, destroy organic matter, must not be employed simultaneously with antiseptics, i. e., substances which have the power of preventing decomposition.

"Thus, chlorine or chloride of lime must not be used in conjunction with carbolic acid, nor should chloride of lime be applied at the same time with sulphur fumigations. But cow-sheds may well be fumigated with sulphur vapours, and then washed over with carbolic acid, inasmuch as both agents are good antiseptics.

"4. Before disinfecting cow-sheds, stables, pens, &c., all manure, loose straw, hay &c., should be removed, and the place thoroughly cleansed with hot water, soft soap, or soda.

"For safety's sake, the use of artificial disinfectants should not be dispensed with, but their application should always be preceded by the free use of soft soap or soda-ash and plenty of water, and be followed up by thoroughly ventilating the place two or three days before putting healthy stock again into the premises.

"5. Air, earth, and water are the three great natural purifiers, which, when acting in mutual concert efficiently prevent accumulations of organic filth and attendant diseases. All three agencies are needed to maintain the health of man and beast. If the soil is not sufficiently porous to allow the rapid passage of water and air through its interstices, organic refuse matters, instead of becoming completely oxidized and transformed into inorganic, as is the case in well-drained, thoroughly aerated soils, give rise to foul smelling and highly injurious products, which may be termed products of partial combustion. Earth may be compared to the grate or oven in which organic filth is burned, water to the person who feeds the grate with combustible materials, and air to the fire (oxygen) which destroys the combustible refuse matters. Perfect drainage, ventilation, and a good supply of water are, for these reasons, our best safeguards against nuisance and infection.

"6. Artificial disinfectants cannot properly supply the place of these essential purifiers, which are employed in Nature's economy to maintain the well-being of man and beast. Artificial disinfectants are only useful in special cases, or for a temporary purpose."

**TO LOOSEN A RUSTY SCREW.**—If you have a screw rusted into wood, or a nut or a bolt that will not readily turn, pour on a little kerosene and let it remain. In a little while it will penetrate the interstices, so as to be easily started.

**PRESERVATION OF LEMONS.**—A correspondent states that lemons may be preserved by the very simple process of varnishing them with a solution of shellac in spirits of wine. Fresh lemon juice is thus obtainable at all seasons of the year; and if the peeling be required for flavoring, the skin of shellac may be easily removed by simply kneading the elastic lemon in the hand.

**BEN-BROS.** Take five cents' worth of quicksilver, and a piece of lard as large as a hen's egg. Rub them together in a stone mortar or earthen bowl until the quicksilver is well mixed with the lard. This mixture is similar to blue ointment. Put a small quantity in the crevices of your bedsteads. This ointment has the advantage of liquids, as it does not dry and become useless, and will remain for years unless it is washed off.

**A MISTAKE.**—A good lady who had two children sick with measles, wrote to a friend for the best remedy. The friend had just received a note from another lady, inquiring the way to pickle cucumbers. In the confusion, the lady who inquired about the pickles received the remedy for the measles, and the anxious mother of the sick children, with horror read the following: "Scald them three or four times in very hot vinegar, and sprinkle them with salt, and in a very few days they will be cured."

**HOUSE-FLIES IN WARM WEATHER.**—Flies, during this hot summer weather, are a great annoyance to housekeepers and others in every vicinity. For their benefit we print the following, going the rounds of the papers. It is a simple and cheap remedy, and contains nothing poisonous, as many of the articles recommended for the destruction of the troublesome insects do. House-flies may be effectually destroyed by taking half a spoonful of black pepper in powder, on a tablespoonful of brown sugar, and one teaspoonful of cream; mix them well together, and place them in a room where the flies are troublesome, and they will soon disappear. So says an Exchange.

**WHOLESOME SUMMER DRINKS.**—"A Practical Farmer," in the *German Town Telegraph*, proposes for a summer beverage the following: Take of the best white Jamaica ginger root, carefully bruised, two ounces; cream tartar, one ounce; water, six quarts, to be boiled for about five minutes, then strained; to the strained liquor add one pound of sugar, and again place it over the fire; keep it well stirred till the sugar is perfectly dissolved, and then pour it into an earthen vessel, into which you have previously put two drachms of tartaric acid, and the rind of one lemon, and let it remain till the heat is reduced to a lukewarm temperature; then add a tablespoonful of yeast, stirring them well together, and bottle for use. The corks must be well secured. The drink will be in high perfection in four or five days. This is a very refreshing and wholesome beverage, and one which may be largely partaken of without unpleasant results, even in the hottest weather.

## Miscellaneous.

### Ancient and Modern Husbandry.

An interesting work has been published by Professor Rogers, of Cambridge, England, on the "History of Agriculture," from which the following curious items on medieval agriculture are taken. In reference to the first introduction of scab into England, he says: Toward the close of the thirteenth century, (1288), sheep, for the first time, became affected with the scab, an epidemic, and it is handed down under that name. The specific for this complaint, so serious to the landowner, was in the first place verdigris, copperas, and quicksilver, but in the last few years of the same century tar-dressing, (a mixture of tar with lard or butter) was adopted, and employed from that time to the present, it never having been eradicated, but varying in intensity and frequency.

In another part Professor Rogers tells us that cows in the fourteenth century in England were leased to land tenants for 5s., or \$1 25 a year; a bull at 10s. Land under the plough was used chiefly to grow wheat, barley and oats, wheat having been the customary food of the people from the earliest times; barley was sometimes mixed with wheat for farm servants, but was chiefly used for beer; the chief use of oats was for horse feed, though oatmeal was used for broth or porridge for the house. Rye was scantily grown in England; but leguminous plants were generally but not extensively grown; peas were used chiefly for fattening hogs. Hemp was also cultivated, says Prof. Rogers.

**Temperature.** The physical condition of England, says Prof. R., for 600 years has varied, serving to show a slight diminution of annual heat. He says, "I take it for granted that effective drainage heights, and that standing water lessens the average temperature. Forests depress solar heat. Vineries were attempted in the southern counties, as seen in the local names; a steep hollow in the Hampshire downs having a south-by-west aspect, still goes by the name of 'The Vineyard Holm.'"

We are further informed that the live stock on farms comprised horses, cattle, sheep, pigs and poultry; both horses and oxen were used for draught; cows were kept for butter, cheese and milk; calves were generally sold, but sometimes kept for stock. The diseases of stock were generically called 'murrain'; horses were chiefly subject to farcy, lampas and spavin. The lambing season of sheep was an anxious time with medieval farmers as now; ewes were sheltered and received unremitting attention. The sale of wool and wool pells (pelts) was the chief profit of farmers. The pig was then (thirteenth and fourteenth centuries) the important article of food. Of poultry, (barnyard) fowls, geese and ducks, were almost universal; peacocks and swans rare. Pigeons were kept in large numbers, and perhaps as great a grievance as in France before the Revolution. Rats and moles were then a nuisance, and payment was made for destroying them; arsenic was used as a means for destroying these pests. We read of stoats (ermine); wolves, foxes, rabbits, pheasants, are mentioned; foxes were destroyed as vermin by the king's fox-hunters.

Millers ground grain for toll, by wind or water, the former then being more common.

In summing up the advantages of modern science and appliances, over the older methods, this writer says:

*Ancient and Modern Husbandry* differ, chiefly in the deficiencies of the former as compared with the latter; land then was imperfectly drained, tillage shallow, manure limited to stable dung, lime, marl and sheep-dressing; half the ground lay in fallow; roots and artificial grasses were unknown; crops were expensive; nearly all tillable lands were brought under the plough at some time, as is now apparent, not excepting the Southdowns, such were the wants of society.

Wheat in those days was sown two bushels per acre, barley and oats each, four. Cambridge and Holywell (Oxford) were chiefly cheese and butter farms, near towns, and, therefore, more profitably employed, even than in growing wool. As a rule one ram was kept for thirty ewes. Capons were common. Wheat then produced about four times the seed, (seed two bushels per acre, and crop eight); barley less than three times, (seed four bushels per

acre, crop twelve); and so of oats; ryeseed same as wheat, crop four times, viz., eight bushels per acre; now wheat is thirty bushels per acre. Mutton was a farthing a pound, head and offal thrown in; beef a little dearer; the carcass of an ox, less the hide, was readily obtained for 10s., weighing about 400 lbs.; meat even was dearer than wheat, for six pounds of wheat could then be bought for a penny sterling; butter and cheese were at least double the price of wheat.

*Modern Agriculture* had its joint beginnings under the shelter of conventual discipline, or the monastic orders, and before the outbreak of the pestilence, plague or Black Death, in 1348, Oxford contained 30,000 students.

—♦♦♦—  
To make newspapers sharp—file them.

**TO KEEP TIRES ON WHEELS.**—Hear a practical man on this subject:—"I ironed a wagon some years ago for my own use; before putting on the tires I filled the felloes with linseed oil; and the tires have worn out and were never loose. My method is as follows: I use a long cast-iron heater, made for the purpose, the oil is brought to a boiling heat, the wheel is placed on a stick, so as to hang in the oil, each felloe an hour. The timber should be dry, as green timber will not take the oil. Care should be taken that the oil is not made hotter than a boiling heat, or the timber will be burned. Timber filled with oil is not susceptible to injury by water, and is rendered much more durable by this process."—*Prairie Farmer.*

**THE ART OF GRINDING TOOLS.**—More than one-half of all the wear and tear and breakage and bother of dull tools comes from a lack of proper knowledge and practice in grinding. All steel, however refined, is composed of individual fibres laid lengthways in the bar, held firmly together by cohesion; and in almost all farm implements of the cutting kind the steel portion which forms the edge, if from a section of a bar, is laid in and welded to the iron longitudinally, so that it is the side of the bundle of fibres hammered and ground down that forms the edge. Hence, by holding on the grindstone all edge-tools, as axes, drawing knives, knives of reapers, scythes, knives of straw cutters, etc., in such a manner that the action of the stone is at right angles with the edge, or, in plainer words, by holding the edge of the tools square across the stone, the direction of the fibres will be changed, so as to present the ends instead of the side as a cutting edge. By grinding in this manner a finer, smoother edge is set, the tool is ground in less time, holds an edge a great deal longer, and is far less liable to "nick out," and break.—*German Town (Pa.) Telegraph.*

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BROCKVILLE, Aug. 2, 1867.

v4-16-11



RELIEF! RELIEF!! RELIEF!!!

From Political Opponents and Others.

\$30,000 TO LOAN ON IMPROVED FARM LANDS, (Without any effort to dictate how you shall Vote.)

TERMS: favourable. INTEREST: reasonable. TIME: as long as you wish, up to 15 years.

PAYABLE by annual instalments, according to agreement, or sooner if desired by borrower. Interest allowed on advance payments. Apply, if by letter, prepaid, to v4-16-11\* GEO. F. BURROWS, Dundas, Ontario.

MILLER'S INFALLIBLE



TICK DESTROYER FOR SHEEP!

DESTROYS the TICKS; cleanses the skin; strengthens and promotes the growth of the wool, and improves the condition of the animal.

It is put up in boxes at 35c, 70c, and \$1, with full directions on each package. A 35c box will clean twenty sheep.

HUGH MILLER & Co., Medical Hall, Toronto. 167 King Street East. v4-14-1f

500 STOCKS OF BEES WANTED!

TO any person sending to Whitby Station a good stock of bees free of charge, safe arrival guaranteed, I will in return send free of charge, one of my First Prize Double-boarded Bee-hives, including right to make. Price \$6. I will also take in exchange for Territory, good Stocks of Bees or a good Horse and Buggy, and will not refuse money.

ITALIAN STOCKS.

Having received all the orders for Italian Stocks that I am able to fill without extra expense, the price after this date will be as follows. In the Single boarded hive, including right to make \$14. In the Double-boarded hive, including the same, \$29.

ITALIAN QUEENS.

My Italian Queen, imported from Lake Maggiore, Italy, has arrived. She is a large, fine queen, breeding beautiful light coloured queens, even to the third generation.

N.B.—This is the only queen in Canada imported from Italy. Persons who desire to secure queens bred from her this season, would do well to send in their orders at once. Price of queens bred from her, and ordered to be shipped in July, \$7; after that \$5. Queens bred from last year's importations and guaranteed pure, \$5. Orders for Stocks, Queens, Hives, Books, &c., will receive prompt and careful attention, addressed to J. H. THOMAS, Apiarian, Brooklyn, C. W.

v4-12-1f

ATTENTION!

BEE-KEEPERS!!

HAVING purchased the interest held in the firm of J. H. Thomas & Bros. by H. M. and N. M. Thomas, the business will hereafter be conducted in my own name, with the same promptness and despatch as heretofore.

Being now more favourably situated, I shall endeavour to raise the business to a standard never before known in America, and make Brooklyn the "head-quarters" in Canada, in the truest sense of the word. Believing that nearly all Italian Queens offered for sale have a dash of black blood, I have, at great expense, secured queens for breeding purposes, bred from last year's importations, Queens bred from these, and guaranteed pure, \$7. I have also made arrangements to import, direct from Italy, an Italian queen at a cost of \$50. The order has gone for a first and if successful, she will arrive about the last of June, when I shall be able to supply a limited number of queens bred from native purity, price \$7. Having secured the services of an expert apiarian to assist me, I shall be able to supply the demand. No queens will be sent away until proved to have mated with pure drones. Safe arrival by express guaranteed. All orders will be registered, and filled in regular order as received. I shall also be able, in the fall, to supply a limited number of Italian Stocks in my Movable Comb Hives, at the following prices.

In the S. B. Hive, including a right to make, \$15; in the D. B. Hive, including the same, \$16.

They will be securely put up and sent by express at the risk and expense of purchaser. Third stereotyping in 1867.

BEE-KEEPER'S GUIDE.

now ready, price 25 Cents, postpaid.

TO BEE-KEEPERS.

Hereafter all orders for hives, queens, &c., to receive prompt attention must be addressed to J. H. THOMAS, Apiarian, Brooklyn, C. W.

v4-8-1f.

Markets.

Toronto Markets.

'CANADA FARMER' Office, Aug. 13th, 1867.

Business during the past fortnight has been very dull. On the street market nothing whatever has been coming in, owing to farmers being too busily engaged in harvesting operations.

Flour—There has been a slight improvement in the market since our last report. Best ground, No. 1 superfine, is now held at \$7 25, with buyers at \$7 15. The demand being but light, but few transactions take place. To day a small lot of superfine, made from this year's wheat, sold at \$7 00, being the first flour from new wheat offered on this market.

Wheat—There has been little doing in lots since our last report, and nothing whatever on the street market. Car lots, Spring, now range from \$1 40 to \$1 45, and Fall \$1 55.

Coarse Grains—Nothing whatever doing. Prices entirely nominal.

Wool—Very little coming in on the street market, selling at 28c.

Butter—The market is poorly supplied. Prices range from 18c to 20c for packed, and 20c to 30c for fresh.

Eggs—Very quiet; nothing doing. Held in round lots, 10c; from farmers' baskets, fresh, 15c.

Cheese—Dull and lower. Factory selling at 11c, with very light demand.

Cut Meats—Unchanged. Bacon in salt, quiet, with light demand. Held at 8c. Rolled bacon, nothing doing; held at 11c. Canned hams, a few sales have taken place at 12c.

Lard—Dull, with no enquiry; nominally worth 9c lots.

Pork—Unchanged. Mess, slight enquiry, held at from \$16 50 to \$19. Prime Mess, no change in prices; held at \$14 50.

Hay and Straw—Hay \$7 00 to \$10 00, straw \$5 00 to \$7 00.

Freights—Unchanged. Flour to Montreal, 20c; to Ogdensburg, 20c, U. S. currency, to Prescott, 15c, to Kingston, 12 1/2c. Grain to Montreal, 7c.

Potatoes—In more plentiful supply; new selling on the street market at from 50c to \$1.

CATTLE MARKET.

The market has been well supplied with cattle during the past week. Prices for good cattle continue steady. First-class have been purchased at \$7 per 100 lbs. dressed weight, 2nd class cattle have been dull of sale at \$6; 3rd class cattle ranged from \$4 50 to \$5, with very little enquiry. Sheep are in very plentiful supply and lower, 1st class sell at \$4 50 each, 2nd class at \$3 75, 3rd class at \$3. Lambs have been selling during the week at the following prices:—1st class \$3 each; 2nd class \$2 50; 3rd class \$2. Calves, veal not being in season—prices are nominal.

HIDES AND SKINS.

There is no change to note; prices remain unchanged. Green butchers' hides buying at 7 1/2c. Green calf skins, 12 1/2c to 15c. Wool skins, at \$1 60 to \$2. Murrain hides, 5 1/2c to 6c. No. 1 inspected hides selling at 8 1/2c, No. 2 inspected at from 7 1/2c to 7 3/4c.

Hamilton Markets, Aug. 6—Grain—new wheat, fall \$1 50 to \$1 37. Spring, about the same. Barley, 50c to 55c. Oats, 40c to 45c per bushel. Peas, 62c. Buckwheat 37 1/2c to 40c per bushel. Flour—From white wheat, \$8 25 to \$8 75, red winter, \$7 00 to \$7 50, spring, \$7 50 to \$8 25; middlings, \$6 00, oatmeal, \$6 00 to \$6 50; cornmeal, \$2 00 to \$2 75; bran, 75c; coarse shorts, 80c, fine do. \$1 12 1/2. Chop feed, \$1 25 to \$1 50 per 100 lbs. Eggs—fresh, from farmers' waggons, 15c per dozen. Butter—tub 10c; rolls 10c to 12c; fancy rolls from farmers' waggons, 15c per lb., and prices seemed inclined to advance.

London Markets, Aug. 6—Fall Wheat per bushel superior, \$1 50; Spring wheat, 1 40 to 1 45; inferior \$1 05 to \$1 50. Oats, 48c to 52c. Peas, none. Corn, none. Flour, per 100 lbs. \$3 50 to \$4 75. Butter, fresh, per lb. 12 1/2c to 10c; butter, keg, per lb., old, 12 1/2c to 14c. Eggs, per dozen, 11c to 12 1/2c. Potatoes per bushel, \$1 to 1 25. Wool, 29c to 30c.

Galt Markets Aug 6.—F W Flour per 100 lbs. \$4 00. Sp. W. flour do. \$3 50. Fall Wheat per bushel \$1 12 1/2 to 1 25, Barley do 35c to 45c. Oats do 30c to 35c. Butter per lb 11c to 12 1/2c. Eggs per dozen 5c to 10c. Wool 25c to 32c. Potatoes 11c to 30c.

Guelph Markets, Aug 6—Fall wheat—per bushel, \$1 60 to \$1 60, spring wheat—\$1 20 to \$1 40. Oats—40c. Peas—50c. Barley—45c to 50c. Wool—27c to 25c. Eggs—11c. Butter—11c to 12c.

Goderich Markets, Aug. 6—Spring Wheat \$1 15 to \$1 22, fall do, \$1 20 to \$1 40. Oats—\$7. Barley—50c. Peas—50c. Wool—washed, 20c to 25c.

Montreal Markets, Aug 12—Flour—Superior extra, \$8 75 to \$9, extra, \$8 25 to \$9 50, fancy, \$7 60 to \$7 75; Well's Co's superfine, \$7 50 to \$7 55, Superfine No. 1 Canada \$6 40 to \$8 00, Superfine No. 1 Western wheat, \$7 60 to Superfine No. 2 Western wheat, \$7 00 to \$7 20, bag flour, \$5 70. Wheat—Canada Fall—none. Spring, \$1 54 to \$1 55 Western—none. Oats—Per 32 lbs. 45c to 47c. Barley—Per 45 lbs. 60c to 61c. Butter—Dairy 12c to 13c, Store packed 12c to 13c. Acher—Pois, \$5 60 to \$5 65, Pearls, \$6 80 to \$6 90. Pork—Mess \$20 to \$20 50; Prime mess \$15 75 to \$16; Prime \$14 75 to \$15. Dressed Hogs—None. Peas—56c to 87 1/2c. Rye Flour—\$5 90 to \$5 95.

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