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THE CANADA FARMER.

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The Field.

Cultivation of Winter Wheat.

EDITOR CANADA FARMER.—The following is my favorite mode of raising Winter Wheat, and the one adopted the past season, and the result is satisfactory. I took an old timothy meadow sod, that had pretty well run out to blue-grass and red top, ploughed it immediately after harvest, turned it over well, so as to completely invert the sod, harrowed immediately after the plough, before the ground dried. This will cause it to retain moisture in a dry season. I harrowed in the same direction of ploughing, and rolled with a heavy roller. This I consider very essential in a dry season. I applied a light coat of well-rotted barnyard manure, harrowed and rolled lengthwise with the furrows, until there is no danger of tearing up the sod. I then harrowed and rolled crosswise of the furrows at each alternate working; worked over in this way four times before drilling.

I drilled one and a half bushels per acre, about the middle of September, very shallow, rolled twice after drilling. The result was that my wheat was supposed to be the best piece of wheat in the neighbourhood.

To recapitulate. It is entertaining and instructive to me, and I presume it is so with many of the readers of the FARMER, to read of experiments of others in my own particular line of business, and especially when accompanied with some philosophizing on the subject. So I will give some of my reasons for the foregoing. I prefer a soil to fallow for the reason that there will be a certain amount of space between the furrow slice and the bottom of the furrow, which will facilitate the water in passing away from the roots of the wheat plants, and prevents them from being thrown out by the action of the frost.

Harrowing and rolling while the ground is fresh from the plough will cause it to retain a more uniform degree of moisture, and, if the season is very dry, will draw more moisture and be in good condition for sowing, whereas, if not so treated, it would be hazardous to sow. My piece of about ten acres, treated as per the foregoing, was so damp when I drilled it that the soil adhered to the wheels of the drill and to the roller, and I had to remove it by force with a shovel to secure perfect working of these implements; while most of my neighbors, with equally good chances for moist earth, delayed sowing, waiting for rain.

I expect to use a clover sod for the present season's sowing. I prefer sowing about the first of September. Some say this is too early on account of the fly, but I would rather risk the fly on a good strong growth than the winter on a young and weak growth.

Wheat, when planted deep, and it grows at all, will make a set of roots at the grain and another at or near the surface—say about three roots, more or less, at each place. Then, with the freezing of the surface, and consequent raising of the same, the wheat plant with the upper set of roots is raised also, while the grain, with the lower set of roots, remain stationary. The result is, that the connection between the two is broken, and the stalk is left to subsist by the three roots instead of six, losing all the nourishment which it should have from the grain and all the roots it sees fit to put forth.

Now, if the grain is planted at or near the surface it will make all the roots there, and, when the soil is raised by freezing, the grain, with all its roots, goes up with it, and, when it settles, all go back together, with little or no breaking of roots, which every one must admit would be beneficial. I don't want wheat planted deeper than an inch, would rather have it less if I can secure perfect germination.

Roll the ground and pack it as much as possible, as this will assist in resisting the action of the frost. You can-

not get it too hard if you can but get the grain covered. Mine gave the best showing in the road where most of the manure was hauled over, rendering it almost as solid as the public road. The same evidence is to be seen in every field of common culture. The crop on that part of the field adjacent the turning row, whether near a fence or not, is uniformly better than that on other parts of the field. This cannot be because of better ploughing or harrowing, since the reverse is the case—it is not so well done as on other parts of the field.

Last winter was one of unusual severity, extremely hard on the wheat, which, together with the cold spell of the 15th, 16th and 17th of April, combined to give the wheat crop a hard rub.

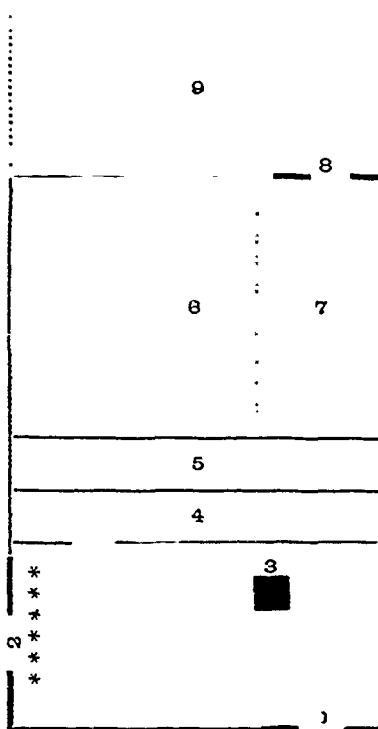
The amount of cultivation in harrowing and rolling which would be best, before and after drilling, will depend on the season and condition of the soil. If the season is dry and the soil loose, it cannot receive too much; but if wet, cultivation should be deferred. Cultivate only when the soil is in proper condition.

WM. FERRIS.

Pleasant Plain, Warren Co., O.

Plan for Hog-Pen.

EDITOR CANADA FARMER.—I enclose a plan for a hog-pen, which I hope will suit your correspondent, "J. M. R." I give the ground plan only. The builder can furnish the elevation. A balloon frame is the cheapest that can be adopted, unless in the backwoods, at a distance from a sawmill, when it might be built of logs, dovetailed at the ends and flattened on the sides. The dimensions are 30 x 20 ft., and 12 ft. high. A bearer, about a foot square, is



SCALE—10 feet to an inch.

1. Door 2. Window 3. Swill Barrels 4. Feeding space, 3 feet wide. 5. Trough, 2 feet wide. 6. Bed space, 15 by 15 feet. 7. Board 6 in. high, to keep up the litter. 8. Door. 9. Yard.

to be placed across the building, fifteen feet from one end, and four feet from the floor, under which should be suspended, by strong hinges, a partition of inch boards, about 24 inches wide and 2 feet long, less the thickness of the sides of the building, which should be lined with boards.

A trough, divided into as many compartments as there are pigs to be fed, should be placed under the beam, so that the hanging partition can be pushed to the inner side

of the trough, and kept there by a long wooden or iron button, whilst the food for the pigs is placed in the trough, so that the feeder need not spill the swill over the pigs' heads. The hanging partition should then be pulled to the outer side of the trough, next to the feeding passage, and kept there whilst the pigs are feeding. After they have done, it can be pushed to the inner side of the trough again, and kept there by the button, so that the pigs may have no access to the trough till the next feeding time. If this is done, the pigs are likely to get into the habit of lying quiet during the intervals of feeding, which should occur with the regularity of clock work. If the trough is always accessible, they will soon acquire a habit of rising up and going to the trough when there is nothing there for them to eat; but when they are accustomed to have as much as they can eat at regular intervals they fatten quicker.

A partition should divide the building into two parts, one 20 x 10 ft., the other 20 x 20 ft., of which 3 feet is to be allowed for a passage, 2 feet for the trough, and 20 x 15 feet for the pigs. A small doorway near one end of the compartment will allow the pigs free access to a yard behind, which is marked on the plan as 10 feet wide, although if larger it would be better.

The pig is naturally a cleanly animal, and will never dirty his bed-place if he can avoid it. This yard might be enclosed by a fence of split pickets, pointed at one end, and driven firmly into the ground by a heavy beetle. Four feet high ought to be enough, so that a waggon-load of dry loam may be occasionally thrown over into the yard, which will effectually prevent any unpleasant smell, and also increase the quantity of manure, and a basket of charcoal might be occasionally thrown into one corner of this yard.

An eight feet high inside is sufficient, joists may be laid across the frame at that height, to support a floor of rough boards, which, if covered with two or three inches of dry loam, will keep the pen warmer in winter, and also serve as a winter fowl-house, for which purpose the building should stand north and south, and a large window with a grating over it placed in the south gable, so that the fowls may have plenty of sun and air in the winter. A step-ladder would lead from the outer compartment to the fowl-house. This compartment being 20 x 10 feet, will afford sufficient room for an agricultural furnace, and also for some swill barrels, as the food is the better for standing a day or two before being given to the pigs.

A ventilator opening over the feeding passage should be carried up through the roof, with Emerson's patent cap on the outside, so that whenever there is any wind at all, there will always be a steady draught. A small shutter at the bottom may be used to regulate the draught, as I consider it a bad plan to keep store pigs in a close pen during the winter, which is often productive of disease. If they are kept dry, with a good bed, and are well fed, with a free circulation of air, no amount of cold will hurt them in the winter. A four-light sash may be placed at each end of the outer compartment. The small door leading to the yard will give light enough for the pigs; the less light fattening animals have the better. The doorways on the plan are marked so as to break the draught whenever the outer door is opened.

This plan, with some improvements of my own, I have seen in the Province of Quebec. If a winter fowl-house is not required, the frame may be 8 feet high in the clear, instead of 12 feet; and if accommodation for a larger number of pigs is required, the building may be extended to any length required, but then it should be divided into two or more compartments, so as not to have too many pigs shut up together, as the larger pigs are apt to overcrowd the smaller ones.

SARAWAK.

A WEEB DESTROYED before it ripens its seeds may save the labor of destroying a hundred next year.

Preparing a Sod Field for Barley.

EDITOR CANADA FARMER:—Could you or any of your readers inform me as to the best mode of preparing a sod field for barley? Soil, a clay loam.
Utopia, Ont.

SUBSCRIBER.

If it had been earlier in the year, the proper way to have gone about preparing a sod field for barley would have been to have lightly ploughed it, reversing the sod, and then give it a deep ploughing. But so late in the year as this, the sod will not rot, if reversed. So we should say, plough deep and leave the soil rough through the winter. In spring, harrow, cultivate and sow your barley. Can any one tell a better way?

Securing the Buckwheat Crop.

Buckwheat should be cut when the grain is still in the dough state, and that means when some of the grains are not even so far advanced as that. If allowed to get ripe, it will shed and not only will the grain be lost, but the ground will be reseeded with a plant that is hard to get out. When cut, set it up at once in loose sheaves tied at the top so as to shed the rain. Moulding is thus prevented as the air can get through, and yet the grain will not be dried so fast but that it can mature and ripen properly. Do not let it lie on the ground or in swaths, as the dust and dirt will get on it, and the quality of the flour will be injured.

With regard to the threshing of buckwheat, a correspondent of the *Rural World* says that it must be done when the straw, and more especially the kernel, is as dry as possible, otherwise the kernels adhere quite tenaciously to the parent stem; but when perfectly dry, it drops at the slightest touch. The methods of threshing are either with the flail or threshing machine, but never by tramping with horses (as has been erroneously stated), as the kernel is too brittle to bear even a man's weight, unless in a thick body; and the weight of a horse must necessarily crush to powder much of it. No place is as good as a clean barn floor, although many use a good green sward; but in the latter case much of necessity is lost in the grass.

If to be threshed with a flail, set the gavels on end close enough to touch; commence thrashing on the top, and do not allow the gavel to fall over on its side, as a delay is thus occasioned by the kernels becoming protected from the flail by the thick butts of the stalks. If the straw is perfectly dry, but little turning is necessary.

The nicest way, however, if there is much to thresh, is to use a threshing machine. Remove most of the teeth from the concave, and take a slow motion; four to six horses are enough to run the thresher. My word for it, you will be delighted both with the speed and manner in which the work will be done.

One way as to hauling the gavels. I have found the best way is to put your hay rack on a sled or low truck, then with a three (or more) tined hay or manure fork, lift the gavel from the ground, placing it in the same upright position on the rack; fill the interstices with a second tier of gavels, and when you arrive at the threshing place, the gavels may be removed without tangling and placed on the floor or feeder. If the gavels become tangled, much loss of seed by shelling is inevitable.

Applying Too Much Lime to the Soil.

A writer in the *Mark Lane Express* states that an instance occurred in the case of three farmers from Suffolk, who took a tract of land of about 600 acres near Sligo, where lime was said to be indispensable in the soil. In a letter from one of them, after they had been there a few years, he stated that they were about to abandon their holdings, as the land would not grow wheat for want of lime, of which there was none to be obtained in the neighborhood, while the soil contained not a particle of that material, and there was none within reasonable reach of their farms. In such cases as this, the application of lime required to be renewed frequently, because either lime or marl will sink in almost any soil, especially light, so that the process of renewing the application of these materials is very expensive.

There is, however, a drawback to this favorable account of the effects of the application of lime to the soil—namely, that it is possible to over-lime. The soil will produce larger crops for a certain number of years, after which the return falls away until it becomes less than before the

lime was applied, so that it appears to have exhausted instead of enriching the soil. In accounting for this adverse effect of what is admitted on all hands to be a benefit, chemists state that lime acts on all the organic parts of the soil, by which it is rendered more serviceable to the growth of plants. On the other hand, the proportion of organic matter in the soil gradually diminishes under the prolonged action of the lime, and thus the soil becomes less rich in those substances of organic origin on which its fertility to a certain extent depends. The same effect is produced on the mineral matter in the soil, when there is abstracted from it a more abundant supply in proportion with its immediate effect *per se*.

Unless, therefore, an adequate proportion of those matters are supplied in other manures, the soil will necessarily become exhausted to such an extent as to counteract or neutralize the action of the lime. The way, therefore, to prevent this effect is to manure largely with farm-yard manure and saline substances, and thus return or repay to the soil whatever may have been extracted too speedily or too copiously from it.

Burying Roots.

There is one way of burying roots so that frost will not get at them, and that is, the placing of layers of straw between the layers of earth with which they are covered. It is necessary to be more careful with potatoes than with other roots, as they will not stand the slightest frost without being injured. Potatoes should be laid in compact heaps and covered carefully with straw. Over the straw put about eight inches of earth, and over the earth a good thick layer of straw. Over all, put six or eight inches of earth. Frost will go through almost any thickness of earth alone, but it will not penetrate far below the non-conducting straw. The earth should not be packed any harder than will suffice to keep it in place. By using straw and earth combined, time is saved in uncovering when the roots are wanted to be got at. If the snow is blown from the heaps during the winter, and the cold is very intense, it will be well to cover them with a coating of coarse manure.

SEEDS OF WEEDS.—It has been estimated that one plant of the red poppy bears 50,000 seeds; one sow-thistle, 19,000; one corn-cockle, 2,500, the charlock, 4,000, a ground-sell, 6,500, and the black mustard, 1,200. Old gardening books recommend any person who entered a garden to pull up whatever weed he saw near him. If he is a benefactor of his race, who causes two blades of grass to grow where but one formerly flourished, the man who pulls up only one weed has at least equal claims on our respect. He sets free a large space of land for useful cultivation.

TIGHT BARN.—It has been the custom to side up barns with green boards so that in shrinking they will leave wide cracks for the access of air to hay mows. An important principle has been here overlooked. Fermentation, like combustion, requires oxygen to carry it on. Many farmers have learned that manure will not ferment when well trodden so as to exclude the air, and that it seldom ferments when thrown where the cattle can tread upon it. The class above all others interested in grass and hay is dairymen. They have ascertained by experiments directed by science that hay will keep better in clap-boarded or battened barns than in the open stack. That the heating will be so moderate as to only dry out the hay without moulding. If it is a fact that hay may thus be safely put into a large mow in a tight barn less cured than ordinary usage requires, it is a very important fact for farmers, as it will enable them to gather their hay crop quite independent of the vicissitudes of the weather, for even when hay is in the cock, the exterior surface is injured by rain or dew.—*Rural Home*.

REDUCING BONES WITHOUT SULPHURIC ACID.—At the spring meeting of the Georgia State Agricultural Society, an essay was read by Professor White, of the State Agricultural College, on the subject of bone manures. In the course of the essay he said that it has been generally understood that bone could be reduced to a useful agricultural condition by the use of either ashes or barnyard manure, and that in this way the farmer might manufacture his own soluble phosphate. Knowing that Dr. Robert Batty, formerly of Rome, now of Atlanta, who is a thorough chemist, had experimented very fully with the different ways of reducing bones without sulphuric acid, Prof White asked his opinion in regard to them. His reply, in substance, was that he had been entirely successful in reducing bones to powder by both ashes and stable manure, but that when reduced they were comparatively valueless, as the phosphoric acid was still insoluble, and that, therefore, he had reluctantly abandoned the experiment. The subject is important, but is still unsettled. That nature has some way of converting bones into plant-food is evident. How is it that a grape-vine will eat up a whole bone in a short time? What is the acid acting so powerfully in this case?

DESTROYING CANADA THISTLES.—An old Canadian farmer stated to a *Country Gentleman* correspondent after many years' experience on different farms, that the best mode of destroying these agricultural pests is to cut them on the three longest days of the year. He declared this to be a sure cure, and he would have published it himself had he been able to write.

REMEDY FOR THE TURNIP FLY.—Mr. E. Umbers, of Wappenbury, Leamington, communicates to the *Mark Lane Express*, the following remedy or preventive, declaring that it has been regularly used by himself and friends for the last thirty years, and that he has never known an instance of failure during that period, when the seed was properly prepared. Receipt:—To 1 gallon of chamber-lyo add 2 ounces of tincture of assafetida. Soak the seed in this mixture twenty-four hours, and dry it in the shade. It is very necessary to attend strictly to the drying—the object being for the seed to absorb the liquor, which takes a considerable time, if done properly in the shade; the sun's rays or drying winds prove fatal to the receipt. Care must also be taken to have the chamber-lyo free from slops. The gallon mentioned in this receipt will prepare 16 pounds of seed.

VALUE OF THE BARLEY CROP.—Fears are often expressed that barley may not be a paying crop this year, because the price was high last season. This may be so if the crop is grown solely for sale to the brewers, who require a fine sample, good color, etc., and the demand is to a great extent capricious. But why depend on the market altogether? Barley can be turned into pork as well as corn. It is excellent feed for horses, and poultry, and barley meal will make beef. Why not feed the crop if it cannot be profitably sold, or at least a part of it. With two strings to the bow, the breaking of one may be risked, and so we would not hesitate to grow barley, although the brewers may not want it. As it requires good farming to grow this crop, and clean culture, it is not likely that the market can long be depressed below a paying point. As a feeding material barley stands very high, ranking very nearly as high as corn. When ground into meal, and fed with cooked potatoes, it makes sweet and excellent pork, and as a grain for horses it surpasses oats, and is more healthful as a steady feed than corn.—*American Agriculturist*.

LIME AS A DRESSING FOR LAND.—Lime acts in several capacities applied to the land. It binds light soils, and renders lighter heavy ones. This from the fact that it is intermediate between the two; that is, it has greater cohesive power than sandy soils, and less than clay. It is valuable also for the mineral elements it possesses, and also for its power of entering into combination with elements already in the soil. Like gypsum, it should be tried on soils, to discover its effects, before using largely; for upon some soils it is more inert than upon others. Marly soils, containing carbonate of lime, in drying easily fall into powder, from the fact that the lime in an extremely-divided state, and, in shrinking, perfectly divides the clayey particles with which it is in contact. On cold, heavy soils, this effect is clearly apparent. So, mixed with sandy soils, it gives considerable tenacity to the whole. Carbonate of lime—limestone burned and air-slacked—is soluble to a considerable degree in the water of the soil, for this water holds considerable carbonic acid. Thus, besides its mechanical effects, it also exercises other forces, and, through its solubility, becomes intimately mixed with the soil. We advise you to try liming to the extent of say 30 bushels per acre, and note the effect. If favorable, the quantity may be increased to 200 bushels per acre, as experience may dictate.—*Chicago Tribune*.

EXPERIENCE WITH SWAMP MUCK.—In the fall of 1869 I dug from what had been the bed of a creek, supplied with water from the highlands above, but for the last few years the stream had been dry, except occasionally when there was an unusual amount of surface water, about 150 cart loads of muck, which ranged from two to five feet in depth. This muck was thrown up as dug, in heaps of about six loads each. In September, 1870, I drew this muck and applied it to grass ground, putting on 25 loads per acre, spreading broadcast. The fall was very dry, but where I applied this top-dressing the grass by the middle of October was as green as in June, forming a good aftermath for the coming winter. The soil was a gravelly loam. I have used this same dressing on moister soils without much effect. I have also used muck which had been spread in the barn-yard, and mixed with the dropping during the summer with about the same results as that from the heaps. It will be borne in mind that the muck in the heaps had become well pulverized by the action of heat and frost during the previous season. From my experience in this matter I came to these conclusions. First, that this muck was equal as a top-dressing on dry gravelly loam to about 75 per cent. of common barnyard manure; second, that it did not pay to spread it in the yard, except as an absorbent of the liquids which would otherwise go to waste. This muck was taken from what was formerly a black ash swamp, which is much superior to that taken from hemlock or spruce swamps. I have used muck several times since with similar results.—*Cor. Boston Cultivator*.

Grasses and Forage Plants.

Lucerne.

Lucerne, illustrated on this page (from Plant), is a crop of which but little is known in Canada; and that little is not of an altogether favorable character. As far as we can learn, it has been tried several times around Toronto, with partial success only. If it could be successfully grown, Lucerne would be a most valuable addition to our resources from its remarkable power of resisting drouth, when once well established. We think the plant is worthy of other and more systematic trials, care being especially bestowed upon it in its earlier stages, and in the preparation of the soil.

Lucerne is a leguminous plant, botanically known as *Medicago sativa*. It has a history dating back five centuries before Christ, at which period it was brought from Persia to Greece. From Greece it found its way to Rome, and with the Romans to the south of France, where it has continued to be grown. The early Jesuit missionaries to Chili took the Lucerne with them, and there the plant finding its natural conditions, has thriven amazingly. Either by the Jesuits or other settlers, Lucerne was taken north to California where, under the names of "Alfalfa" and "Chihan clover," it has become the sheet-anchor of agriculture. Whether a plant whose preference is so marked for a hot and dry climate can accommodate itself to the climate of Canada is scarcely yet proved, but it has been successfully grown in Michigan and New York under conditions certainly not less trying than it will have to face in a large part of Ontario. We have seen Lucerne in cultivation in the moist country of England where its yields pass belief. A good, heavy swathe of forage from two to three feet high, every six weeks, for about ten months of the year is a thing not to be sneezed at.

Lucerne is sometimes sown broadcast, alone or with spring grains, but is better in drills, say fifteen inches apart. Drilling, we believe, is universal in England. It is better sown in the fall than in the spring. A peck to the acre will do for drills; about twice as much is required for broadcast. The proper soil for it is a rich, deep soil, having a permeable sub-soil of loam, sand or gravel. On light soils with impermeable subsoils it will not succeed, nor yet on compact clay soils. It sends its roots deep down in search of moisture. In California the roots have been traced fourteen feet. Deep tillage is evidently necessary as a preparation, and, if hard-pan exists, it must be broken up, or Lucerne will not flourish.

Like all the broad-leaved plants which derive a great part of their nourishment from the atmosphere, Lucerne is not an exhaustive but a renovating crop. When the soil is at last broken up after lying several years under Lucerne, it is full of decayed roots which have brought up material from distances beyond the reach of shallow-rooted plants, and made them available for plant food. Added to which the broad leaves shade the ground and thus conduce to its fertility.

Sown in the fall, Lucerne will be ready to cut by the end of May, and thereafter about every six weeks till the frost comes. It should be kept clean of weeds till it has established itself, and on this account drilling is the superior method. It should be cut as soon as it comes into flower; not much earlier, or it is watery, less nutritious and harder to cure; and it should be cut before the seed has formed, or the nutritive properties will have left the stalks.

Cut green, it is exceedingly valuable for soiling cattle. As soon as cut it sends fresh shoots, and when once it has got its roots down into the subsoil, it will defy the most severe drouth.

Way's analysis gives the preference to Lucerne over Red clover in heat producing principles and fatty matters, while it is inferior in albuminous or flesh-forming principles, as follows:

	LUCERNE	RED CLOVER
Water.....	69.95	51.01
Albuminous principles.....	3.83	4.27
Fatty matters.....	82	69
Heat producing principles.....	13.62	8.45
Woody fibre.....	8.74	3.76
Mineral matter or ash.....	3.04	1.82
	100.00	100.00

Sowing Timothy with Wheat.

In answer to a correspondent enquiring what is the proper time to sow clover and timothy, Hon. George Geddes says in the *New York Tribune*:—Some Winter wheat raisers like to sow their timothy and clover seeds on a light snow, such as frequently falls in March. If the snows of Winter have been thawed away, and the ground left naked, and part, or all the frost is out of it, and then there comes a light snow, so that the tracks made by men in sowing the seed can be readily followed, and the weather is cold enough to not have the snow make too much mud to cling to the feet—when all these favoring circumstances combine, at any time from the middle of March to the first day of May is a good time to sow grass seeds or wheat, and the later in the season, having the snow on the ground, the more likely to have a good result.

We generally sow our timothy seed with our wheat, or if the wheat is sown very early, sow the timothy about the 20th September or 1st of October. If the timothy is sown very early in September and the fall is warm and showers frequent, the timothy will grow too large in the fall and choke the wheat. If the timothy is to be sown in the Spring, we generally mix the seed with clover seed and sow both at the same time, taking distances that are as close together as we should for the lighter seed of the timothy. Sometimes, when desirous of doing the work very nicely, we sow the timothy alone and again go over the field with the clover seedling.

As to the condition of the soil most favorable for the seeds growing, it may be said that a slight covering is important, and for timothy this covering must be very slight—not more than half of an inch. If Winter wheat occupies the ground, then the elements are to be looked to for the covering; freezing and thawing do the work. Rains also help to cover, and if the surface of the ground



Lucerne (*Medicago Sativa*.)

is thawed and deeper down the frost is still in the ground, the coming out of this low down frost will keep the surface moist and cause the seeds to fall into small crevices, and thus find a covering. In very favorable times the seeds will live and take root if they are not covered at all. In case of dry weather following the sowing, and the elements are not doing the work satisfactorily, a roller will flatten out the drill marks (I assume that all Winter wheat is sown by a drill) and push them sideways and do the work of planting the seeds, and at the same time pulverize the surface soil in the act of levelling the drill marks, and do the wheat as well as the grass seeds great good.

The Army-Worm and Hungarian Grass.

The increasing destructiveness of this worm—the *Lucania Unipuncta*—demands from farmers a closer attention to its habits and a comparison of experiences as to how we shall combat it. There is no better way of taking such testimony than by farmers giving their observations and views through your columns, and so let us compare notes. Out of the multitude of experiences valuable hints will be elicited. The first I saw of the worm was on wheat in 1873. Then, and since, it has attacked bearded wheat the most seriously. The following year it was much more destructive, and extended its depredations to timothy, and fields left for seed were greatly damaged.

This season it is still worse, and I have heard of fields of Hungarian grass so stripped that nothing but the bare stocks remained. As Hungarian is a deservedly popular crop, this attack upon it looks serious, and demands action. Among the remedies proving efficient, is sowing fine salt thickly on the grain or grass. Another is to mix one pound of carbolic acid, with one bushel of plaster and sow,

Either application makes it distasteful to the worm. In the case of the former application the salt might be good for the soil, as well as make the grass and straw more palatable for stock.

Speaking of Hungarian grass, reminds me that I saw a new use for it the other day. It had been sown early, and after making a pretty good growth was pastured, affording excellent feed for milk cows, and a large quantity of it. When I saw it, it was growing up again rapidly. When we remember that we can grow three tons of this grass to the acre, it will be seen how great an aid a patch of this will be to our short pastures. It is an annual, and can take the place of our oats crop very nicely.—*Ducks Co., Pa., Intelligence.*

SOWING TIMOTHY AND CLOVER.—My practice is to harrow the wheat three times in the spring. We go over the wheat both ways with the harrows, and then sow the clover seed and follow with the harrows to cover the seed. If the ground is very hard, the harrows do not break up the crust sufficiently to afford a good covering for the seed, and if dry weather follows we have a poor "catch" on these hard spots. I have my doubts as to which is the better plan, but am inclined to think that so far as securing a good catch of timothy and clover is concerned, it is better to give up the idea of harrowing winter wheat in the spring, and to sow timothy seed in the fall, and the clover seed very early in the spring. It depends very much on the soil and season. The harrowing helps the wheat and kills a good many weeds, and on sandy loam the harrow leaves a good seed-bed for the clover, and if we are favoured with a few showers, we are pretty sure of a good catch of clover.—*Wells and Talks, American Agriculturist.*

COVERING GRASS SEED.—The old plan of leaving grass seed and clover uncovered when sown, is still practiced to a large extent. In a moist season—especially moist at the start—it will do; but even then a light covering is an improvement. In a drouth it is indispensable, particularly an early drouth; and not only a light covering is required, such as is secured by brushing the land, but a harrow should be used. Thomas's smoothing harrow is just the thing. Two years ago there was a severe drouth, beginning immediately after the snow had left. Seeding, as a rule, was a failure. The loss in this section alone was immense. The exceptions were invariably the fields where the harrow was employed—not the brush, as this seemed to share the general disaster. A mellow, dry soil will permit the seed to be well put down, air in such case reaching it. The same condition will admit of moisture, even long rains, as I have known it. Only have the ground mellow and drained so that the surplus water passes off. I find it best to have the surface of the ground level—leveled with harrow and roller—when it is seeded, as then no part of the seed will be buried too deep.—*Cor. New York Tribune.*

THE HARDINESS OF THE COMFREYS.—The *London Garden* says: The *Synphytum* or Comfrey are most valuable for the shrubbery and wild garden. They grow freely, in fact, rampantly, under trees or elsewhere, and are good and showy plants. *S. aspernum* is the tallest, growing to 6 feet, and has red flowers changing to blue. *S. caucasicum* (2 feet), white flowers, and *S. tauricum* (3 feet), also with white flowers, are all fitted for naturalization. *S. Bohemicum*, with brilliant red flowers, only growing to 2 feet, is worthy of a place in the border, as is the variegated form of *S. officinale* (a handsome plant) and, perhaps, *S. Tuberosum*, with yellow flowers, though I am not certain that the latter may not prove too rampant. The *Gardeners' Monthly* says after copying the above: "We copy this because we have noted how well these Comfrees are suited to our American climate." The *CANADA FARMER* in late issues has drawn attention to the *Synphytum aspernum*, prickly Comfrey, as a forage plant, for which purpose it is now grown in England and Ireland. So reliable an authority as Mr. Mehan of the *Gardeners' Monthly*, having testified to its hardiness, the probability of it being suited to Canadian farming is much increased.

QUACK GRASS.—If I wanted to kill quack, I would attack it in the hot days of the last of August and the first of September; ploughing then, and harrowing twice crosswise, would do more to exterminate it than the cultivation of the rest of the year. The rays of the sun at that time seem to have a peculiar withering force—a ripening power which they do not have even at harvest time; and it is so intended that they may ripen up all vegetation to prepare it for winter. My garden was a bed of quack last year; the oats only grew four to six inches high. It was ploughed in the fall, just before winter set in, and not harrowed. I concluded it would thus get its quietus, but it was only planted. I cross-ploughed in the spring; that only helped it on. But I went to work with tool and seed, and by midsummer I had the finest garden in the county—taking prizes on nearly everything I offered, and filling my cellar for winter's use. It was, however, a vast deal of work to subdue the quack, for it seemed to thrive under the attacks of steel, and make a superior growth; and in one or two instances it actually prevented the starting of some beds like parsneps and carrots. I found, however, that when the hot days of August came, it yielded up the fight, and my soil is now in condition to make a proper growth of anything I may put on it. This quack, like all other quacks, has to yield when properly attacked.—*Cor. Country Gentleman.*

Implements.

Care of Farm Machinery.

We have heard competent machinists say that fully one-quarter of the value of machinery was lost by a failure to keep the bearing-surfaces well oiled. Our observation is, that farmers, as a rule, use too much oil on the bearings of farm-machinery, and to the detriment of the bearings. They put on large quantities of oil, but not sufficiently often.

The use and value of oil are to keep the surfaces apart, so they may not grind, and to furnish a medium upon which they may slide or roll upon each other, with the least possible friction. To do this properly, judgment must be used. If too much oil be given, the surplus immediately runs away, and is lost; if not enough is given, the bearings run and wear upon each other, and are soon destroyed, or rendered so loose as to become comparatively worthless. So, the first thing to be considered is the exact quantity of oil to properly lubricate the surfaces without waste, and the time in which the oil will be worn away, which will be in proportion to the swiftness of the motion.

According to experiments in France, the friction of wooden surfaces rubbing on wood amounted to one-quarter to one-half of the force employed. The friction of metal on wood was something less; while the friction of metal on metal surfaces was from one-fifth to one-seventh. Lard, applied to wood on wood, reduced the friction from one-tenth to one-twenty eighth of the power required to move the surfaces dry, and, on metal running upon metal, the friction was reduced to one-half of what it was before.

One of the best substances for lubricating cast iron running upon cast iron that we have ever used, is oil or lard and black lead-plumbago. The best lubricators for wrought-iron axes and the fast-running bearings of machinery is pure oil, entirely freed from all gummy substances.

If machinery could be kept entirely free from dust and other grit the bearings and joints would last indefinitely. This is, however, impossible to do perfectly, but, by keeping the boxes through which journals are oiled carefully covered, and by occasionally wiping such parts as may be got at when oiling, great waste of power may be saved, and the value and usefulness of machinery prolonged. A case in point will suffice for a

Good wagonners always wipe the axles of their wagons before they re-oil them; very few, however, wipe the boxes; and yet the one is as essential as the other, and one is as easily done as the other. How? Shave a spindle to fit the hole through the hub. Cover it with a piece of cloth, and, twisting it within the hub, it is easily cleaned. This will keep your wheels true for a long time, and save much labor to your team and vexation to yourself.

Manufacturers and those who sell machines well know that implements and machinery will last more than double the length of time for some farmers than for others. The reason is simple. They are carefully oiled, and as carefully kept when not in use, for any man who is careful in the care of machinery when in use, is fully as sure to care for it when not in use. Such men, for instance, never have trouble with the earth loading on their ploughs; they never spend half a day repairing their ploughs on the road, in the spring; their ploughs are always bright, winter and summer. Then, when the ploughs have done their spring work, clean them thoroughly, and paint the bright surfaces with kerosene and lampblack, and put them where this coating may not be rubbed or get washed away. When the bearings of machines get gummy from the use of bad oil, they clean these also with kerosene, and are always particular to get only the best oil when possible. There may be a great deal of money and horse-flesh saved by proper attention to and cleanliness in oiling farm machinery, and in properly caring for it while not in use. — *Chicago Tribune.*

SIMPLE TEST FOR LUBRICATING OILS.—The following simple method for testing the products of hydrocarbons or mineral oils in lubricating mediums will be found both convenient and useful for every engineer or mechanist. Fill a bottle with the oil in question, moistening the cork and inside of the neck of the bottle, and then twisting the cork about its longer axis. The best lubricating oils produce a smooth, but the more the oil is adulterated with hydrocarbons and products of dry distillation, the louder the noise produced. An oil that gives a loud cry is most unfitted for a lubricator.

How to Work a Bull.

One reason why bulls are vicious, says the *American Agriculturist*, or at least unruly or dangerous, is that they have never passed through any course of discipline. Well bred from the first, they are permitted to learn and exercise their strength at all times until their owners are frequently surprised to find them turn suddenly upon them without warning. Besides this, the usefulness of these animals is greatly curtailed in consequence of their idle life and good keeping, and the complaint of unfruitfulness is frequently made. A remedy for both these evils consists in putting these animals to work. Viciousness is prevented by the hepline and training, and a bull that is broken to the yoke when young, and occasionally used, is kept in good temper and under safe restraint. He is no longer an uncertain and dangerous animal, possessing all the ferocity of a wild beast. He is kept in better health than when idle, and his value for stock purposes is greatly increased. Cases are known to us in which bulls, entirely uncertain as stock getters, and consequently broken to the yoke, have after some time become perfectly sure, and have more than doubled their owner's profit in this way alone. One of the best common bulls for producing calves we have known, was constantly worked in a cart or at the plough. The practice might be profitably followed with high bred bulls which fail of producing calves, and are consequently greatly reduced in value.

A harness for a bull consists of a yoke and bow, shaped as shown in figure 1. The yoke is made to fit the neck

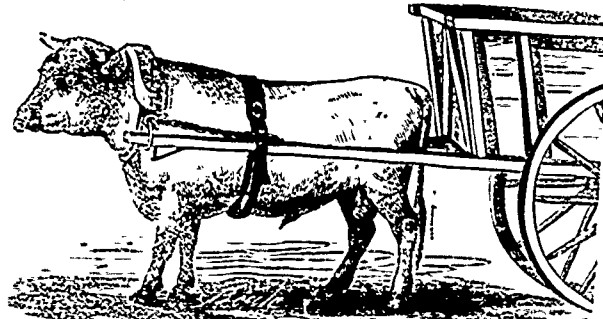


FIG. 1

snugly, with a curve sufficient to bring the ends low down at the sides. At each end there is a strong bolt and ring. The rings are made large enough to admit the end of a cart shaft, a hold-back being fixed on the under side of the shaft, as shown in figure 2. A draft-chain hooks into the

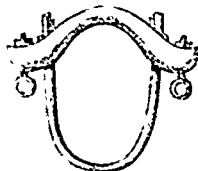


FIG. 2

eye of each bolt. A belly-band is buckled around the animal's body. This harness is very light and easy, and there is nothing about it to chafe or worry the bull. The harness for ploughing or cultivating consists of the same yoke and bow, and a pair of draft chains, shown in figure 3, which hook into the rings on the yoke. A broad leather



FIG. 3

band passes over the animal's back arranged as to length to suit his height, and to allow the chains to hang in the line of draft, without pressing on the back. There are rings on the lower ends of the chains, by which they are attached to the hooks of the whiffle-tree. The length of yoke should be adapted to the size of the bull, but should not be so long as to give too much room between the shaft or the draft chains, nor so short as to allow them to chafe the animal's sides. In working a bull it is best to use gentleness with firmness, and to avoid irritating or worrying the animal, so as to provoke his temper. The same harness may be used to work cows, for there are many cases in which they may be worked to advantage as well as a bull.

Oil the Harness Now.

A good harness is costly, but if properly used and cared for, will last a good many years. If neglected, it will soon need repairs, and in a short time become utterly worthless. In caring for a harness, one great point is to see that it is kept suitably oiled. A work harness, in use on a farm, should be oiled twice each year, in the spring and fall. It should be taken entirely apart, the places where sweat and dirt have collected, cleaned with a chip, or an old case-knife, then washed clean in warm water, in which a little Castile soap has been dissolved. As they are washed, the straps should be hung on a pole to dry.

When the outside is nearly dry, but before the moisture is all out of the leather, the oil should be applied. This may be done with a clean paint brush, which is the best thing for the purpose, a sponge, or a woollen cloth. A moderate quantity should be used, and if it does not soften the leather enough, another light coating may be applied, when the first one is well dried in. This is better than it is to put on a great deal at once.

Care should be taken to obtain a good quality of oil. Poor oils are of little use, and sometimes are injurious. Neat's-foot is the very best kind of oil for leather. There are some patent preparations in which a waterproof ingredient is added to the oil, and also a little coloring substance, to make the leather look black and glossy. An honest mixture of this kind is better than the crude oil. Cheap oils are generally poor. When dry, the harness should be rubbed with Castile soap, then with a dry woollen cloth. When this is done, it may be put together and used. This work should not be neglected until the hurry of planting and hoeing time, but should receive attention now. — *Live Stock Journal.*

Whetting Knives.

Put the blade flat on the end of the stone which is the farthest from you; then raise very slightly the back, or thick end of the knife, so as to press the edge of the blade on the stone; draw the blade, thus raised, towards you along the stone, but so that the point of the blade is the only part that touches the stone at the end of the stroke; repeat this a dozen times, pressing firmly, and then reverse the process by raising the other side of the blade, putting it at the end of the stone which is nearest to you, and drawing it along the stone in the

direction away from you, finishing at the point as before. You will soon find a thorough and satisfactory improvement in the sharpness of the blade; and though you may not succeed at once, you will before long experience the pleasure and satisfaction of independence, and being able to do this matter for yourself, and will know the comfort of having always at command a well-sharpened knife.

Scissors also are constantly used in the garden, and as scissor-sharpening is easier of description and accomplishment, just let me say a word or two about that.

Examine the two blades carefully, and you will see that the insides are quite flat, but that the outsides have a small narrow bevel at the edge. Unscrew the centre pin, and separate the blades. Flat-sharpen both the inside flat sides, and the outside narrow bevels; and again screw in the centre pin till the blades work smoothly but firmly without "wobbling." "Voilà tout."

DRIVING TACKS.—A correspondent of one of the trade journals writes:—I had to put a number of small tacks into a piece of work. I was engaged upon, and the positions into which they were to be driven were so awkwardly situated that I found the greatest difficulty in getting them into their proper places. After many unsuccessful trials I hit upon the following plan, which answered perfectly. I magnetised a common brand punch, and then by simply placing tacks one after another on the end of the little bar magnet thus formed, I found I could insinuate them into their places with facility and grace.

FLILING seems an easy matter to the uninitiated, but it is far from being the case; for a skilful workman will, in a given time, cut away a far greater quantity of metal with a file than one who is unskilful, for he makes every tooth cut into the work, instead of rubbing over it. To do this, he must adapt the pressure and velocity of motion of the file to the coarseness of the teeth, and the hardness, brittleness, and toughness of the material he is working upon. To file flat requires much practice; that is, to avoid rounding the edges of a narrow piece of work. Many apprentices find this a most difficult thing to do; in fact there are some who never succeed in filing, smoothing, and polishing without rounding the edges of their work. The power of filing squarely and well is one of the marks of a good workman. In filing flat surfaces, it is quite an advantage to use a cork to rest the work upon when the form of it will admit of so doing—place the cork in the vice—use the file with one hand, the pressure on the file being communicated by the forefinger. It is mainly to aid the workman in filing flat that the rounded or bellied form is given to files,

Horticulture.

THE ORCHARD.

Experience with Small Boys.

EDITOR CANADA FARMER:—As the season for green apples has again come round, and the irrepresable small boys who seem to be born with an innate propensity to steal apples, are on hand again, I can offer the result of my own experience in this matter, as I have discovered a method of preventing small boys, or big boys either, from stealing apples, and that is by giving them some. I would advise those who would wish to prevent their choice fruit from being stolen, and their trees broken down by nocturnal depredators, to try my plan if only for once, and if they find it does not answer, they need not try it again.

The first year my apple trees came into bearing, I desired a neighbor who resides about a mile from my house, to notify any youngster in the vicinity who might want some apples, to come and ask for them, as I did not wish them to think I was so stingy that they could get no apples unless they stole them. They never did come to ask for any, but I did not wait to be asked, but whenever any of them called on other business, I gave them some, and also occasionally sent them a few as opportunity offered. Just as I expected, although my trees, apples, pears and grapevines, have been repeatedly loaded with fruit, yet none has ever been stolen, and certainly I have not had to give as many as I should have had stolen, had I acted differently; whilst others in this neighborhood who have always acted on a different principle, have had their fruit stolen, and trees broken down, and if they did not keep good watchdogs, would have but a small share of fruit for their winter use, and even so they need to sleep with one ear open, so as to be ready to jump out in the night when the dogs give the alarm.

SARAWAK.

Preventing Girdling by Mice.

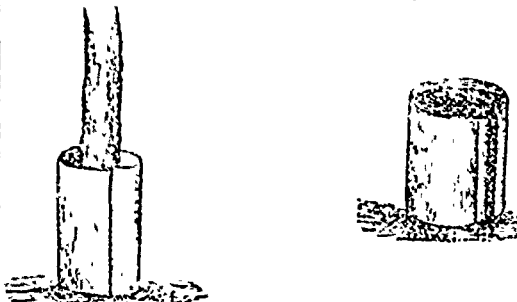
"In time of peace, prepare for war," is sound doctrine applied to orcharding. The maxim can be construed as advising the taking of means in early autumn to prevent the depredations of mice during the coming winter. Many orchards are injured every year by delaying steps for prevention until the ground is frozen, when the simplest method of preventing the mischief cannot be practised. The easiest mode is to mound up the foot of the tree, having first cleared the orchard of weeds and grass by clean cultivation. The *Country Gentleman*, from which journal we copy the illustrations below, says:—Field mice like nothing better than plenty of soft grass to burrow and creep under, and when they can get it, they care very little whether there is an inch or a foot of snow above. But a clean surface alone is not always sufficient; and where this precaution has not been attended to at the right season, we must resort to other remedies. We have never found the practice of throwing up a small, smooth mound (fig. 1) at the foot of each stem, to fail—except in some extreme cases where the snow above became crusted, furnishing a new base for the approaches of the mice. Usually this remedy may be regarded as safe and fully reliable; but the work should be done in a proper manner—with fine earth compactly and smoothly placed, and beaten with the spade. The owner of a large young orchard pronounced this remedy "a humbug," because by throwing up mounds of sod in his grassy orchard, the mice found a snug hiding place among the blocks of turf, and the operation did more harm than good. If he had first cast the sods aside, and made the mound with clean, compact, beaten earth, he would probably have saved his trees. These mounds need not be over a foot high, and if the land is clean, less will do.

If this remedy has not been provided before the ground is frozen for winter, it will of course be too late then to attempt it; but an excellent substitute for the earth may be found in coal ashes, which, if piled and compactly beaten about the tree, after having been partly moistened,

will serve as an effectual protection. Mice do not particularly fancy it at any time, and they will never ascend under the snow over a steep surface of this material.

When neither embanking nor ash mounds can be or have been provided, mice may be kept away by treading the snow hard about the tree whenever it falls or is drifted about them.

Another good remedy for small orchards, is encasing the trees in tarred pasteboard or sheathing paper. A roll of sheet-iron or sheet-tin is very effectual, and this may be applied at any time after the ground is frozen hard. Sheet-tin is better than sheet-iron unless the latter is covered with gas tar. Roofing tin, fourteen by twenty inches, will make four protectors to each tree, each costing about five cents, and will last a life time. When applied, a little



pressure while securing them about the tree, will cause them to fit the ground. Fig. 2 represents one of the protectors, the opening being sprung apart wide enough to admit the tree. Fig. 3 shows how several of them are nested together. If properly bent, the spring of the sheet will hold the two locked edges firmly together.

QUICKLIME and wood ashes made into white-wash will destroy moss on old hide-bound trees. Do not use it with much potash on smooth barked or young trees, as there is danger of injuring them.

APPLES FOR WET SEASONS.—The *Prairie Farmer*, speaking for Southern Illinois, says there are three varieties of early apples that in ordinary seasons are defective, unsound, or subject to early decay, which in wet seasons at that place, like the present, are sound, fair and good—these are the Early Harvest, Sweet Bough and Duchess of Oldenburg.

DIRECTIONS IN PURCHASING TREES.—A gentleman writes to the *German Town Telegraph*:—"Persons purchasing trees to plant should look closely to it that they are clean and bright. If they are discolored to any great extent, and show black streaks down from where limbs have been cut in pruning, the probability is that they will be tender and break in two with a little bending, and will be black in the middle. Avoid them; they will not make good, thrifty trees after transplanting."

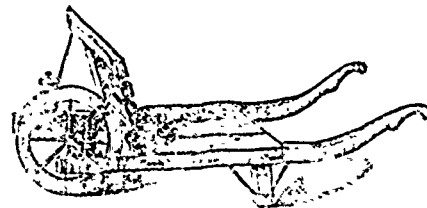
THE VEGETABLE GARDEN.

Cutting and Drying Herbs.

Mostly all herbs should be cut and dried before the middle or end of September, not so much for the sake of the herbs to be dried as for the roots left in the ground. There are many kinds of herbs, such as mint, sage, thyme, &c., which perish during Winter if they are not cut in time to allow the plants making a short growth before the growing season comes to an end. In this locality sage and thyme invariably perish if cut at indiscriminately, so as to leave the wood bare after September. Herbs must not be dried on the hay-making principle—i. e., not to dry the "natur" out of them, as I have known a Northern amateur do, who dried his herbs before a kitchen fire! His principal reason for adopting such an expeditious plan was that they rubbed down conveniently, and could be bottled easily. Those who buy bottled parsley and such like should smell it first. The best way to dry is to spread the herbs out in a dry, airy room or loft, turning them over frequently to prevent the leaves getting mouldy. In damp, dull weather a dry viney or peach house is a good place, hanging the bundles over the vines. The object in all cases should be to dry them gradually, and the leaves should retain their color to a considerable extent, and adhere firmly to the branch. When they crumple up in the hand, they have been subjected too much to the kitchen-fire process, which destroys their virtue. After all have been thoroughly dried, they should be tied in small bunches suitable for using, and hung in a dry shed.

A Spring Wheelbarrow.

A French horticultural journal gives a cut of a spring wheelbarrow which we copy. The application of springs to the barrow is described as an improvement, both



for the gardener, the object he moves, and the barrow itself. The common barrow has not only a more or less injurious effect on the spinal column, but the continual shocks to the arms, shoulders, and head, considerably increase the fatigue of the workman. The spring barrow saves much of this inconvenience, and enables objects to be transported with comparative ease over roughly paved streets, at the same time that the barrow itself is more durable than the ordinary vehicles. The barrow is made in five sizes, and has been patented.

TO DESTROY STRIPED BEES.—By mere accident, I found that covering hills of cucumbers, melons, squash, &c., with coal ashes was an effective remedy for the striped bug. It drives them off, and they never return. Also, after planting, put a handful over the seed on the surface, and let the plant come up through the ash; it serves as an excellent mulch for all plants, and is a great absorbent, besides possessing in some degree valuable fertilizing qualities.—*Cor. New York World.*

EARTH WORMS IN GARDENS.—The common earth or angle worms are not particularly injurious to gardens, although, when very numerous, they make the soil rather too porous for small plants. Lime water or even a good sprinkling of fresh slaked lime will usually destroy them, and not injure growing plants. The best application, however, is lime and salt combined, put on the ground in the fall and early spring before vegetation begins. Five parts of salt and ten of lime is a fair dressing per acre, and will usually do good service in destroying worms and insects, besides acting as a fertilizer.

ANOTHER SQUASH EXPERIMENT.—They will not put another squash into the harness at the Agricultural College this year, but they are trying other interesting experiments, with a vine of the same kind, the mammoth Chili. They have one squash upon the scales to ascertain its final weight, and meantime to note its increase in weight, which is now three pounds per diem. The growth of its leaves is also recorded. Another scale marks the increase of its vine in length, and still another of its tendrils. An ingenious contrivance is arranged to find out the movements of an unsupported tendril; the result is worked in triangles on a paper, perpendicular to the free tendril. Another arrangement is to test the strength of the tendrils and their growth in power relative to the growth of the supported squash. A gauge is being prepared to examine the sap in the vine and its passage into the fruit.

WATERCRESS CULTURE.—A correspondent gives the following method of watercress culture which is the method in vogue in Prussia, where this agreeable salad is largely raised. To cultivate watercress in a profitable manner you must have running water, which will not freeze in winter. Make rows from six to eight feet apart, two feet deep and as long as you please, and give a fall of from two to three inches in ten feet. This done, let the water run in the rows until the earth has become perfectly muddy. You must then take cuttings from roots or branches four to six inches long, and plant them six inches apart each way in the rows; or, if you cannot procure them for the first time, plant seedlings. These should be sown in August in the same sort of soil, and they will be strong enough to plant in four weeks. If the plants are rooted well, cut them down to an inch and manure them well with rotten cow dung, which must be beaten down between the roots. Now if the plants grow again, let the water run over the rows to the depth of a foot. The Cress having reached eight or ten inches you begin to cut it. As much as you can take in the hand is bound with a small branch of willow, as the cress is cut. During winter take care that the cress does not grow above the water and for that purpose it must be beaten down. Every year in the summer the rows must be cleaned out well, so that no water weeds may come amongst them. They must also be planted fresh as well as manured.

THE FLOWER GARDEN.

Liquid Manure for Growing Flowers.

Few things, in the management of plants, are more overlooked than that of applying liquid manure. When the roots of plants are confined within a garden pot, the soil soon becomes exhausted; and if it be desired to grow the plant rapidly, it must be turned out of the pot and the exhausted soil shaken from the roots, and replaced with fresh earth, or recourse must be had to liquid manures.

Floriculturists cannot be aware of the advantages of applying manure in a liquid state or it would be more frequently used. I have found that all free flowering plants, such as petunias, geraniums, some of the calcolarias, balsams and cockscombs, are improved, and indeed I have not found any flowering plant whatever that has not been benefited by a greater or less quantity of this element. Many New Holland plants are increased in color by this treatment; the *Euphorbia*, *Diosma pycnantha*, and many others besides not a few of the heaths, are benefited, when it is occasionally applied, as for instance once every seven or ten days. In watering plants with liquid manure, it will be observed that the soil after having been watered a few times, does not dry so soon as when watered with clean water, and thus independent of the extra nutritious qualities left in the soil by the application of manure water; it is then a great point gained by whatever means effected, when plants, whether in pots or in the natural soil, can be cultivated without the necessity of frequent waterings.

As there is no more labor required in using manure water than in applying the same quantity of water without the mixture of manure, considering too, that its advantages must be obvious to all who give it a fair trial, it does seem somewhat unaccountable to see persons exerting a great amount of labor to accomplish small results. It must be regarded as so much labor misapplied, when, had half the same labor and attention been bestowed, more of the same time liquid manure, far more satisfactory results would have been obtained.—*New York Herald*

Datura Fastuosa.

This Datura is very common on this side of the Great Lakes. The flowers, commonly called...



Thorn apples, from one of our showiest annual plants, being of a highly ornamental character both in flower and foliage. The flowers are large and trumpet-shaped, and have an agreeable perfume. The variety *Fastuosa* is half-hardy, and has large double white flowers. The roots should be taken up in the fall and packed away in sand in a dry collar for the winter. In spring, plant out early. It grows three feet high. Every part of all the *Daturas* is poisonous. Where there are children the fruit should be picked off as fast as it forms, as it resembles somewhat a green apple. We are obliged to Mr. Renne, of Toronto, for the cut.

ANNUAL FLOWERS FOR WINTER.—Vick, in his Floral Guide, mentions the following cheap and easily raised annuals, for blooming in winter in pots, and which may be easily obtained by any one who may not be able to procure costly or rare greenhouse plants: Mignonette, balsam, *cobea scandens*, sweet Alyssum, stocks, &c.; and any plants growing in the garden which have not blossomed, may be taken up and potted for winter.

AMERICAN VIOLTS.—I cannot understand why such a beautiful family of plants as the viola should be so shamefully neglected, or at any rate our native species, when they are so readily cultivated and so exceedingly desirable for early blooming. The one in question, *Viola cucullata* is large and showy, although destitute of fragrance, but in my opinion is inferior to the very handsome Bird-foot violet—*V. pedata*. The charming little Arrow-leaved violet (*V. striatata*) is interesting, even when destitute of flowers; yet the latter are by no means to be despised. The Downy Yellow violet, *V. pubescens* of our woods, is as handsome as an orchid, and were it not so common, would be eagerly sought after. Among white species the

little sweet violet, *V. blanda*, is well worthy of cultivation, and should have partial shade and moisture. The Primrose-leaved violet *V. primulaefolia*, which needs a similar situation to the last named, is somewhat inferior to it, but still pretty. *Viola striata* is a tall-growing species, with large creamy-white flowers. I merely select the above from the list of violets for the purpose of directing more attention to that class of plants; and I may add that I once saw in the garden of a noted botanist every known species and market variety of the viola, growing with an abandon which plainly indicated how much at home they were when under the charge of one who felt an interest in their growth.—*Cor. New York Tribune*.

PROPAGATION OF THE TREE PEONY.—Every cultivator of that magnificent flowering plant, the tree peony, knows that it grows slowly and winters badly, under ordinary modes of treatment. According to a writer in the *English Horticultural Cabinet*, it may be successfully raised by grafting on the herbaceous kinds. The operation is generally performed in August, by taking up roots of the herbaceous peony, cutting them horizontally, and taking off about one-third of their length. A triangular cut is then made in the side of the root, into which a section of the tree peony is inserted, leaving only one bud. After securing them with matting, they are clayed up like ordinary grafts, and are potted, one in a pot, and plunged in a hotbed, where they soon unite and grow freely. In September they are moved to a cold frame, and in the ensuing spring are planted in the open ground, where they grow rapidly.

THE FRUIT GARDEN.

Fruit List for Quebec, etc.

The following is a digest of the fruit list for the Province of Quebec, published by the Fruit Growers' Association of Abbotstford. It will be applicable to most of those parts of the Dominion where the winter is not modified by the presence of open bodies of water:

This Association, feeling the necessity of a published fruit list, issued, last January, 200 circular letters of inquiry to gather the varied experiences of the different parts of the Province. Replies were received from, or correspondence or discussion held with over one hundred, exclusive of residents of Abbotstford. The information is chiefly from the Island of Montreal, from the Counties of Comville, Brome, Missisquoi, and Huntingdon, and the country lying between them, the clay flats excepted, from which there are no favorable reports.

Apples—Summer.

Two best varieties are:—1. Duchess of Oldenburg (most satisfactory); 2. Red Astrachan (pretty generally satisfactory). We also mention Early Harvest (usually quite short-lived); Tetofsky (promising to be valuable where Red Astrachan does not thrive); White Astrachan (Peach not described by Downing, very hardy and productive, and valuable for near market).

Apples—Fall.

Two best varieties are:—1. St. Lawrence 2. Alexander King of the Pippins, Keswick Codlin, Kentish Pippin, and Hawthornden, also valuable.

Apples—Early Winter.

Fameuse first, without a rival. We also mention Late strawberry (though short-lived, valuable), Bourassa (not valuable as formerly).

Apples—Late Winter.

Many competitors, none first; choose from these next six:—1. Golden Russett of Western New York (pretty hardy, and rather productive); 2. White Calville (long-lived and a heavy bearer, its fault being its color); 3. Canada Baldwin (good every way, except that the older trees sun-scald); 4. Blue Pearmain (not generally productive); 5. Ben Davis (promising to be very valuable, though wanting in flavor); 6. Jonathan (trees 17 years planted have done well). Northern Spy (reports most contradictory, being planted for profit on exposed northern slopes, and in other and sheltered places; thoroughly condemned by nurserymen and orchardists); Pomme Grise (reports unsatisfactory as to bearing, and no longer saleable at extra prices); Ribston Pippin (not often reported favorably); Tolman's Sweet (fruit not saleable); Yellow Belle leaf (often satisfactory); Baldwin's Rhode Island Greening and Spitzenburgs (condemned by nurserymen and orchard lists, having done well only in exceptional instances).

Apples for Profit.

The best variety kinds in order of preference:—Huntingdon County reports Fameuse and Red Astrachan the next Duchess or St. Lawrence. Lacolle and vicinity:—Fameuse first, unannounced; next, St. Lawrence, Red Astrachan, and possibly, Canada Baldwin. District of Montreal:—Fameuse or Red Astrachan, followed by some winter apple. Belair:—Fameuse, unannounced. Abbotstford:—Fameuse, St. Lawrence, White Calville, Duchess, Alexander. Rougemont:—Red Astrachan, Fameuse, St. Lawrence, and Alexander. Ottawa Valley:—Fameuse and Duchess equal, Red Astrachan, St. Lawrence. Montreal:—Red Astrachan, Alexander, Fameuse, Duchess and Peach; Red Astrachan bringing \$2 per bushel, when grown in the neighboring orchards. Of winter apples, Golden Russett is reported, from Montreal, as less fruitful

than Fameuse, and lower priced, because of the competition from Ontario. In Huntingdon County it is being planted for profit; so also are Ben Davis and Jonathan, and even Northern Spy. In some parts, Winter Calville and Canada Baldwin are most thought of.

Apples—Hardiness.

Hardest kinds in order of preference:—(Tetofsky), Duchess, White Astrachan, and Peach; next to these, in alphabetical order, Alexander, Ben Davis, Fameuse, Red Astrachan, St. Lawrence. Tetofsky assumes this position partly from its hardness in the N. Eastern and N. Western States.

Crabs.

Our statistics give us, in order of preference:—Montreal Beauty, Transcendent, Queen's Choice (very hardy in unfavorable localities), Red Siberian, Montreal Waxen (considered by some the most profitable for the Montreal market), Hyslop.

Pears.

We give a digest of the experience of a few in Montreal; therefore a local experience, to be received with great caution:—

Shelter by buildings, hedges, &c., almost necessary; trees must not be forced in nursery, nor in orchard until in bearing; none recommended for profit. The best five kinds are:—Flemish Beauty, Belle Lucrative, Glout Moreau, Lawrence, White Doyenne. These last four not in order of preference. The following also deserve special mention:—Beurre Diel (reliable), Bon Chretien (perhaps not as good as it used to be), Bartlett (not as hardy as some), St. Ghislain (very hardy), Napoleon, Onondaga, Louise Bonne de Jersey (reports contradictory as to its hardness), Howell, Oswege Beurre (very hardy), Osban's Summer, Rostzeer, Knagussing, Clapp's Favorite (promising to be very hardy).

Plums.

The best twelve varieties are:—Lombard, Pond's Seedling, Washington, Imperial Gage, Bleeker's Gage, Bradshaw, Coe's Golden Drop, Prince's Yellow Gage, Green Gage, Nota Bene (Corse's; blue, 1 1/2 inches in diameter, finest flavored of Corse's seedlings), Dictator (Corse's; nearly as large, and shape of Yellow Egg, profitable), Admiral (Corse's; nearly size of Dictator, not equal in quality, but heavier bearer), Damsen, Boine Claude de Bay, Yellow Egg, McLaughlin, Jefferson, Blue Gage, Smith's Orleans, and Purple Favorite have also done well. The above kinds have lived twelve or fifteen years, usually not much longer, and have produced good crops more or less frequently, according to variety and favorableness of situation, showing that we have not the species adapted to our climate. Blue Orleans, Pruneau, and Yellow Orleans; many thousand of these, especially the former, grown from suckers, planted in the soil, are doing well near Quebec. They sell in Montreal at from \$6 to \$14 per barrel, and should be tried in other parts of the Province.

Cherries.

The common kind reported under the names of Early Richmond, Kentish, &c., is that most grown. Morello and May Duke reported favorably in a number of instances. The Minnesota State Horticultural Society recommend Hartz Mountain and Leib.

Grapes.

Summer protection by fences, &c., and winter covering, both necessary. Best four kinds:—Hartford Prolific (for profit), Adirondack (most valuable, but needs a little nursing), Cravelling, Delaware. The following deserve special attention:—Concord (ripens thoroughly only in certain places), Emelan (trusted but two years, reports satisfactory), Rebecca (doing well in the hands of a few careful cultivators), Massasoit and Salom (reported favorably), Rogers No. 33 (at Philipsburg doing so well as to demand special attention).

Currants.

In Province of Quebec as elsewhere

Gooseberries.

The English varieties often mildew, yet some spots seem free from this trouble. We have seen Whitesmith, thirty years planted, which have never mildewed, still yielding good crops, lower branches lying upon the gravelly ground. Also, upon heavy clay, Crown Bobs and Whitesmiths, both bearing heavy crops, both trimmed and untrimmed. Houghton flourishes everywhere.

Raspberries.

Red.—Red Antwerp, most largely grown, though some prefer Franconia, Fastloff or Kuevets Giant, Clark (coming into favor, canes hardy). White.—Bunkle's Orange (the favorite, canes much harder than those to the south of us would suppose). Black.—Doohttle (perfectly hardy), Mammoth Cluster (hardy enough in soils not over rich).

Blackberry.

Kittatiny, Dorchester, and Lawton killed almost to the ground, even when covered by a snow drift; Early Wilson harder, but not satisfactory.

Strawberry.

For market, Wilson, one opinion to the contrary—one who has five acres at Quebec, on bituminous shale, prefers Jucunda and Burr's New Pine. For home use, Wilson and Triomphe de Gand.

(N. COTTON FISK. JOHN M. FISK. JOSEPH ROACH. CHARLES GIBB, Corresponding Secretary.)

The Poultry World.

Toulouse Geese.

The Toulouse goose is the largest variety of the domestic goose known, and as its name indicates, was brought from Toulouse in France, it is stated by the late Earl of Derby. They do not stand, perhaps, quite so tall as the Embdens, but are more compact of shape, whence they are by many preferred. Carriage erect, bodies nearly touching the ground. Color of the body and breast light grey; back dark grey; neck darker grey than back; wings and belly shading off to white, though but little white visible; bill pale flesh; legs and feet deep orange inclined to red. The large orbit which surrounds the eye, and the singularly early development of the abdominal pouch, are also striking characteristics of this variety. This last characteristic occurs at a short period after they have emerged from the shell, the goslings then beginning to assume this ordinary feature of grown birds when not ten days old, and at three months it will be seen almost touching the ground.

In weight the Toulouse geese have generally surpassed the Embdens, but in 1872 the Embdens at the Birmingham Exhibition stood first in this respect, the weights of the prize pair of old birds being 56 lbs., 2 ozs., and again in 1873 56 lbs., 6 ozs., while the Toulouse in the same years weighed only 53 lbs. The treatment of the Toulouse geese is in all respects similar to that of the Embden, both as to goslings and grown birds.

There is however one peculiarity inherent in the Toulouse geese exclusively its own and to which the fashionable world owe that favorite delicacy of the luncheon and supper table, the famous Perigord pies, or *pate de foie gras*. For this purpose the geese are shut up in a very hot chamber and there fed well. They are so kept until their livers swell to an enormous size, when they are killed, and the diseased organs being taken from them, are potted with truffles, and the epicurean dish of *foie gras aux truffes* is thus made.

Toulouse geese are not good sitters, and their eggs are generally set under hens, but these must be large and heavy, or they do not do well, but the Embden and domestic geese sit well. When these are set on their own eggs, they will not brook much interference, nor is this necessary, as they are almost invariably good sitters and patient and steady mothers. The goose, when leaving her nest, covers her eggs like the duck. Neither is it needful to take any precaution with the gander who takes the greatest interest in the process of incubation, and if the sitter happens to be his favorite mate, will often go and sit beside her for an hour or more.

In writing of geese as market poultry, Mr. Hewitt says. "It will be pretty generally admitted that, with the exception of some breeds of highly plumaged foreign and two or three varieties of native wild geese, all other geese are usually kept more with a view of profit than being strictly ornamental. It may therefore here benefit others to make a few suggestions, the result of experience gained long prior to poultry shows being in vogue, and when the matter of breeding geese was pursued simply from rivalry and its utility. I am convinced beyond question, after many trials, that the finest geese are those procurable from a "cross" between the Embden and Toulouse; and I much prefer the whole of the geese to be thoroughbred Embdens and the gander an equally pure Toulouse. By this first cross, birds of great frame are procurable, and, under constant high feeding, of weights very far beyond those of either of the parents producing them. I have as a rule, between Michaelmas and Christmas, killed birds of the same year thus bred, the geese being from seventeen to twenty pounds each, and the Ganders from twenty-two to twenty six pounds. It must be kept in mind such goslings were not excessively fattened, as the weights might suggest to some persons, but rather like Shropshire sheep, more remarkable for the immense quantity of flesh they carried than their obesity. The flavor of these cross-breeds is remarkably mild and fine. These first cross goslings must, however, not be retained as future stock birds, for they themselves produce young of very inferior size, by throwing back. The rule to be observed is breed continuously (year after year) from the same old stock which are purely

descended, and kill off annually all the cross produce for table or market purposes. If the old birds are truly bred of their respective kinds, the goslings almost without exception will be saddle-backed in the feather, with the head and upper portion of the neck grey, and a patch of the same color on the thighs, the whole of the remainder of the plumage being white. Singularly enough the majority of the young Ganders and a fair proportion of the geese thus bred are slightly crested, though this peculiarity is not possessed by either parent. It will be found much preferable for the gander to be a Toulouse and the geese Embdens than reversing the sexes, as they breed larger framed and heavier-fleshed birds, which is a most important feature. It also affords some amusement to the owner, as it altogether upsets at once the theory of many old farm mistresses, that the gander is the white bird and the geese parti-colored."

The above remarks are very valuable to breeders of geese, and considering how general among farmers in Canada is the rearing of geese, it would be well if they would adopt the course of crossing recommended by Mr. Hewitt. Once pure stock is obtained, the difficulty is overcome, as geese are proverbially long livers if proper care be taken of them.

Endeavor to Avoid Disease.

It is said a gentleman once waited on the celebrated Sir Astley Cooper. When asked his malady, he said he had none. His motive for coming was of a preventive nature, but it could be attained only by consulting a competent medical authority, and he had therefore sought the most eminent. He wished to know when, in this climate, a man might safely leave off flannels, and when to take to them again? Sir Astley smiled and said "you ask me when you may safely leave off flannel, and when to take to it again. You may leave it off on the eve of midsummer day, and take to it again on midsummer morning."

The climate of our country is as trying for fowls as for human beings; and as after the long drought we may look for broken weather, we venture to advise our poultry correspondents, just as at certain times agricultural papers advise as to ploughing, manuring, &c. When the nights get longer, and when the white frosts succeed each other, it is always time to get the chickens under cover to roost. Warnings are not wanted in the way of incipient colds, of ominous snicks and short gurgles at night when they roost out doors. Our chickens are reared some distance from the roosting house they occupy in the winter. Many of them still pass the night in the rips in which they lived while chickens. We shift these every night some three or four yards nearer to the house they are to inhabit. Those that roost on rails and in trees, we catch after dark and put them to roost in the house. This is not necessary when they are in good far a yards and safe sheltered places, but in the long dark nights it is not well to allow them to occupy exposed and dangerous places. It is often putting temptation in the way of those who are not scrupulous. Arrived at the equinox, and having to do with many that are not adults, it is most essential to feed at the last day light and first dawn. The food may be also rather more generous. The sun is hot, but the mornings and evenings are cold, and they feel the change more than they do in the cold weather, when they are seasoned to it.—*Journal of Horticulture*.

FEEDING TURKEYS.—Our rule is to feed very little while the turks are young and nothing the first twenty-four hours after hatching. They give hard boiled egg in small quantities, crumbled fine. A very little of this will do. Later, feed curdled milk, and still later, corn and oats ground together. This is better than clear corn meal which is too heating. Encourage the hen and brood to go off and get their own living as early as possible. If the season is dry, the brood will keep itself, only giving a feed once in a while at night to bring them home. More turkeys are lost through over-feeding than from starvation. This is true of all young fowls excepting ducks, which can hardly be fed too much. On no account give young turkeys or chickens salt.—*Rural New Yorker*.

GAPES.—A correspondent of the *Country Gentleman* says:—I have lost three chicks with the gapes this season. I tried this experiment: In a brood of fifteen chicks, I made an application of kerosene oil and lard to the head and under the wings of every chick but one, doing this at night, and not allowing the chicks to run out again until the next morning. The one exempted from the application died of the gapes. I am satisfied, as I believe all poultry breeders are, that this disease is caused by lice on the head. The other cases of gapes were where I applied sulphur instead of the mixture of oil and lard. I must say I have not had the success of ridding my fowls of lice by the use of sulphur, which some breeders write they have.

CAPONIZING.—Caponizing fowls is practiced to some extent in Pennsylvania and New Jersey. Its effect upon the fowls is that they grow one-third beyond their otherwise natural size, fatten more easily and rapidly on less food, and their flesh is of finer quality, the price they command in the market being fifty per cent. higher than that of ordinary fowls of the same age. As an illustration of their superiority we quote from an exchange of recent date the statement that "a man in New Jersey has just sold a lot of 250 capons, averaging ten and three-tenths pounds each; the heaviest pair weighing twenty-eight pounds. The price obtained was thirty-eight cents per pound, making over \$4 a head for the fowls."

ROAD DUST AND POULTRY DUNO.—Road dust is worth many times its cost as an absorbent. Those who keep poultry may secure by its use a valuable fertilizer, nearly as strong as guano, with none of its disagreeable odor. Place an inch or two of road dust in the bottom of a barrel; then, as the poultry house is regularly cleaned, deposit a layer an inch thick of the manure, and so on alternately, layers of each till the barrel is full. The thinner each layer is, the more perfect will be the intermixture of the ingredients. If the soil of which the road dust is made is clayey, the layers of each may be of equal thickness; if sandy, the dust should be at least twice as thick as the layer of droppings. Old barrels of any kind may be used for this purpose, but if previously soaked with crude petroleum or coated with gas tar, they will last many years. If the contents are panded on a floor into fine powder before applying, the fertilizer may be sown from a drill. Road dust is one of the most perfect deodorizers of vaults—converting their contents also into a rich manure. Place a barrel or box of it in the closet, with a small tupper, and throw down a pint into the vault each time it is occupied, and there will be no offensive odor whatever. This is simpler, cheaper and better than a water-closet, and never freezes or gets out of order. Mixing the road dust with an equal bulk of coal ashes is an improvement, making the fertilizer more friable.—*Country Gentleman*.

The Apiary.

September Management of Bees.

Bee-keepers in our latitude (Philadelphia) do not calculate on their bees securing much honey or pollen during this month. But we have had large quantities of surplus honey gathered this month from late buckwheat, golden rod and other wild flowers, which bloom in low, wild lands during the fore part of this month, and when "Jack Frost" does not show himself, both honey and pollen has been gathered largely up to the first of October. The honey harvest as a general thing terminates this month.

As soon as the honey season is over, plundering and robbing commences. Great care must be taken to guard against it by closing the entrance of the hives of all weak or small swarms; and it often does not come amiss to contract the entrance of the strong also, for we have seen some strong swarms robbed. Bees are like mankind in this respect: some will defend their stores heroically, while others will make no resistance. If a colony retains its drones long after those of other stocks are destroyed, it will most invariably be found queenless, and should be supplied with brood from which to rear a queen. Look often to your colonies and if any weak ones are found feed them up, and they can be as strong as any by spring; but will be worth comparatively nothing if left to themselves.—*Practical Farmer*.

Ages of Bees.

The queen passes the period of about three days in the egg and five as a worm; the workers then close her cell, and she immediately begins to spin her cocoon, which takes her from twenty to twenty-four hours. On the tenth and eleventh days, and perhaps a part of the twelfth day, she seems to be exhausted by her hard labor. She now remains in almost complete repose; she then passes four or five days as a nymph, and on the fifteenth to the sixteenth day a perfect queen is attained. Much depends upon the strength of the colony and the heat of the season, which will vary it from one to two days.

The drone passes three days in the egg and about six in the worm, and changes into a perfect insect on the twenty-fourth day after the egg is laid. Much depends on the strength and heat of the colony, which should be about 70° Fah., for their speedy development. They lay in rather a diuturn state for several days after they hatch, before taking wing.

The worker bee spins its cocoon in thirty-six hours. After passing three days in the egg in this state of preparation for a new life, it gradually undergoes a great change, and becomes armed with a firm body with scales of a brownish color and somewhat tinged with light hairs. On its belly it has six rings or scales. After it has reached the twenty-first day of existence—reckoning from the egg—it comes forth from the cell on the twenty-first to the twenty-second day a perfect insect, and is termed an imago.—*Practical Farmer*.

The Breeder and Grazier.

Period of Gestation of Cattle.

The period of gestation of cattle, says Mr. Dun, varies somewhat in the various breeds, and is several days longer in Short-horns, Herefords, and other large races, than in Ayrshires, Alderneys and Devons. From his experience, West Highlanders and Polled Angus calve somewhat earlier than Suort-horns. From Lari Spencer's observations on 761 cows, he obtained as the average length of gestation, between 281 and 280 days. The shortest period recorded in which a live calf was produced was 220 days; the longest was 316—the produce a cow calf. Mr. Teissier's observations on upwards of 500 cows of different breeds yielded an average of 282 days between the date of service and of parturition.

Mr. Dun has chronicled, for some years, the gestation of a herd of Short-horn cows. He has 366 entries on which he can implicitly rely, and he finds that the average period is about 281 days. 235 bull calves have been carried 281 days; 238 heifer calves have been carried 280 days. The shortest period was 245 days; the gestation of twins born small and bare of hair. Another calf from a stirk was carried 253 days. The longest period was 305 days—the produce a white bull calf, from a seventeen-year old cow.

Several cows went regularly several days over time, whilst others as regularly failed to carry their progeny: the usual period; one cow constantly calving ten or eleven days short of the average, the calves being apparently sound and healthy. There is always more irregularity with first than with subsequent gestations, and twins are rarely carried out their full time. There is a strong hereditary tendency in some families to multiple births, and Mr. Dun has one family at least with this predisposition. In 473 births he has had sixteen cases of twins. From the Short-horn Herd Book he extracted 1,137 births before he made up twenty lots of twins.



Imported Short-Horn Heifer 'EUPHEMIA,' the Property of MR. J. R. CRAIG, Burnhamthorpe, Ont.

Scab in Sheep.

We extract the following description of scab in sheep from an article by an Oregon breeder in the *Country Gentleman*:

Scab is an eruptive affection of the skin, highly contagious, and accompanied with incessant itching. It is caused by a minute insect known as *Acarus ovis*. It may be conveyed from one sheep to another by actual contact, or indirectly, from camping grounds, where there have been diseased sheep. The symptoms are biting, scratching, or rubbing. Watch a sheep that has been diseased for a few days, and you will observe him scratch, or bite the affected part violently; if the irritation is caused by grass seeds, he will scratch slowly and lazily. Next comes broken fleeces and bare patches. In the early stage of the disease there will be locks of wool sticking from the fleece; as the disease advances, these will develop into bare patches of different sizes; consequently there is a change in the skin. The skin of the affected part, about the third or fourth day, will lose its delicate pink color, and will be of a pale bluish green tint, and somewhat thick in texture, forming a clear white scab of dried lymph where the insect has penetrated. As the disease advances, the patches affected, which vary in size according to the duration of the disease, are gradually denuded of wool, and the skin, where the disease is active, becomes thick, and assumes a decidedly unhealthy green and watery appearance (an unmistakable symptom of scab), exactly like the outer or hairy side of a piece of moist green bullock hide, from which the hair has been scraped; but with a discharge of green-

ish lymph exuding from it. According to the progression of the disease the patches increase in size and the skin gets thick and bony. Another unmistakable symptom of scab is, when you scratch the affected part, the sheep will rub up against you, all the while moving his lips and tongue, indicating the greatest enjoyment.

When seen with the naked eye in the wool, or on the skin, the acarus looks like a minute whitish round speck or object. In a good light you can detect a brownish appearance at one end of the object, as well as the glistening, pearly appearance which is so noticeable in examining the insect with the glass. The readiest mode of detection is to pluck a lock or two from the fleece at the edge of a green patch of scab, and subject the wool plucked to a strong light on the sun, and holding it up, and scrutinize it closely with the naked eye, gently pulling the wool apart as the examination proceeds, when the insect, if present, will be detected in the shape of the minute speck already described. Where a scab-glass or magnifier cannot be obtained, there are several ways of ascertaining whether or not the object noticed is an insect. The first thing is to get it from the wool and this may be done by picking it out with the blade of a penknife slightly moistened, so as to cause the speck to adhere to it, and gently moving the object along and away from the fibre. If the day be hot, and the speck be a living insect, it will, on being allowed to remain on the knife, make for the under or shady side of the blade, moving at the rate of about an inch a minute. Should the acarus be sluggish, give it a puff of tobacco

smoke to start it into activity. It may be that the acarus cannot be detected with the naked eye; so it becomes necessary to use a scab-glass or magnifier of a moderately large field. No flock-master should ever be without one. In searching with the glass, examine closely the diseased or green portion of the patch; then lay the wool open at right angles to and for four or five inches from its outer edge, and the roots of the wool and skin along the lines thus exposed, should be subjected to a careful scrutiny, when, if the insect be present, it can be picked up with a knife or pin. This is a good plan to adopt for another reason; patches of scab which do not exhibit any outward sign of their existence are thus exposed, and the course and extent of the disease more fully traced. In cold, wet weather the insect burrows into the skin, and is thus more difficult of detection.

Abortion in Cows.

With November comes to many farms that most annoying of troubles, abortion. When or where it first became epidemic, I am not well read enough to know; but the years are not very many since the dairy region within a limit of thirty or forty miles of Philadelphia has been scourged with it. Previously, though it was nothing uncommon for a cow to drop a premature calf, it was generally caused by ill-treatment by man or by other cattle, and never affected other members of the herd. Now, that it has assumed the form of a disease and become epidemic, its prevalence is greatest among the best selected and most nicely cared for dairies. And though in time it will probably run its course like all other diseases, and become

well enough understood to yield to a fixed treatment, just now it is the most serious drawback farmers have to contend with. All scientific investigation so far has failed to point out a preventive. About the only good effected has been to explode some blind theories—and almost every one has his theory, your humble correspondent among the number. How blind mine may prove, some investigator can probably say; but as I started out to give it, I will do so briefly.

Five years ago a then recently purchased York State cow introduced the disease among my flock so thoroughly that but one cow escaped, and she was so proof against it that she has carried her calf full time each year since; all the others aborted within from two weeks to three months, one very fine cow dying. For the next three years it visited the flock with more or less severity, regularly coming about the first of November. Replacing the afflicted cows by others only aggravated the disease, they suffering worth than those that had passed a year or more on the property. In casting about for the origin of the trouble, I noticed that cows physicked from any cause were more likely to abort; and I also remembered that the introduction of the disease among my cows followed very closely after they had had access to a stack of wheat-straw, against which fish brine had been thrown. This, coupled with the fact that frosted grass is liable to scour stock, confirms me in the belief that a laxative state of the bowels is very liable to bring on abortion in a herd predisposed to it. Acting on the hint, I am very careful about giving much salt at

this season of the year, or of anything else that will cause looseness of the bowels. If my theory is correct, remedies will doubtless be devised to counteract the purgative tendencies of food on stock.

From some cause or other I have had less trouble from the disease for the last two years—last year having but few, and this year none so far; while my neighbors are having about the usual run of luck. Last year I came across a cautious article from N. P. Magill, of our county, stating that at the suggestion of a friend he had used assafetida in the fall and winter, about the size of a shelbark to each cow, once a week in thin shavings mixed with meal. Though not recommending it as an absolute specific, he believed he had received marked benefit from its use. Being a very simple and plausible remedy, I tried it last fall and winter as recommended, and, as stated, had but few premature calves. One very good cow which had never carried her calf full time since I had had her (four years), went over nine months with a very fine calf. This year I am using the same remedy—so far with good results. —*Germantown Telegraph*.

Imported Short-Horn, Euphemia.

The subject of the illustration on this page is the Short horn heifer, Euphemia, now belonging to Mr. J. R. Craig of Burnhamthorpe, Ont. She is of red roan color and was calved March 19, 1871; having been bred in Wiltshire, England, by Mr. R. Stratton, of Burdeross. Euphemia's pedigree is:

Dam, Minerva,	Got by James 1st,	(21202)
" Europa,	by Sir Duke of York,	(23508)
" Lilla,	by Windsor Castle,	(21115)
" Euridice 2nd,	by Hermit,	(14697)
" Euridice,	by Lord of the Manor,	(14536)
" Euribia,	by the Red Duke,	(5694)
" Modest,	by Hero of the West,	(8156)
"	by Kenilworth,	(7118)
"	by Lottery,	(4280)
"	by Phoenix,	(6290)

She was imported in August, 1874, having been first bred to Protector, who at the Gloucestershire show this year took first prize over the head of Mr. Nethwait's celebrated Royal Windsor. Unfortunately, Euphemia 2d, her calf, has a nose of a lustrous blackness—not slightly colored, nor yet mottled, but deeply, darkly, unpromisingly black; a feature in which she follows her sire, not her dam.

Village Cow-Keeping.

EDITOR CANADA FARMER.—Strolling through a well-known village in the County of Waterloo a few weeks ago, this deponent was listener to an interesting conversation. The speakers were a confectioner, the happy possessor of one cow, which, he said, he kept at a loss, and a shoemaker who owned four of the bovines and affirmed that they paid him remarkably well. In proof of this affirmation he compiled the following statement after due deliberation. I give it as nearly as possible in his own words, promising that the question of pasturage is not taken into account, and that for the simple reason that perhaps the great majority of Canadian villagers get their pasture free, their kine being simply turned out to the roads where they are allowed to roam and graze at will.

But to my statement. Mr C (so I will call the shoemaker) keeps four cows, three of which are giving milk, the fourth being dry. It may be added also that, of the three milkers, one has but three teats and another only two. On the first of last June Mr. C. had in one ton bran at \$13.00, and 200 lbs. chopped stuff worth \$3.00. On this he fed his cows, two pigs, and a number of hens up to September 1st, (three months) and with the following results, viz. —

Quantity of butter between 1st June and 1st September, 156 lbs. at 17 cts. per lb.	\$26.52
Minimum quantity of milk used in his own family during that term 3 quarts daily at 5 cts. per qt.	13.50
Extra milk used on different occasions, say	3.00
Quantity of milk sold, same time	12.60
Increase in value of two pigs fed wholly on chopped stuff and buttermilk	14.00
Increase in value of one cow, same time	15.00
Value of eggs produced by hens fed solely on chopped stuff and thick milk 50 doz. at 13 cts.	6.50
Total.....	\$91.12

THE WHOLE SUMMARIZED.

Expenditure	\$16.00
Returns	91.12
Profits in three months	\$75.12

Such in brief is Mr C's statement which undoubtedly shows a large margin of profit for three months. There are, however, one or two considerations occurring here, and these should be taken into account, viz. — 1st.—The three months mentioned are the best of the whole year, bovine or rather lactally considered. 2nd. Pasturage is not taken into account. 3d. Would the cost of pasturage deducted from the above profits, leave a sufficient margin to merit the name of "paying," the trouble of milking, etc., etc., considered? And lastly, supposing after the deductions it did pay, and pay well, would the profits of these three months be counterbalanced, or would they not during the remaining nine months of the year?

A CONSTANT READER.

Fast Walking Horses.

Early in this year, we drew attention to the desirability of fostering the walking gait in horses, by the giving of special prizes to the best walkers. We notice that the idea has been taken up elsewhere. The *Rural World* says:

The best gait a horse has is the fast walk. A slow walking horse is an abomination. Who has patience with such a horse? If you ride him or drive him, he exhausts your patience. If he is used to plough or harrow, or go on the road, he mopes along at a snail's pace. He does only about half the work of a rapid walker. If time is money, you make money because you save time by having a horse that walks fast. Breeders should pay attention to this matter. In selecting a stallion to breed from, by all means select one that can walk fast. A slow walking stallion will be likely to get slow walking colts; while the stallion that has a long, rapid, spirited stride, will be likely to get colts with a similar action.

Then, there is a great deal in breeding to a horse with spirit and ambition. These cold-blooded horses will beget cold-blooded colts. The nearer you can approach the thorough-bred, even for obtaining a fast walker, the better. There is game there, and spirit, and endurance, and stamina, and style. There are neat, bony heads, the prominent eyes, the small ears, the capacious nostrils, the large lungs and chest, the well-developed muscles, the bones as dense as ivory. Even for walkers, then, get the nearest to thorough-bred possible, and the same for trotters, and of course the same for runners. As you have, then, horses fit for any company, and for any purpose—to pull the plough, or

buggy, or carriage, or to carry you upon their backs. Breed large, fine mares to thorough-bred horses, and you will get colts that you will not be ashamed to have your friends see.

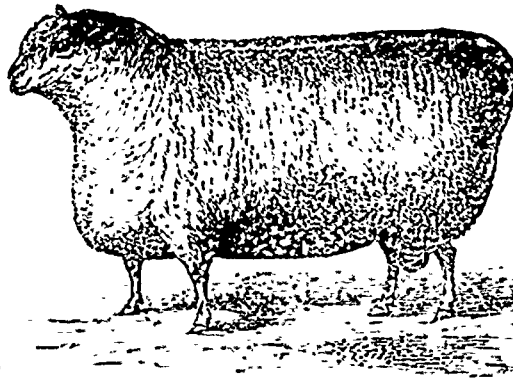
Economic Horse Management.

(Continued from last month.)

Two years ago, I fed a lot of horses on maize and hay, another lot on maize, beans, and hay; the result being greatly in favour of the mixture. Those fed on maize only showed as great bodily bulk, but not such hard, firm muscles; they are not so fresh at the end of the day's work, and when excessively worked, were loose in their bowels. I allowed 5lbs. per day more of the maize than of the mixed grain, but 98lbs. a week of beans and maize kept the horses in better condition than did 119lbs. of maize alone.

Barley is usually looked upon as an unsuitable grain for horses. It is said to cause irritation of the skin. I have used it largely, and have not detected this or any other objection to its use when the market price suggests that it is economical. I have, however, seldom used it in larger proportions than 25 per cent. of the total allowance of corn. Barley is the staple food for horses in Spain, and in Turkey, Syria, and other eastern countries. It is about equal in feeding value to oats or maize, for which it may be substituted when the relative price of these grains are such as to render it economical.

Bran, as you are all aware, is only a portion of grain, and of itself, not a food capable of feeding any animal. As an addition to other grains, or a mixture of grains, it is, however, of great value. Chemically it is rich in nitrogen, but in practice we find that this constituent is not in a digestible form, and we value bran simply as a bulky palatable article, having a laxative effect on the bowels. It is then indicated as a useful agent for admixture with foods tending to produce constipation, or as a substitute for



Imported Ram "BRITISH BARON,"

The Property of Mr. WILLIAM HARRISON, Myrtle, Ontario.

rich food when disease or illness suddenly puts a stop to the regular waste of muscular tissue. In other words, when the demand for nitrogenous matter is wanting.

No matter what grains or mixtures of grains we use, some bulky provender is required to enable the horse to properly digest his food. Hay serves this purpose, but it also supplies nutritive material, and, as an indispensable article of provender, requires proper attention. Considering its price in relation to its feeding value, hay is very expensive. Its feeding value, too, is very variable, depending greatly upon its growth, the state in which it is cut, the condition in which it is harvested, &c. Good hay should be of quick growth, should be cut before the formation of seeds in it—i.e., when in flower—and should be well won. It must not be stacked wet or too green, lest it ferment, as this process detracts from its nutritive value. Even when all these events are attended to, hay varies in value according to the grasses it contains. I am convinced that one ton of hay composed of such grasses as timothy, cock's-foot, dog's-tail, fox-tail, perennial rye grass, &c., is worth two tons of that formed of "hen-pen" or wild hops, mountain flax, rib grass, and other short, broad-leaved grasses that abound on poor undrained land. Over and over again have I tested the value of these two kinds of hay, and always with the same result—loss of condition among the horses, and a much larger consumption of the inferior hay. I have often compared new-land hay with old-land, and I value 50 lbs. of old-land as equal in feeding value to 60lbs. of new.

Hay must not be looked upon as an addition to the provender, but as an important part of it, and its quantity must be regulated according to the amount of grain given, and the relative proportions of each must depend upon their respective prices, and the amount of work performed by the animal. There is one more point which I would impress, viz., that hay, from its form, is likely to be greatly wasted. An allowance of 12 stones of hay per week is never eaten by a horse; a large portion is wasted under his feet. In removing long hay from the rack or manger, portions are continually let fall by the animal, trampled on, and spoilt. At one large colliery nearly a third of the hay sent into the pit was wasted and returned to bank with the manure. We had not been long on that

establishment before the horse-keepers were made to pay smartly for their negligence. But even with care, and the mangers are properly arranged, and the length of the hay altered by cutting, considerable waste is inevitable.

(Concluded next Month.)

FROZEN POTATOES.—Experiments in Germany on frozen potatoes prove that the freezing in no wise alters the chemical composition of the tubers. The change is simply physical, and even if frozen hard, they are still fit for distillation, or they may be pressed to get rid of the water, and then ground into a very good meal adapted for feeding cattle.

FALL FEEDING.—Do not let stock fall away in flesh as winter approaches. What is lost now is doubly lost—once in the value of what it has taken to produce the weight, and again in what it will take to restore it. Added to this, less food will produce a pound of flesh now than will be required when a larger amount of animal heat has to be furnished.

COMPARATIVE VALUE OF FOODS.—Taking timothy hay as the standard of comparison, it requires 100 pounds of it to supply a certain amount of nourishment. It is estimated by careful experiment, that the same amount of nourishment can be obtained by using the following quantities of other food: Clover hay, 90 lbs.; rye straw, 105 lbs.; oat straw, 221 lbs.; potatoes, 195 lbs.; carrots, 280 lbs.; beets, 316 lbs.; ruta baga, 212 lbs.; wheat, 43 lbs.; peas, 44 lbs.; beans, 46 lbs.; rye, 49 lbs.; barley, 51 lbs.; corn, 56 lbs.; oats, 59 lbs.; buckwheat, 64 lbs.; and all cake, 64 lbs.

INCONTINUOUS BREEDING.—Randall in his work on sheep husbandry remarks:—A brother and sister may be apparently healthy—may be actually so—but may possess an idiosyncrasy which, under certain circumstances, will manifest itself. If these circumstances do not chance to occur, they may live, apparently possessing a robust constitution, until old age. If tied together, their offspring, by a rule already laid down, will possess the idiosyncrasy in a double degree. Suppose the ram to interbreed with sisters, half sisters, daughters, grand daughters, etc., for several generations, the pro disposition toward a particular disease—in the first place slight, now strong, and constantly growing stronger—will pervade and become radically incorporated into the constitution of the whole flock. The first time the requisite exciting causes are brought to bear, the disease breaks out, and, under such circumstances, with peculiar severity and malignancy. If it be of a fatal character, the flock is rapidly swept away, if not, it becomes chronic, or periodic at frequently recurring intervals. The same remarks apply, in part, to those defects of the outward form which do not at first, from their slightness, attract the attention of the ordinary breeder. They are rapidly increased until, almost before thought of by the owner they destroy the value of the sheep.

THE CARE OF MALES.—Male animals designed for breeders should be kept as much as possible in the lot, and not in the stable or box stalls; fed in a box or trough, with good, healthy, nutritious food, in such quantity as to insure a vigorous growth, after allowing all the grass or hay the animal will eat, keeping him in only in very bad weather, and then no longer than it may be storming. Exercise in the open air is conducive to health in man or beast, while lying on the ground has a tendency to keep the system of an animal cool, which is very necessary when an animal is eating stimulating food. His order should not be so high at any time as to interfere materially with his service, but should always be so good as to be vigorous and healthy. He should rather be improving than declining, and should render but one good service to each female, and never more than two, in one day, if in full work.

FAMOUS CATTLE THAT WERE NOT PRIZETAHERS.—The Duke of Gloster was seldom shown. The Duke of Airdrie never won a prize. Old Remick was never in show condition. The old Baron of Oxford lived fifteen years without ever being considered a prizetaker. The dam of Minster was never in a show-ring; neither were the dams of May Flower, of Breastplate, or the 24th Duke of Airdrie ever seen on a fair ground, or if so, but seldom. The 4th Duke of Geneva, the 10th Duke of Thoudak, the 11th Duke of Geneva, and the 21st Duke of Airdrie are among the best sires of the last few years: none of them are show bulls. The best son of Breastplate is from a cow that was never in a show-ring. Young Mary, by Jupiter, produced her last calf in her 21st year, and left behind her an innumerable posterity of prize animals, yet she spent but a small portion of her life in a stable, and was but seldom in the show-ring. Mazurka, by Harbinger, was not the prizewinner of Mr. Alexander's herd, yet she left behind her a much more celebrated and valuable family than Belum or Forget-me-not. Miss Hudson, by Hermes, was never in a show-ring, yet she left behind her the celebrated London Duke and Duchess family. Goodness, by Orantes, won but few prizes, yet she left behind her the Dukes and Duchesses of Goodness, a family growing in favour every year; the Roses of Sharon, the Gwynnes, the Misses Bates and the Nelly Blyes are all from cows little known in the show yard, cows well-bred, but only kept in best condition for transmitting the valuable characteristics of the race.

The Dairy.

Short-Horns for the Dairy - Breeding Dairy Cattle.

As is well known, the Short-horn or Durham breed were once distinguished for their great milking qualities, but lately in consequence of the celebrity attained by them by the development of their best qualities, the value for the dairy has been overlooked. But, though the Short-horns have received attention mostly for their meat qualities, the milking strains are still in existence, and their qualities have been fostered in the same manner, though not to the same extent as have the qualities of the beef cattle.

The average dairyman of the present day will smile at the suggestion of a Short-horn bull for his cows. But there are many of the most intelligent men in the profession who know the value of the milking strains of Short-horns, and who use every endeavor to secure bulls from them. Hon. Harris Lewis, of Herkimer Co., N. Y., has been engaged for some years in the task of breeding Short-horns to milking qualities. The *Utica Herald* says that his experience was this:—He first purchased a young Duke, bred by Jonathan Talcott, of Rome, N. Y. This bull was calved May 10, 1867, got by Ellsworth (1780), out of Oxford Lass, by Echo of Oxford (12,521 A. H. B., vol. 9, No. 8,714.) His next purchase was Prince of Herkimer, bred by A. M. Winslow & Sons, of Putney, Vermont. Prince of Herkimer was got by Earl of Scanlon (8,977), out of Lilac by Earl of Carlisle (2,081, A. H. B., vol. 12, part 1, No. 15,211). Prince of Herkimer was descended from milking stock on both sides, and all his get have been good milkers. He died last spring from injuries received from a scrub bull all well known to be large in the neighborhood by its owner.

The result of this introduction of pure Short-horn blood was the great improvement of Mr. Lewis' milking stock and the growth of a dairy of grade cows which surpassed in milk yield anything which Mr. Lewis had kept before. His factory dividends were very high, and his dairy very profitable. The lesson which he read from his experience was that if he had done so well with grades which embodied pure breeding in them but one side, he could do better with a stock of thoroughbreds. Following the selection which led him to the purchase of bulls of milking strain of Short-horns, he purchased females of like ancestry. Mr. Lewis' son became associated with him, and they bought seven thoroughbred females. In the fall of 1873 they purchased of A. M. Winslow & Sons "Countess" and "Lady Mary 2d," and in the spring of 1874, Hecy 2d, Hecy 3d, Hecy 4th, and Hecy 5th, of Charles F. Wadsworth, and Pearllette, of James W. Wadsworth, of Genesee, N. Y.

These cows are all good milkers, and form a good milking ancestry. It is the opinion of Mr. Lewis that with the ten females they now have, and with ordinary success in breeding, that within a short time and without further outlay, they will have a milking herd of thoroughbred Short-horns equal to any herd in the country, embracing a like number of animals. More than this, he will develop their capacity for the production of milk, and it is because of this object in view that we have taken such interest in his enterprise.

Mr. Lewis has selected the short-horn, after a long and careful investigation of the subject, as the breed that will procure the best results in all the branches of the dairy—producing the greatest amount of milk, butter, cheese and beef for the food consumed of any breed we have.

And yet Mr. Lewis does not advocate the short-horn under all conditions. He believes that no one breed of cows will answer on all farms and in all localities. The large breeds producing the best results on productive and moderately level lands, and the small breeds doing the best on steep side-hills and scanty pastures. For butter only, the Jerseys would be his first choice; for butter and working oxen the Devons, and for the production of milk the Ayrshire and Holstein.

The CANADA FARMER is of opinion that there is a sure road to wealth and celebrity in the institution of the breeding of cattle for the dairy. Any dairyman who is possessed of the requisite knowledge of stock can, by persistent and intelligent breeding of his cattle to a milk test,

and at little expense, get up a reputation for his stock that will cause a demand for his calves, bulls and heifers, far and near. At present, it is too usual a thing for a dairyman when he has a good milker, to milk her as long as she will give milk, and never to raise a single calf from her. That is not the policy which will pay in the long run. Milking qualities are hereditary, and good milkers will produce under such treatment. Good milkers should be bred to bulls of good milking families. The most promising calves should be kept and not decaoned ruthlessly, as is now often the case with good and bad alike.

Milking Stools—Milking Kicking Cows.

A *Chicago Tribune* correspondent who wanted to know how to make a milking stool that will protect the bucket from the kick of a cow receives the following reply:—The best thing I ever saw in the shape of a milking stool is in use by our Swiss dairymen about here. The stool is in the shape of a crescent. The stool has but one leg with a spike or nail in the end of it to keep it from slipping; a hole is cut through each end of the seat about four inches from the end, and straps are passed through them. The milker sits the stool to his seat, and buckles the straps tight around his legs. He walks about with



the stool attached to him. The milker holds the bucket between his knees.

Their method of keeping a cow from kicking is to my mind the best I have ever seen, being easily adjusted and reliable. Take a stout cord about three feet long, with a small loop in the end of it; pass the cord around the hind leg, just above the gambrel joint; run the end through the loop, and pass the end around the other hind leg, just above the gambrel joint. Pass the end under the cord by the loop; pull taut and make fast with a bow-knot. When adjusted, the rope forms a figure 8 about the legs, and draws the hind legs close together. A cow never struggles but once against this persuader, and if the cord is not too new and hard, it cannot hurt her.

Preserving Butter with Salt.

In answer to an inquiry made by O. C. Blodgett, Secretary of the Chautauqua Dairyman's Association, Prof. L. B. Arnold has prepared an extended review of the chemical uses of salt in keeping butter, from which the following extracts are condensed.

In answering the question, "How does salt preserve butter, meat and other putrescible substances?" I might well assume the Yankee prerogative and answer it by asking another, to wit, Does salt preserve butter?

This question needs to be answered first, and I would like to see the evidence by which an affirmative reply can be demonstrated.

Modern investigation has shown that the changes which occur in fermentation and putrefaction are caused by the growth and multiplication of organic germs, either vegetable or animal, or both, the germs to support their own growth, using a part of the substances affected, and this proposition is now so well established that I may assume its truth. The changes in fermentation and putrefaction closely resemble each other. Plants, as well as animals, require nitrogen. When germs feed upon carbohydrates and find their necessary nitrogen in something else, as upon carbohydrates combined with a small amount of nitrogen, carbonic acid gas is evolved from the changes which take place in the carbohydrates, as when sugar is changed into lactic acid, or that acid into alcohol, or the alcohol into vinegar, etc. When germs feed upon meat or other albuminoids, nitrogen in some form is also given off, giving rise to strong and offensive odors. The former is characterized as fermentation, the latter putrefaction. Salt preserves by counteracting, in both cases, the incipient development of the germs which occasion the changes. It does not do this by reason of any chemical change produced by the salt in the substance to which it is applied, but simply and solely because its presence is so adverse to the incipient development of the germs which would otherwise develop, multiply and destroy. The whole power of salt as an antiseptic lies in this fact. But its action is not always the same in cases of fermentation and putrefaction. In fermentation it seldom entirely checks incipient germ growth, it usually only retards, and often actually stimulates such development, while it is very constant in checking incipient putrefaction. I have said that the presence

of salt was adverse to incipient development of germs. I wish the expression kept distinctly in mind, for it is only in the incipient stage that it has power to preserve. If by any means the germs, in either case, get a little start, salt is powerless to check them. If a piece of rancid butter, ever so small, is placed in contact with a package of sound butter, it will soon spoil the sound butter, no matter how well salted.

If a barrel of meat is packed in brine as strong as it can be made and in every way put up so as to keep safely through a three years voyage, it will spoil in a little while if a piece of decaying meat is put into it no larger than a thumb. When germ development once gets a start, it so modifies conditions that it can go on in spite of the presence of salt. This is well known, and it is also well known that in a good many cases of fermentation it stimulates germ growth instead of retarding it. The use of salt in preparing certain varieties of bread yeast is a familiar example.

Salt is not so powerful an antiseptic as we would be apt to infer from the extensive use made of it. There are others much more effective. The putrefaction which salt cannot hinder may be stopped at once with a little carbolic acid, or creosote. The fermentation which salt allows to flourish, may be stopped at once with the sulphides of lime and soda.

When salt is applied to butter, it acts like a mordant upon the coloring matter of the butter, giving it a deeper hue; otherwise it appears to remain only mechanically mixed with the butter, for by washing in hot water the salt may be separated from the butter without any appreciable loss, and so also if the fatty parts are taken up with ether, the salt will all be found in the residue.

Upon the preservation of butter salt exerts but very little influence. The keeping quality of that luxury depends much more upon other conditions than upon the action of any fancied variety of salt. Butter is subjected to change chiefly by the action of germs which lodge upon its surface from the air, which develop and multiply, and, filling the mass with their presence, work its ruin. Exclusion from the air, therefore, proves a more perfect preservative than salt.

The principal use of salt in butter is for seasoning, and for this purpose it is only necessary that it should be chemically pure. If it is pure, one salt is as good as another, but its purity is a matter of the first importance. If we cannot expect much from salt by way of preservation, we ought to be sure that it contains nothing positively injurious.

There is no salt that I know of which is absolutely pure. All the varieties in use contain more or less foreign matter from which it is very difficult indeed to free them. The most objectionable of these foreign matters is chloride of calcium. This acts directly on butter greatly to its injury, both in regard to flavor and keeping. It is most cautiously to be guarded against. But any compound containing lime which is liable to dissolve in water, is also objectionable.

BUTTER-MAKING.—It is time to skim when the fingers can be drawn through the top without having the cream close behind it. When cream will do this, it is about ripe enough to churn. When cream foams in the churn, it may be cured by warming. Cream should not be churned as soon as taken from the milk. It should be stirred and allowed to ripen all alike. This will occur in twelve hours or so. But cream should not stand until whey is formed in the cream jar.

SPAYING CATTLE FOR THE DAIRY.—The *Missouri Farmer* says that a great many yearling heifers are annually spayed in Missouri. The time most generally adopted is in early spring when the grass is sufficient for them to live without other food. The heifers thus treated universally make better cattle than they otherwise would do, and are more valuable than they would be as cows. The inferior heifers should always be selected, and they are as valuable for beef as the best steers. Our cotemporary has seen cows spayed at two years old that continued to give milk until very old age. They, of course, gave more in early spring than at other seasons of the year, but we did not see that they gave less in the same length of time than those with calves. They evidently fatten more readily than cows do that are raising calves, and consequently should be more thoroughly milked and fed less than such cows.

HOLSTEINS FOR THE DAIRY.—An Illinois farmer, who has had fifteen years' experience in dairying, and who has found out in that time that good cows are hard to get and often deceptive in appearance, writes:—In looking around for a remedy, my attention was called to the Holsteins. I was pleased with their large, fine appearance and style, showing fine milking qualities; but having been so often deceived in appearances, I was melted to fully understand their merits before making the necessary large expense, and to give them a practical trial. Preparatory to this I examined most of the larger herds in this country. After the most thorough examination I concluded they were preferable to any of the other milking breeds of this country, so much so that I bought two bulls and five females. I was so well pleased with them that after one year's milking, and losing one of the best ones by death, I this spring bought two imported heifers, and have now about forty half blood heifers which I am raising for my dairy.

Veterinary.

Parturient Apoplexy in Cows, or Dropping after Calving.

We have frequently alluded to this disease in previous numbers of the FARMER, but we again notice it, as cases of parturient apoplexy are by no means uncommon amongst cows this season in several districts of Ontario. This disease is one of the most serious to which the cow is liable, as it is extremely rapid in its course, frequently terminating fatally in a very short time.

Parturient apoplexy is a blood disease, which is characterized by a great tendency to a congestive state of the bloodvessels of the brain and of the spinal cord, and frequently involving the sympathetic ganglia as well. It occurs in cows of any breed, and especially such as are good milkers, and that are in plenteous or high condition, apparently arising from the volume of blood not being directed to its proper channel for the secretion of milk, and being thrown upon the system, producing the well-marked cerebral disturbance.

Perhaps one of the most noticeable characteristics of the disease, is the alarming rapidity with which it is developed, very often attaining its full intensity in the course of five or six hours; and it generally appears from the first to the third day after calving, and the earlier it appears, the more fatal it is in its character.

A well-marked peculiarity of parturient fever is, that it has seldom, if ever, been known to follow abortion, and that it generally attacks cows in their prime, when they are in their most vigorous milking condition. It rarely occurs with poor milkers, but attacks those that give a large quantity of milk. No doubt the mercantile prevalence of this disease, in many instances, is due to the increased amount of artificial foods that are used. No doubt good feeding is necessary in dairy work to obtain good returns, but at certain times and in some cases it is carried too far, and disease and death are the result.

The symptoms of this distressing complaint are usually of a very decided character. A short time after calving, the cow does not give her natural quantity of milk, and the yield gradually diminishes at each milking, and for a short period there may not be any signs of pain or fever. Soon, however, the symptoms are developed, the eye looks dull, the cow appears weak in her hind legs, and walks with a staggering gait. She will eventually drop to the ground, and perhaps make a few ineffectual attempts to rise.

The secretion of milk is impeded, and in some cases altogether arrested, the bowels are unmoved, and the urine retained within the bladder. At this stage of the disease the eye appears perfectly fixed in its socket, the mouth, ears and horns are intensely hot, the pulse is quickened, and the breathing laboured. As the cerebral symptoms become more and more developed, the eyesight is perfectly gone, the nerves of vision are paralyzed, producing a widely-dilated pupil; the head is turned backwards over the shoulder, and there the poor sufferer lies moaning and perfectly insensible to all surrounding objects.

The pulse becomes almost imperceptible, and, if you raise the head, it will fall again like an inanimate body, the legs are cold, and occasionally there is a tendency to convulsions, followed by complete prostration. She lies without having the slightest power of motion, all sensibility is gone, and death may occur from twenty to fifty hours from the beginning of the attack.

Having given the causes and symptoms of the disease, we will defer its treatment till our next issue.

Wolf Teeth in Horses.

Wolf's teeth are no more than the representatives of those organs which form the continuous chain of teeth in the mouth of some other animals. They are not concerned in mastication, and appear to be of no use to the horse. They are little nodules of tooth-like structure, having minute fangs which are inserted immediately in front of the first upper molar teeth, being rarely seen in the lower jaw, and when present there, always being even more rudimentary. They are generally shed with the neighbouring temporary molar teeth, and, therefore, if they can be

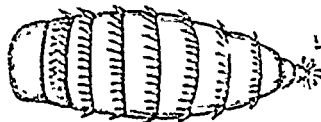
seen, it may be assumed that the permanent molar teeth have not begun to appear. The assumption, however, must not be converted into an assertion, for, in some instances the wolf's teeth are retained, and, in a few heads, will remain after the horse has reached an age far beyond that of colthood. They must be regarded as supernumeraries, and various prejudices prevail regarding their evil effects.

It is very commonly asserted, not by veterinary surgeons, but by that positive pest—the common *so-disant* horse doctor, that unless they be removed forthwith, the animal will go blind. Now, as almost all colts have these teeth, why do not all these go blind? Through a very extensive practice, covering nearly twenty years, in the Eastern and Western states of this country, in South America, in the West Indies, and in Europe—in fact in all climates, we never found the presence of these small teeth to be a cause of blindness. We need only add that these so-called wolf's teeth have no anatomical relation whatever with the organs of vision. The assertion that wolf's teeth will cause blindness is founded only in ignorance. There may be some foundation in truth for some opinion in favor of the wolf's teeth being injurious, from the fact that they occasionally deviate from the straight direction, and interfere somewhat with mastication; but this very rarely happens. — *Dr. N. H. Patton in Prairie Farmer.*

The Horse Bot-Fly.

The common horse bot-fly, says Dr. C. Henri Leonard, in the *Ohio Farmer*, belongs to the family *Stratiotidae*, and is known to naturalists as the *Gastrophilus equi* ("the stomach friend of the horse," is the translation.) It will not be necessary for me to give you a description of the parent fly, for your readers must all have seen the female of that insect class oftentimes to their horses' disadvantage. The male fly is a little darker than the female, and has a rounder abdomen. The female of this species picks to lay her eggs upon the long knee hairs, tails and manes of our horses, agglutinating them thereto by a peculiar viscid secretion with which she surrounds the egg. These eggs are fastened sideways to the hairs; are of quite good size, pointedly oval at one end, flattened at the other. They contain more or less matured larvae at the time of deposition; and when they are mature a few drops of moisture dissolves their casing and lets them out of their hatching place. It takes them but a few days to reach their maturity, after depositing upon the hairs of our horses.

The way they find entrance to the animal's stomach, is, that as the horse licks itself, the moisture upon the tongue dissolves the egg coatings of the mature larvae; the larva, instead of dropping to the ground, adhere to the tongue, are swallowed and then attach themselves to the stomach's mucous membrane by means of the numerous hooks with which the different segments of the body are provided.



The wood cut gives you an enlarged view of one of the larvae. A is the head; you will notice that the hooks all point to the opposite end of the larva, and by so doing, aid in retaining the animal in the stomach. The spiracles or breathing spores are found at the posterior extremity; just the same as in the larvae of other bot fly species. The mouth is at the end of the head piece A, surrounded by four hooks, which go to make up the mandibles or jaws at the seat of their attachment to the horse's stomach, there appear to be little pits or places where the stomach's membrane have been eaten out by these unfriendly (despite their scientific name) fellows. They have been accused of perforating the stomach. This the best authorities seem to doubt. It would certainly appear more reasonable to attribute the lesions here observed to post mortem changes, due to the action of the gastric juice; just as I often see in the stomachs removed from my fellow-men. The most usual site for these fellows is at or near the pyloric orifice (or outlet) of the stomach. There are good anatomical reasons why this should be so, for the stomach here, just as it empties into the intestine, is guarded by a valve, as well as puckers down upon itself, so that it looks much as your tobacco pouch does when tied. It makes a sort of a trap door, that, with the spines of the intruders, hinders for a while their further journeyings.

When mature, or nearly so, they loosen their hold, pass into the intestine, sometimes clinging thereto for a few days, and finally pass out into the world. When attached to the intestines is the time the horse manifests irritation and pain, not when in the stomach. Except there be quite violent symptoms, it is generally conceded best to let them have their own way about the time when they shall leave the horse; as the effect of medicine is pretty doubtful.

After reaching the ground they bore down some little distance into the earth, change to the pupa state, in which condition they remain from forty to fifty days, when they leave their case and emerge from the ground the matured fly, ready for the further propagation of its species.

As a preventive I would recommend a shearing off of the hairs on which the eggs have been deposited, and a wash (to be applied twice daily, for the double purpose of keeping the fly away if possible, and the horse from licking itself) composed of one drachm of crude carbolic acid to two quarts of water. Sponge the legs, tail and mane with this. I don't know as it will do much good; but it will do no hurt to try. It makes an excellent dressing to keep the "blow-shes" away from hospital patients, as I can bear abundant witness, and I can see no reason why it should not work well here. Need not be afraid of it.

BRIDLE-BREAKING.—To cure a horse of bridle-breaking, get a piece of bed-cord, four times the length of the horse, and double it in the middle, and at the doubled end make a loop, through which pass the animal's tail. Then cross the cord over his back, and pass both ends through the halter-ring under his chin and tie both ends of the cord to the trough ring through which the halter strap plays, the end of the halter being attached to a billet of wood. Should the horse attempt to pull back, the strain will all be on the root of his tail before the halter strap will become tightened, and he will at once step forward to avoid it. After so fixing him a few times in the stable he will abandon any such propensity.

DIARRHOEA IN A FOAL. The sweet or saccharine carbonate of iron is a useful astringent, and in repeated small doses (as much as will lie on a half crown piece) will frequently arrest diarrhoea in young foals. In the most dangerous cases of diarrhoea, when the stomach and bowels contain clots of sour decomposed milk, when the animal is straining, and with the thin smelling faeces, blood is perhaps also passed, no astringent is of any avail. In such cases castor oil and laudanum are most to be depended on, and the iron carbonate must be held over until the cause of irritation is got rid of, and the faeces become more natural in consistence. A gentle astringent carefully used will then impart tone to the relaxed and weakened coats of the bowels and hasten recovery. — *North British Agriculturist.*

BROKEN KNEE. So long as irritation or inflammation continues about the wound, blisters or other irritants are contraindicated, and the proper treatment consists in cold water, diluted carbolic dressings and rest, which is secured by splints or bandages. Indeed the most successful management for badly broken knees is to treat them like broken limbs, hastening the healing of the external wound by the soothing means just indicated. So soon as the external wound is nearly whole, surrounding fulness naturally abates, and goes down more quickly when stimulated by repeated blisters, which should not, however, be too severe or too frequently repeated. The thin, tender, newly-formed skin covering the knee should be protected by a thin coating of ointment from any of the blistering ointment spreading over it. — *North British Agriculturist.*

ONE FOOT UPON THE OTHER.—To break a horse of a habit of standing with one hind foot upon the other, make a ring of two thicknesses of sole leather, fourteen inches in diameter, by placing one upon another and stitching them together near the outer edge. A round hole is to be cut in the centre of the leather plate, of a size that will fit loosely around the pastern, just above the hoof; and in order that it may be applied, a radical slit is to be cut from the hole in the centre to the periphery of the ring; then, by twisting it, it may readily be opened and applied. It is kept in place by two suitable straps and buckles, sewed on the upper surface of the ring. The edge of the plait around the opening in the centre should be cushioned by binding it with soft leather, to prevent the sharp edges from chafing the limb. This ring is for use in the stable, or when the animal is quiet; it should be applied to the limb the foot of which the animal is most liable to place on the other. It is an effectual remedy.

SWELLY.—What is termed "swelly" is properly atrophy of the muscles of the shoulder, and is not a disease—at least primarily it is not, but it is the effect of a disease; lameness in any one of the joints, from the foot up, which prevents the full action of all the muscles of the shoulders, will produce this atrophy (wasting) of the shoulder muscles. Cure: Find out if possible the first cause, and attend to that; remove as soon as you can the cause, and generally, not always, the effect will cease. If, after the cause is removed, there should be this falling in of the muscles of the shoulders, get some one experienced in such matters to run a seton, from top to bottom. You thereby set up an intense inflammatory action, and as Dame Nature comes to the rescue, she will throw out granulations (particles of new flesh) and fill up the cavity, and soon (14 to 21 days) complete a cure. Dress the seton with anything that will cause it to suppurate quickly; clean the seton every morning after the first three days; do not wash it; use common newspaper to wipe the string, which should be a strong unbleached factory, about 1½ inches wide. Tie a small piece of pine at each end, say two inches long, as thick as a common pencil or more. Let the string be about five or six inches longer than the space between the two holes in shoulder. Do not try to work him until the inflammation is all gone. — *Veterinarian.*

The Agricultural matter published in the WEEKLY GLOBE is entirely different from that which appears in THE CANADA FARMER.

The Canada Farmer

TORONTO, CANADA, SEPTEMBER 15, 1875.

Work for September-October.

The harvest is over, the winter wheat sown, and the farmer has time to look around him. The result of a survey of his prospects cannot fail to be satisfactory to him. While in commercial circles all is dullness and anxiety, the farmer is serene, for he has good crops, and people must eat, whether business be slack or brisk. Losses by tempest, and damage by growing rains there have been, as to some extent there are every harvest, but losses have been local. Canadian farmers have not suffered, as a body, from the depredations of insect pests. Western farmers have had grasshoppers and chinch-bugs to contend with; sections of the Eastern country have been overrun by the army worm; and, as we write, Minnesota farmers have just lost by storm more of their wheat than the grasshoppers took in any year. We have had none of these things. Wherefore let us be thankful; and if we cannot "rest and be thankful," let us work and be thankful.

Do not let the straw lie about while the threshing is going on. Make it up compactly and secure it from rain. Straw is sure to be valuable for litter and shelter, and, if the spring should be late in opening, every straw may be wanted to eke out the supply of fodder. The same care should be shown in securing corn-fodder.

Many of the most formidable weeds ripen their seeds about now. Remember that every weed kept from perfecting its seed this year, is a hundred or a thousand less enemies next year. Collect and burn weeds, or bury them deeply, as you cut them. A burdock or a thistle will yield 20,000 seeds or more. Take every care, therefore, to exterminate them. Do not mix the chaff and refuse from fanning mills with the manure. By doing that, the land would be sown with just what should be kept out of it. Chaff sometimes holds the spores of smut.

Every farmer will go to his local fair, and many of them to the larger gatherings. Take careful note of the success or non-success of new varieties of grain, roots, etc., especially on soils similar to your own.

Winter wheat will all be sown by the time this reaches our readers. For rye, the land should be lightly ploughed, and when weeds have sprang up, manured, ploughed, harrowed and rolled. The rye should be sown from about September 20 to the end of the month. If it is put in much earlier it will suffer during the winter.

Land that is fall-ploughed and left open for the disintegrating effects of frost will sooner be in good condition in the spring. Stuff soils are made mellow and friable by fall-ploughing. Proper outlets for surface water should be provided at the ends of the furrows.

It does not pay to leave a hole in a farm road, especially when, near by, is a great stone which will fill it. The wear of horses, waggons, etc., in travelling on bad roads is much larger than most persons have any idea of. Large stones may be readily broken into fragments by the use of dynamite. There is no danger attending its use, unless by unconceivable recklessness, and it is not expensive.

Timothy seeded with tall grain should be sown soon after the grain has been drilled in. If clover is to be sown in spring, about eight quarts to the acre will do, unless the seed is old, when use twice as much.

Harrow frequently the fallow land, so as to give the seeds of weeds that are lying dormant a chance to grow.

Buckwheat must be cut before it is ripe, as it flowers irregularly, and, if left to ripen, will shew and re-seed the ground. Thresh and clean the seed at once and stow it in shallow bins. If it heats, turn it.

Corn is ready to cut when the ears are glazed to the tips.

Dig potatoes as soon as the tops are dying or dead, leaving them in heaps to sweat before finally burying or

taking them to the root-house. It is most profitable to sort them in the field. Gather up the tops, and take them to the barn-yard. Do not hold potatoes till spring, if you can get a remunerative price for them now.

The horses will want additional food as soon as frost comes. There is but little nourishment in frosted grass. Sell off old stock—cow, oxen, hens, sheep. Keep the young ones. There is no profit in keeping animals that are past their prime. Get rid also of unthrifty animals. Feed no poor animals over winter.

Let all stock, young and old, go into winter in good order. "Well-summered is half-wintered." The value of young stock depends greatly upon their care during the first winter.

Sheep should be looked after, and put into good order. Any abraded surface, or wound, should be tarred over to keep off flies. If foot-rot is found, the affected animals should be separated, as the disease is very contagious, and is more so in wet than dry weather. Lambs should be separated from the flock, and put into a field by themselves.

Apples and other fruit should be gathered carefully. Fruit trees are often damaged by the recklessness of the gatherers. Branches are broken, spurs knocked off, bark abraded and the fruit spoiled by being allowed to fall on fruit already on the ground. Separate sound from damaged fruit and that of inferior quality. If cider is made, do not mix that made from summer apples with that from late fruit, unless it is intended for vinegar.

In the garden, the soil among celery, cabbages and roots should be kept constantly stirred with rake or hoe. The crust which forms after heavy rain is injurious to vegetables. It should be broken up. Kill all weeds before they go to seed. Collect muck, leaf-mould, and lay it by in a shed for hot-beds in early spring. Lay up pea brush, bean poles, etc., for next year. Collect seeds of vegetables and flowers as fast as they ripen, put them up in paper, and label them.

Late fruit that will have no chance of ripening should be taken off melons and cucumbers, so that the whole strength of the plant may be thrown into those that are left. Cut squashes as frost approaches, leaving them in the sun for a day or two, but covering at night. Store in a dry, frost-proof place.

Celery, when nearly full-grown, should have the soil drawn around it for blanching. The leaf-stalks should be collected in the hand and brought into a compact bunch while the soil is being placed around them. The soil for this purpose should be well pulverized and moist.

Evergreens can be transplanted now, care being taken that the roots do not dry. Once dry, that evergreen is dead.

Remove old canes of raspberries and blackberries, and tie up the new ones. Strawberries may be set out from rooted runners. Prune currant and gooseberry bushes thoroughly. Cuttings may be planted out in rows two feet apart by six inches in the row.

Rats, mice, skunks and other vermin are now looking up comfortable quarters for the winter. Get a good breed of cats, some that will kill rats; feed them regularly, but give them no meat. Let them find their own meat. Make passages for them around and under places where vermin lie. A rat-killing cat will do more execution than half-a-dozen dogs, not only by the number she actually kills, but by her moral influence on the foe.

The winter's firewood should be prepared, and the wood lot should be gone through and cleaned up.

If you left off flannel underclothing during the summer, which it is not desirable for any one to do, take to it again soon enough. Do not wait to be reminded about it by an attack of catarrh or bronchitis. The seeds of fatal disease are often sown by a few minutes' exposure to the cold air of an Autumn night following upon a warm, genial day.

Export of Live Stock A Severe Check.

Considerable chagrin was felt by some of our Canadian exporters of live stock, recently upon the seizure and prompt slaughtering at the port of disembarkation of a cargo of cattle, the last one to be inspected of which showed slight symptoms of fever. The result of this summary proceeding was that the speculation entailed a disheartening loss to the exporters. It is clear that live stock

cannot be sent from this continent while all the cattle of a cargo are subject to be slaughtered upon one showing a slight sickness.

Till about 1861, there was an immense trade in England in importing live stock from Holland and North Germany, and fattening them for market. With some of this stock, the fatal Rinderpest was imported, and the United Kingdom lost more cattle by that disease than had been imported for many years. The character of this disease was so fatal that only stamping-out measures were effectual, and it became clear that new importations of it must be prevented at any cost. A rigorous law was therefore passed, putting foreign cattle into quarantine, and providing for the prompt slaughter of all that showed signs of Rinderpest, or had been in contact with animals showing such signs. Under this law, Rinderpest was quickly annihilated.

Having been so successful with Rinderpest, the authorities extended the slaughtering laws to Foot and Mouth Disease—an imported disease, also, but of a slight character, the principal loss being in weight only—Pleuro-pneumonia, Sheep-scab, Foot-rot, and Glanders. It is under this extension of the laws that the slaughtering of American and Canadian stock took place. Probably, for the last few years these laws have been laxly administered, for foot and mouth disease is very prevalent in England, there being 15,000 cattle affected in Dorsetshire alone at the date of our writing.

The law respecting importation of live stock into England is relaxed as respect Irish and Scotch cattle. If the same relaxation were allowed as respects cattle from this continent, the exportation of stock could be profitably carried on. If cattle from this continent, where they are remarkably free from disease, are subjected to the same restrictions necessary with respect to cattle from the pestilence-stricken Steppes of Russia, then the trade must cease.

It is to the masses of England that we must look to for redress of this grievance—a grievance which is heavier with them than with us. Meat is now excessively dear in England. The masses have turned their eyes to us for help, but the law-making classes prevent us from rendering it. Many public meetings have been held in England to urge the Government to take remedial steps. But the present Government is unlikely to do anything except under absolute compulsion, being a Government representing only the landed classes, who are too much interested in keeping up high rents to care about diminishing the profits of their tenants. The Irish and Scotch Members, too, would vote as one man against the admission of a formidable competition in a market which is now almost their constituents' own—for the foreign stock imported into England is not five per cent. of the amount that is annually consumed. It will be only when the pressure from the working classes becomes irresistible that the present British Government will do justice to our stock-exporters and their own meat-consumers.

CASES INVESTIGATED IN LAKE, tend to show that milk may be poisoned by the animals feeding upon injurious plants. It was found that throughout the month of June the inhabitants of Leone Borgo, in Rome, suffered from quite an epidemic of vomiting, pains in the bowels, and other symptoms. Professor Ratti, of Sapienza, after much careful investigation into the matter is said to have detected *Colicium* in both the vomitings and also the goats milk partaken of by the sufferers, and found that amongst the herbage on which the goats fed, a number of poisonous plants were apparently nibbled by the animals. These plants were *Cnicus inodorus*, *Clematis vitalba*, *Colicium autumnale*, and *Phacelia Europaea*. Prof. Ratti maintained that the *Colicium autumnale* had passed in the form of its alkaloid from the plant to the milk, and the drastic and other symptoms from which the consumers of the milk had suffered were at once explained. An attempt was made at the meeting of the Roman Academy of Medicine to supplement Professor Ratti's induction, by showing that *Monarda chlorina* was among the pasturage of the goats, and that its passage into the milk might account for the symptoms in the consumers, if not wholly, at least in part. But it was shown that the goats instinctively avoid this plant, and Professor's Ratti's impeachment of the *Colicium autumnale* remained, at the end of an animated discussion, uncontroverted. It may interest our readers to know that the *Colicium autumnale* is not an American plant.

Agricultural Education in Germany.

The following facts gleaned from the report of a committee to the French National Assembly are interesting, as showing the energy with which the German States are grappling with the problem of agricultural education:—

Prussia contains 4 higher agricultural academies, with about 80 well-paid professorships; 41 lesser colleges, all connected with model farms; 5 special schools for the cultivation of meadows and for the scientific study of irrigation; 1 special school for the reclamation of swamp lands; 2 special schools for industrial agriculture; 1 school for horse-shoeing; 1 school each for silk raising, bee, and pisciculture; 20 agricultural stations (laboratories) for experiments and for garden culture; 3 higher colleges and 12 secondary schools in which the culture of the grape vine is made a speciality. All these schools are connected with model farms for the practical education of students. That of the Academy of Proskau, contains no less than 2,450 acres of farming land, and 14,700 acres of forests.

Bavaria, a country of 5,000,000 people, has 26 agricultural colleges, 269 associations for the advancement of agricultural scientific knowledge, and the celebrated polytechnic school at Munich contains a separate branch for higher agricultural instruction.

The small kingdom of Wurtemberg (population 1,700,000) has 11 colleges, among them the school of Hohenheim of European fame, and 76 educational associations.

Saxony (population 2,000,000) besides the agricultural college of the University of Leipsic, has 20 more schools and 4 higher colleges, 1 veterinary academy, several substations for experiments, a very great number of agricultural associations and of evening schools for the instruction of farmers' youths.

Baden, with a population of 1,400,000, has an agricultural college connected with the University of Heidelberg, 13 other colleges, 4 schools for garden and tree culture, 1 school for irrigation and drainage, 1 school for horse-shoeing, and 77 agricultural associations.

Hesse-Darmstadt, whose population is not quite \$50,000, contains 9 agricultural colleges, among them that of the University of Giessen.

Oldenburg (population 320,000) has 3 colleges. Saxe-Weimar, with 230,000 inhabitants, supports 15 professorships in the great University of Jena, another college at Tuarzen, a model farm of practical instruction at Berka; a school for tree-culture at Marienhohe, 75 associations, and a large number of evening schools, which are instructed through series of lectures, held by learned travelling professors. Similar conditions prevail in the rest of the smaller States.

The whole of the German Empire to-day contains 184 agricultural colleges, of which number 8 are connected with the great Universities of Leipsic, Halle, Göttingen, Berlin, Königsberg, Heidelberg, Giessen, and Jena; 5 colleges for horticulture; 75 practical middle schools for agriculture; 28 middle-schools for garden culture; 16 colleges for special branches; besides an immense number of larger and smaller associations, evening schools for the further education of farmers' youths; lecture courses by travelling professors, &c.

Our Young Men vs. Overwork.

Our advice to farmers not to overwork themselves, the *Orillia Packet* thinks to be quite unnecessary so far as the young men of the country are concerned. "Our young men," says our northern contemporary, "do not and can not work so hard as did the pioneers of the country, men who subdued the wilderness and reared comfortable houses in the haunts of the wolf and the bear. We have seen those men, and we know some of them yet, tall and straight, and still fit to perform respectable pedestrian feats; and we see their sons, bent and slouching as if the cares of the world pressed heavy on their shoulders—old before their time, unhealthy, and with little chance of emulating their parents either in strength of body or length of days. We consider that these unfavorable results are brought about partly by unhealthy diet and partly by awkward habits, but principally by the use of unnatural stimulants,"—and, the *Packet* should have added, over-exertion while under the influence of un-

natural stimulants. With that addition, and allowing a wide definition for the word "stimulants" the position of the *Packet* does not differ materially from that of the *CANADA FARMER*, except that the *Packet's* lot seems to be cast among a harder crowd of young men than any we happen to know.

It is the habit of "rushing things" that we object to—a habit which, it will be found, was never practised by the "tall and straight" old men so justly commended. The patient energy which conquered the primeval woods of Canada, seems to be becoming a lost art. In its stead we have a feverish haste to get the work done. The results of the two systems can be seen side by side. On the one hand, a "tall and straight" and vigorous old man, a credit to himself and his country; on the other—hard words, these,—a "bent and slouching" youth, old before he is young, worn out before he has reached maturity.

We decline to consider the "bent and slouching" youth as the type of young Canada, for a contradiction is furnished by the hundreds of strapping, lithe young fellows, every bit as likely to live to eighty as their fathers, who are met in the course of a day's journey in the country. But the "bent and slouching" hoodlum is useful where-with to point the moral of our lecture on the evils of working too hastily—and that is about all the use to which he can be put.

Joining Granges—Further Against the Amalgamation.

EDITOR CANADA FARMER:—As you have invited correspondence upon the subject of the union of the National Grange of the United States and the Dominion Grange, and as the attention of the public was drawn to the subject by the Secretary of the East Whinby Subordinate (Grange, No. 151, I was requested by a resolution of this Grange, which passed without dissent, to state that this Grange entirely dissents from the views expressed by Bro. Fox upon this subject, and especially from that part of them that refers to the Dominion Grange, when he says: "We feel, in not being connected with the originators of the great movement, we are without any responsible head." In the language used above, he speaks for the Grange and not in his individual capacity.

In the first place, the subject was never brought before the Grange, and Bro. Fox had no means of knowing their views thereon; and in his attempt to commit this Grange to the policy of an undefined union he acted with great impropriety.

The feeling in this Grange is decidedly averse to such a union as was foreshadowed in your editorial comments upon the article, copied from the *Farmers' Friend*, in which you say that in return for the money sent Canadian Patrons would receive the password from the National Grange, and that that is about all they would get. We think this would be purchasing it too dear, and we think it possible that even passwords could be manufactured upon Canadian soil. As to matters of trade, their interests are in many respects opposed to ours. Their high tariffs upon articles entering their country are especially injurious to us. Now, if they desire to cultivate the most friendly relations with us, let them begin by throwing down the barriers that now exist between us, and let the life blood of commerce flow freely without the present Chinese wall of obstruction to hinder its course.

As to the advisability of the Patrons of this Dominion subjecting themselves to the jurisdiction of the National Grange, it should be scouted from one end of the Dominion to the other, as utterly absurd and out of the question. The loyalty of the Patrons of this country would revolt at the idea of owing allegiance to a foreign country in connection with an organization of this kind. It would be a reflection upon the wisdom and patriotism of the people of this country, and would amount to a confession that the intelligent yeomanry of this Dominion had not brains enough to manage an organization having for its object the promotion of their own interests.

The Patrons of this Grange would desire to affiliate with their brethren of the United States, and extend to them the right hand of fellowship, and do all in their power to promote the interests of the Order there as well as here, and recognize them as Brothers having a common object, and to be regarded as one common Brotherhood throughout the vast extent of these two countries—always remem-

bering that it is our duty to do all we can toward the elevation of all those connected with the noble pursuit of agriculture, mentally, morally, socially and pecuniarily.

It is particularly desirable that this great movement should go forward in one solid phalanx, and present an unbroken front. This can be done without the Patrons of this country subjecting themselves to the jurisdiction of the National Grange. This Grange would view with pleasure any just arrangement being arrived at between the National and Dominion Granges, whereby a mutual recognition of each other would be brought about, and, if this should not be accomplished, we hope the fault will not be with the Dominion Grange. It is of the utmost importance that a strong fraternal feeling should exist between the Order there and here, in order that it may be made a grand success. We might be pardoned for expressing the opinion that no movement in modern times is pregnant with such important results as is destined to flow from this, the greatest and grandest of the present age, so far as the agricultural interests are concerned.

This subject of union will no doubt occupy the attention of the Patrons of this country to a large extent, and it is desirable that a full expression of opinion thereon should be obtained, and I am sure, Sir, you will place the Order under a lasting obligation to you for your kindness in opening your columns for the discussion of this subject, which is one of supreme importance to the welfare of the Order. We feel that the interests of the Order would be materially retarded if we were to transfer our allegiance in this matter from our own to a foreign country.

JOHN T. GOULD,

Orator of Durham Division Grange

"WILL IT PAY TO GIVE DOUBLE PRICE for new varieties of seed wheat?" is a question oft propounded to himself by the farmer. Here is an emphatic answer in the affirmative. Last Fall, Mr. Oliver, of Elm Bank, Toronto Township, sowed enough Seneca wheat to seed two and a quarter acres. His crop was threshed lately, and was found to be 110 bushels. This he sold immediately for \$2.75 per bushel, being at the rate of \$140.55 for the produce of an acre. Now, the old \$40.55 would be a pretty fair return from an acre of wheat. So, by the investment of a few dollars additional for seed, Mr. Oliver realized in one year, above the ordinary profit, as much as would buy twice over the freehold of most farming land that has no prospective value for building purposes.

SOME ONE WRITES TO THE *CINCINNATI Times*, over the signature "F. G. Cary," stating that he has discovered the cause and remedy of pear blight. He gives a history of the disease and shows himself to be pretty well posted. He has studied the disease, he says, for years and has examined every theory of its origin, but "not until two years since did I come in possession of the facts and proofs which thoroughly convince me that the true cause of this fearful and wide-spread disease has been at length discovered, and with it an easy and most successful remedy been applied, requiring but a little more time in its prevention than the thorough pruning of the tree about to be destroyed by it." Of the nature of the discovery he gives no hint. We strongly suspect that "F. G. Cary" is another recruit for the noble army of humbugs.

NOT ONLY ON THIS CONTINENT is it found that agricultural colleges do not always make farmers of their students. In France, out of 9,317 pupils who have attended the Government "farm-schools" since their foundation, 2,992 have become farmers, owners and cultivators of farms, or renters of farms; \$15 have become gardeners, market-farmers and florists; 46 have become drainers, irrigators, or makers of drain tiles; \$11 farm laborers, cowherds, or pig-feeders; 5 land surveyors; 16 foresters and game-preservers; 29 agricultural accountants; 39 merchants in grain, wine, or fertilizers; 38 farm directors; 15 veterinary surgeons; 19 students in agricultural colleges, and 104 belong to other employments connected with agriculture. That is, about forty-four per cent. of the pupils have gone to farming or some business connected with it. On this side of the water, but one college—that of Michigan—can compare with the French schools as respects the making of farmers. In France there are now 33 farm-schools with 862 pupils. The terms of study is two years in nine, three in others.

The Ferns of the County of York.

(Continued from last month.)

Cystopteris bulbifera, Bernh. Very common in damp woods; fronds elongated, bearing greenish bulblets on the under side of the upper third; old Fort creek and marsh, Whitechurch; Toronto, St. James' Cemetery.

Cystopteris fragilis, Bernh. Not common; in black ash and elm swamps and damp woods; variable. Spofford's woods, 5th Con. Markham; thickets in rear of Mr. Galow's gardens, Danforth road; Toronto, Mr. Nanton's elm grove.

Struthiopteris Germanica, Wild. Common; a sturdy fern, I have measured fronds 5 ft. 8 in. long, 10 in. wide, in woods and openings, but grows best in sparingly exposed situations; not variable; Mussulman's lake. Whitechurch; Toronto, St. James' Cemetery.

Onoclea sensibilis, L. Common; along steams, in partly dried marshes, damp woods and sometimes exposed situations, varies but little. Around pond, Carleton Mills, Markham. Toronto, St. James' Cemetery.

Osmunda regalis, L. Not common; in rich wet woods, flats along rivers partially dried, open marshes; very constant in form. Mud lake, 9th Con. Whitechurch; Toronto, Glebe land, north of Danforth road, ½ mile from Todmorden.

Osmunda Claytoniana, L. Common; from shaded woods, to high and dry situations; a few pairs of *pinnae*, about the middle of the frond, fertile; very constant in form. Waste places, Sharon; Toronto, St. James' Cemetery.

Osmunda cinnamomea, L. Common; in marshes and swamps, wet open woods, flats along rivers, not inclined to vary; *Sphagnum* marshes, Whitechurch, Toronto, Helliwell's bush and field south.

Botrychium lunaria, Swartz. Very rare. Taylor's wood, upper Don.

Botrychium Virginiense, Swartz. Common; ranges from wet, sandy thickets to dry hardwood bush; very constant in form. Toronto, Helliwell's bush.

Botrychium lunarioides, Swartz; rare. Township of Markham. Toronto, Helliwell's bush.

Ophioglossum vulgatum, L. In the summer of 1868, I found a specimen of this young fern, growing on dry sandy soil, about ½ miles north of Toronto. I kept it in the garden for several weeks, where it was seen by several of my botanist friends (Mr. Winder, Mr. Macpherson. This is all I know of its occurrence in the County of York.

It is probable that all the ferns of Canada are already known to botanists, but a great deal is yet to be learnt as to their geographical distribution, their range of habitat and variation. I know of no periodical better able to do this work than the CANADA FARMER. Great assistance could be given by farmers' wives and daughters, in the furtherance of this important scientific work, which would at the same time afford them much enlightening recreation.

I will venture to give the names of a few botanists who are able to give valuable contributions. Mrs. Roy, Royston Park, Owen Sound, the most accomplished of Canadian cryptogamic botanists; Mr. E. Macpherson, Durham; Prof. W. P. Wright, Hamilton; Mr. D. K. Winder, Magill St., Toronto; Mr. I. Paxton, Carlton, who has written a very excellent hand book of Canadian ferns; Capt. I. Brodie, Wood Lake, Muskoka. Many names in other sections of Ontario could be added to this list, and many amateurs might be enlisted in the work. With such assistance in perhaps 3 years, you could get up a complete, full, reliable list.

W. BRODIE.

"AS I LOOK AT MY IRON FIELD GATES, iron wire fences, iron sheep hurdles, supplied to me thirty odd years ago, but all perfect now, and when I compare them with the rotten gate-posts and other wooden matters of an equal age, I can only wonder that agriculture still runs in the old wooden rut. Iron tubs and iron barrows stand alike heat and cold—no cooerage and carpentering. The posts which support our sheds should, if of wood, have their feet placed within the socket of an iron pipe driven in the ground. I saw this admirably done at the Earl of Essex's, Cassiobury, where the lower end of unplanned fir poles rested in the socket of iron pipes (5s. each), firmly embedded in the soil. Pig troughs and drinking troughs for

animals and poultry appear to be nearly everlasting, while the water in them is always acceptable. We find the large circular pig troughs very convenient in the sheep-fold, for their weight and form prevent their being upset by the sheep, and the water lost. The temperature of the water is also slightly raised by the heated iron. I have seen lambs injured by drinking water immediately taken from a spring at a temperature of about 48 deg., in hot weather. My twelve iron rick frames are worth as much now as they were thirty odd years ago, when first put down. No rats. By the bye, this reminds me that my practical friends were really suggested thirty years ago that I should want no such frames, for I should never grow enough to fill my new great barn. We evidently, on the score of profit, should pass more rapidly from the old wooden age to that of iron, coal, and brick, with steam as a motive power. Who would have thought, forty years ago, of building iron ships? So says Mr. Mechi, and for Lunland, where lumber is dear and iron is cheap, he has undoubtedly foreshadowed the coming system of farming. There, where at present and for some time in the future the conditions are exactly reversed, we do not expect to see iron supplant wood, except for fences. Iron wire fences have here all the virtues they have in England, and one other, viz., that they do not cause snow to accumulate in huge banks as do the more cumbersome rail and board fences.

The Phylloxera in Canada.

We notice a communication from J. A. Allen in the *Beauchamp* regarding the *Phylloxera* which, to his dismay, he had found in his vineyard. Mr. Allen appears to have read of the devastation by the pest in France and is, reasonably enough, somewhat alarmed. He enquires if his vineyard only is affected.

It is not generally known that this scourge, which is doing mischief in parts of France and Germany and which is quite formidable in England, is of American origin. Here, some influence, atmospheric or parasitic, or probably the greater vigor of the vines, keeps the *Phylloxera* in check, or at least prevents it from spreading to the extent that it assumes in the Old World.

A short time since, Mr. Brodie, of this City, pointed out to us in St. James' Cemetery and elsewhere, Toronto, several wild vines which were badly infested with the *Phylloxera*. The insect has also been found on the wild vines in the New England, the Western and Southern States, and is clearly indigenous all over the continent.

It is possible that its depredations may increase, and indeed, the records of the past ten years will bear out the supposition, that it is really becoming more destructive. The best remedy that is known at present is, to plant on rich soil and not to let the vines exhaust themselves by overbearing. A late number of the CANADA FARMER contained a record of the result of the investigations of the French savans into the habits of the insect.

THE *Poll Mall Gazette* STATES that some cows like nothing better than a fish dinner; and Vice-Consul Crowe, in his report on the Norwegian fisheries for the past year, just issued, mentions that the cattle in the fishing districts of Norway consume about 10,000,000 of eels' heads annually. And yet cows have no more brains than an ass.

DURING THE HAYING SEASON, (so a telegraph man tells us) about one out of every five cases of interrupted communication arises from a cause which is slightly ludicrous. Farmers who have to draw their hay under a telegraph crossing, frequently load up so that they cannot pass under the wires. Being men of ready resources, they are not discomfited, nor do they throw off the top of the load; but they just set to work and tie the wires together with hay-bands, so as to raise the bottom ones and allow them to get under, always forgetting to loose the wires as the load passes from under. Some telegraph operator, maybe a hundred miles away, is receiving a message, which is suddenly cut off as short as a carrot. He wants to see if the other operator has gone out to "see a man," but finally the despatch is resumed by another route. The repairing staff is sent along, and the income report, "wires tied, shows that knowledge is not yet universally diffused, for of course the wires are tied in ignorance of the fact that contact will cripple them.

Dr. CHEVREUSE announces a new utilization of the may bug or cockchafer. It consists in decapitating the living insect one hour after it has fed, when, on opening the stomach, several drops of a colored liquid are obtained, which varies with the nature of the plant fed upon. This substance has been used as a water color for painting with considerable success, Dr. Chevreuse having formed a scale of fourteen different tones or shades. It is a permanent pigment, unalterable by air or light, and imparts this quality, it is stated, to other paints with which it may be mixed.

THE EXISTENCE OF DISEASE among the stock in Europe may be imagined from the following items:—Glanders is very prevalent in Germany. One regiment of cavalry at a recent review of troops at Dantzie was in consequence unable to appear. Cattle plague is reported to abound at Litovano, in Croatia, in various districts in the government of Lublin, and in various parts of the Baltic provinces. Mouth-and-foot disease is rife in the neighborhood of Brindisi, in various parts of Spain, and elsewhere throughout the Continent. The veterinary department reports that during June, from scheduled countries, 970 cattle affected with mouth-and-foot disease were landed in England, 270 sheep and 417 swine were also discovered diseased. Upwards of 8,000 animals which had been brought over in vessels with these diseased animals were with them condemned to slaughter. Besides this considerable sacrifice of food 128 were also forwarded diseased from unscheduled countries, and nearly 2,000 of the fellow-travellers of these infected animals were also slaughtered. But in spite of these continued precautions to prevent further importation of disease, mouth-and-foot disease still prevails in many parts of Great Britain.

THE PROPRIETORS OF *Forest and Stream* have arranged for the exhibition at the Centennial of a complete assortment of sporting paraphernalia. Anything that comes within the province will be welcome to a place, whether old robes or new inventions, things useful or ornamental, boats, guns, rods, dog collars, camp utensils, life preservers, bear traps, snow shoes, harms, wigwags, buckskin suits, wampum belts, portable stoves, Indian scalps, pelts and horns, jack lamps, moccasins, tents, rubber goods, stable furniture, rare birds and animals, fruits and plants, trolling tackle, bats and balls, billiard tables, aquariums, and cartridge belts. Arrangements have also been made for space outside of the building, adjoining the interior allotment, where they hope to have a genuine camp in the forest with a running stream—shelter-tents, a veritable Indian birch wigwam, canoes, etc., etc. Every department will be complete, and genuine Indians and trappers have already been engaged to superintend each one. Many sportsmen have promised to contribute, and an interesting exhibit is secured. Our Canadian sportsmen will no doubt do their best to aid what will be a novel as well as useful show.

THE ENGLISH *Farmer* IS AMUSED to find the tree peddler to be one of our most formidable nuisances. It is, says—America has pests and pests. The potato beetle and grasshopper plagues are troublesome, but they are supplemented by pests which, being attributable entirely to human agency, hurt the feelings more. The "tree-peddler" is a thorough nuisance not only throughout the States, but in Canada as well. This special peddler has a good deal of Sam Slick about him, but one fails to see the humor of the Clockmaker in his doings. What his first work appears to be, is to get the "waste stock" of some large nurseryman, which being "weeded" by all the best having been previously sold, is not specially attractive to sharp farmers. But the peddler sorts his rubbish, labels it with some high-sounding name, and with "check" which almost shames Columbia, attempts to pass it off on the farmer. The farmers are taken in. Each year the "tree peddler" finds it more advantageous to change his *venue*, for farmers are not to be bitten twice in the States or in Canada. To us it seems that a nuisance so widespread as this might be met by farmers making up their minds to deal only with first-class trees. But American farmers make the mistake sometimes of wishing to bite, and fail in seeing the teeth of the men who meet them. English farmers, we think, are far enough to see that they can only deal well with nurserymen who have large businesses and whose character has made them above any mean toting. It is by their fruits we know them, and no agricultural show is held at which our prominent nurserymen do not prove that they are far above the practices as well as the pretence of Yankee tree-peddlers.

Agricultural Intelligence.

The Coming Short-Horn Convention at Toronto.

S. F. Lockridge, Greencastle, Ind., Secretary of the American Association of Breeders of Short-horns, has issued the following circular calling attention to the forthcoming Convention of Short-horn Breeders which will be held in Toronto on Wednesday, Dec. 1st:

Your attention is respectfully called to the Fourth Annual Convention of the American Association of Breeders of Short-horns, to be held at Toronto, Province of Ontario, beginning Wednesday, December 1st, 1875, and continuing two days.

An interesting programme will be arranged, consisting of essays and discussions on matters of interest to the Association, to be participated in by the ablest writers and speakers in the States and Provinces. The Conventions of the Association have, so far, been liberally attended, and prove how earnestly the breeders of the country second the efforts that are being made to increase and disseminate the knowledge of the "Science of Short-Horn Breeding." And in no other way, perhaps, can this be accomplished so effectually as through these annual gatherings of the men immediately connected with the profession. There are no better educators, so to speak, than these Annual Conventions where the practical experience of men grown old in the service, as well as the less matured opinions and theories of younger men are related, sifted and discussed, and finally, together with the verdict of the Convention, are carried, by means of the press, to the fire-side of every breeder in the country.

As the forthcoming Convention will be held near the borders of the two countries, it is hoped this fact will contribute to an unusually large attendance, and aid in making it more important than any yet convened.

The breeders of Canada have kindly signified their intention to make the event one of special interest, and to extend a warm welcome to their friends, and it is hoped that the breeders of the States will reciprocate these efforts, both by a large attendance at the Convention, and also by laboring to make it a successful one, and thus promote a proper feeling in the Brotherhood of Breeders, as well as between the two countries.

A general invitation is herewith extended to breeders to prepare essays and addresses for the Convention; and they are requested to notify the Secretary of the subjects selected, that a proper programme may be prepared.

Toronto Fall Exhibition.

The Fall Show of the Toronto Electoral Division Society will commence on Tuesday Sept. 28th, and continue till 2 o'clock on the following Friday. The Directors are sparing no pains to render this Exhibition a success. The Prize List is a liberal one, and of a varied character. The railroad and steamboat companies have agreed to carry stock and articles for exhibition at one fare for both ways, and will carry passengers at greatly reduced rates. Live stock for Exhibition must be on the grounds not later than noon on Tuesday, 28th; other articles on the Saturday or Monday previous. Members and members' goods for exhibition will be admitted free. The Exhibition will close on Friday, Oct. 1, with an address from the President, Mr. Philip Armstrong.

We are certain that no appeal is necessary to induce the farmers to support the Exhibition. A bounteous harvest has been gathered in, prospects are favorable for remunerative prices, and farmers are feeling cheerful all round. They have articles to exhibit of which they may well feel proud. Nothing but unusually vile weather can prevent our Exhibition being successful.

The First Prizes at the English Shows.

Bell's Messenger takes off in a humorous manner the late awards of first prizes at the English Shows. It is getting to be quite well known over there that the direction in which the prize will go, depends more on who is the judge than on the meritoriousness of the cattle. Says our English friend:

All the world opened its eyes very wide when at the Gloucestershire show the other day Mr. Stratton's Protector was placed before the veteran Royal first prize-winner, Mr. Outhwaite's Royal Windsor. Protector had been beaten by Duke of Aosta, a few days before, at Taunton. It did seem humiliating that the former champion bull of England should yield place to one from not quite the front rank of this year's Royal show. An exhibitor of less self-possession than "The Invincible" might have stormed under the defeat. He who can afford to wait, is a happy and a strong man. Mr. Outhwaite's turn of triumph was not long in coming round, and victory was received with the same characteristic complacency that had met a temporary reverse.

The up and down judging of the past few weeks is really very encouraging, if considered in the spirit of sage philosophy. It is just the thing to give every one a chance. If one has a shorthorn at all presentable before judges, no doubt it will win somewhere, if repeatedly exhibited; and see what a weight of honor comes when he does win! Protector has beaten Royal Windsor, who has beaten Duke of Aosta, who has beaten — no need to trace Jack's house-building any further. An infinite array of medals and rosettes may be considered as forfeited to Protector, the conqueror of conquerors. This holds good for ever, for catalogue annotation or private boast. Then what shall we say of Royal Windsor, who surpassed himself in beating the bull that had beaten the bull that had beaten him. The same argument applies to Duke of Aosta.

Again, Winsome 16th, the Bedfordshire best in the yard, twice succumbs to the attractions of Zvezda, but is after all declared to be a better than the Royal winner, who had beaten Mr. Kennard's Olga, who had beaten, &c., &c., and the partisans of Booth and Bates have alternately their claim recognized, like the rival tobaccoists, Mr. Farr and his opposite neighbor, the latter drawing all the customers by a notification that he sold "the best tobacco," until the other filled his shop and coffers by advertising "the best tobacco by Farr;" whereupon the first house successfully displayed the offer of "far better tobacco than the best tobacco by Farr."

Registry of Bulls with only Four Crosses Colors.

At a late meeting of the Short-horn Society of Great Britain and Ireland, a committee reported:

That applications having been received from Mr. Outhwaite, Mr. Jameson, and others, asking for the insertion of bulls with only four crosses in the Herd-book, notwithstanding the rule of the Society to the contrary, and it having been represented that much hardship will arise if such bulls be excluded, inasmuch as the breeders used them while Mr. Stratford's rule was in operation, and before the Society's rule was adopted, in the expectation that they would be entered as theretofore, the committee recommended that in all such cases the bulls be accepted for entry in the forthcoming volume, but that they be given in a special list, and that this exception to the Society's rule shall not apply to any future volume.

The committee also recommended that descriptions in the Herd-book as to color be confined to white, roan, red, and red and white, all sub-varieties of these colors being omitted.

This report was received and adopted. At the same meeting, Mr. Beauford gave notice that at the next meeting of the council he should move "That the council enter into an arrangement with Mr. Thornton in reference to his *Quarterly Circular*, and continue the publication of the same.

Coming Agricultural Shows.

Name of Shows.	Place where held.	Date.
Morris.....	Blyth.....	Sep. 14, 15.
Finch.....	South Finch.....	Sep. 14.
South Grenville.....	Prescott.....	Sep. 15-17.
West Hastings.....	Belleville.....	Sep. 16, 17.
Brockville & Elizabeth-town.....	.....	Sep. 16, 17.
Provincial.....	Ottawa.....	Sep. 20-24.
South Waterloo.....	Preston.....	Sep. 21, 22.
Hullett.....	Clinton.....	Sep. 21, 22.
Reach and Seugog.....	Port Perry.....	Sep. 21, 22.
West Huron.....	Seaforth.....	Sep. 23, 24.
Bentineck Ag. Soc.....	Hanover.....	Sep. 23.
East Elgin.....	St. Thomas.....	Sep. 23.
Wilmot.....	New Hamburg.....	Sep. 23.
Normandy.....	Neustadt.....	Sep. 23.
Biddulph.....	Granton.....	Sep. 24.
Howard.....	Ridgetown.....	Sep. 24.
Yarmouth.....	Yarmouth Centre.....	Sep. 24.
Trenton Hort. Ex.....	Trenton.....	Sep. 25.
East Zorra.....	Tavistock.....	Sep. 27.
Owen Sound Hort. Soc.....	Owen Sound.....	Sep. 28, 29.
Toronto.....	Toronto.....	Sep. 28-Oct. 1.
Western.....	London.....	Sep. 28-Oct. 1.
Turnberry.....	Wingham.....	Sep. 28.
Hibbert.....	Staffa.....	Sep. 28.
Osvegatchic.....	Ogdensburg.....	Sep. 28-30.
Turnberry.....	Wingham.....	Sep. 28.
Minto.....	Harriston.....	Sep. 28.
Union.....	Hamilton.....	Sep. 28-Oct. 1.
Elma and Wallace.....	Listowell.....	Sep. 29, 30.
Peterboro' Central.....	Peterboro'.....	Sep. 29-Oct. 1.
Muskoka.....	Bracebridge.....	Sep. 29.
East Tilbury.....	Town Hall.....	Sep. 29.
South Grey.....	Durham.....	Sep. 29.
East Wawanosh.....	Bulgrave.....	Sep. 30.
East Huron.....	Brussels.....	Sep. 30-Oct. 1.
North Ontario.....	Uxbridge.....	Sep. 30, Oct. 1.
Mara.....	Mara.....	Sep. 30.
West Gwillimbury.....	Bradford.....	Sep. 30, Oct. 1.
Pickering.....	Brougham.....	Sep. 30, Oct. 1.
North Ontario.....	Uxbridge.....	Sep. 30, Oct. 1.
Osnabruck.....	Osnabruck Centre.....	Sep. 30.

West Durham and Dar-lington.....	Bowmanville.....	Sep. 30, Oct. 1.
Bexley, Laxton & Digby.....	Norland.....	Sep. 30.
North Grey.....	Owen Sound.....	Sep. 30.
Dufferin.....	Orangeville.....	Sep. 30, Oct. 1.
Lucknow.....	Lucknow.....	Oct. 1.
Elma.....	Newry.....	Oct. 1.
Somerville.....	Coboconk.....	Oct. 1.
Lucknow.....	Lucknow.....	Oct. 1.
Oro.....	Oro.....	Oct. 1.
Osprey.....	Feversham.....	Oct. 1.
Esquesing.....	Georgetown.....	Oct. 2.
South Victoria.....	Lindsay.....	Oct. 4, 5.
East Kent.....	Thamesville.....	Oct. 4, 5.
Bexley and Carden.....	Victoria R'd St'n.....	Oct. 4.
Sydenham.....	Annan.....	Oct. 4.
Zurich.....	Zurich.....	Oct. 5, 6.
Peel.....	Brampton.....	Oct. 5, 6.
East Riding of Simcoe.....	Orillia.....	Oct. 5.
Smith's Hill.....	Smith's Hill.....	Oct. 5.
South Brant.....	Brantford.....	Oct. 5, 6.
So. Riding Perth.....	St. Mary's.....	Oct. 5, 6.
North Oxford.....	Woodstock.....	Oct. 5, 6.
East Lambton.....	Forest.....	Oct. 5.
Mitchell.....	Mitchell.....	Oct. 5, 6.
Wellesley.....	Crosshill.....	Oct. 5.
North Middlesex.....	Ailsa Craig.....	Oct. 5, 6.
Thorold.....	Thorold.....	Oct. 5.
Markham & Whitechurch.....	Stouffville.....	Oct. 5, 6.
West Elgin.....	Wallacetown.....	Oct. 5.
Nassagaweya.....	Nassagaweya.....	Oct. 5.
East Flamboro'.....	East Flamboro'.....	Oct. 5.
Midland Central.....	Kingston.....	Oct. 5-7.
Edwardsburg.....	Spencerville.....	Oct. 5, 6.
Hy Branch.....	Zurich.....	Oct. 5, 6.
McLora and Wood.....	Port Carling.....	Oct. 5.
Essex.....	Thornton.....	Oct. 5.
Centre Wellington.....	Elora.....	Oct. 5, 6.
Derby.....	Kilsyth.....	Oct. 5.
Egremont.....	Holstein.....	Oct. 5.
East Grey.....	Flesherton.....	Oct. 5.
Stephen and Osborne.....	Exeter.....	Oct. 6, 7.
St. Vincent.....	Meaford.....	Oct. 6.
Rawdon.....	Rawdon.....	Oct. 6.
North Victoria.....	Glenarm.....	Oct. 6.
North Brock.....	Cannington.....	Oct. 6.
North and West Oxford and Cheese Show.....	Ingersoll.....	Oct. 6, 7.
McDougall, Foley and Carling.....	Parry Sound.....	Oct. 6.
West Huron.....	Dungannon.....	Oct. 6, 7.
Haldimand.....	Cayuga.....	Oct. 6.
West Kent.....	Chatham.....	Oct. 6, 7.
Ancaster.....	Ancaster.....	Oct. 6.
Winchester.....	Chesterville.....	Oct. 6.
Howick.....	Gorrie.....	Oct. 6.
Holland.....	Arnot.....	Oct. 6.
Arran.....	Tara.....	Oct. 6.
West Wellington.....	Mount Forest.....	Oct. 6, 7.
South Bruce.....	Teeswater.....	Oct. 6, 7.
Watt Ag. Soc.....	Dee Bank.....	Oct. 7.
North Brant.....	.....	Oct. 7, 8.
North Riding of Perth.....	Stratford.....	Oct. 7, 8.
Welland.....	Welland.....	Oct. 7, 8.
East York.....	Markham.....	Oct. 7, 8.
Trafalgar.....	Trafalgar.....	Oct. 7, 8.
South Brock.....	Sunderland.....	Oct. 7, 8.
North Hastings.....	Near Luke's, Huntington.....	Oct. 7.
South Simcoe.....	Cookstown.....	Oct. 7, 8.
Thorah.....	Beaverton.....	Oct. 8.
Algoma.....	The Sault.....	Oct. 8.
Western Branch.....	York.....	Oct. 8.
West Zorra.....	Embro.....	Oct. 8.
Nottawasaga.....	Collingwood.....	Oct. 8.
Tyendinaga.....	Shannonville.....	Oct. 9.
Ameliasburg.....	Ameliasburg.....	Oct. 9.
Artemisia.....	Priceville.....	Oct. 11.
Prince Edward Co.....	P. cton.....	Oct. 12.
East Nissouri.....	Thamesford.....	Oct. 12.
North Waterloo.....	.....	Oct. 12, 13.
Fullarton.....	.....	Oct. 12.
Blanchard.....	Kirkton.....	Oct. 12.
Lincoln.....	St. Catharines.....	Oct. 12, 13.
Raleigh.....	Town Hall.....	Oct. 12.
Harwick.....	Blenheim.....	Oct. 12, 13.
Halton.....	Milton.....	Oct. 12, 13.
Stamford.....	Drummondville.....	Oct. 12.
Burford.....	Harley.....	Oct. 12.
Murray.....	Wooler.....	Oct. 13.
Walpole.....	Stage Road.....	Oct. 13.
Dunn and South Cayuga.....	Rainham Road.....	Oct. 13.
North York.....	Newmarket.....	Oct. 13, 14.
Eldon.....	Woodville.....	Oct. 13.
Somerville Ag. Soc.....	Kinmount.....	Oct. 14.
Logan.....	Bornholm.....	Oct. 14.
Monck.....	Wellandport.....	Oct. 14.
Beverly.....	Beverly.....	Oct. 14.
Lennox.....	Napanee.....	Oct. 14, 15.
East Hastings.....	Thrasher's corners, Thurlow.....	Oct. 14.
South Ontario.....	Whitby.....	Oct. 15, 16.
North and South Norfolk.....	.....	Oct. 15, 16.
Caledonia.....	Caledon.....	Oct. 19.
Mornington and Elma.....	Milverton.....	Oct. 15.

Short-Horn Sales of the Month.

The chief Short-horn event of the month was the sale at New York Mills of the herd of Mr. A. W. Grisvold, of Vermont. The herd was of the most approved Bates strain, and the prices paid were also of the Bates strain. The average is considerably reduced by the sale of the two Maids of Malvern who have an objectionable cross in their pedigree. The following were the sales made:—

Table listing various short-horn sales with columns for name, location, and price. Includes entries like 'Lady Mary, Col. W. S. King, Minneapolis, Minn.' and 'Miss Gwynne, R. Gibson.' Total sales amount to \$10,000.

Summary table for short-horn sales: 29 cows and heifers, average \$342.72 - Total \$10,729; 9 bulls, average \$231.11 - Total \$2,080. Total head average \$271.97 - Total \$7,649.

The Ohio Farmer gives the following interesting analysis of the purchases, by which it will be seen that Canada is to the fore:—

Table showing the number of short-horn purchases by state: Michigan (1), Canada (16), Kentucky (4), Vermont (4), New York (1), Connecticut (1).

Other important sales were held in Tennessee and Iowa. On August 18th, Messrs. Merton, Cockrill, Lwen and Williams held a sale at Nashville, Tenn.; same day, at Ottumwa, Iowa, Mr. J. G. Cowan's herd was disposed of; on Sep. 1, at Des Moines, Iowa, the herd of F. D. Long was sold. A groom was cast over the proceedings at this sale by the suicide of the owner of the herd, which had occurred a few days previously. On Sep. 2, Dr. Sprague sold his herd at Des Moines. At the same time was sold the Boonville herd of D. M. Flynn, and the Walnut Hill herd of Martin Flynn. Below are the principal sales made at all these places:—

Table of principal sales from Overton, Cockrill, etc. Includes entries like 'Irene 7th, M. Cockrill, Nashville' and 'Loudon's Grace, Day Bros, Utica, Ia.' Total sales amount to \$10,000.

Summary table for principal sales: 31 cows and heifers, average \$342.22 - Total \$10,710; 4 bulls and b. c. s. do. \$175. Total head average \$345.50 - Total \$10,985.

Table of Dr. Sprague's Sale: 2nd Duke's Gem, A. M. T. M. N. V. Versailles, Ky. \$1,000; Oakwood Miss Wiley, J. Colburn, Des Moines, Ia. 1,100; Portulaca 3, S. Cone, Eddyville, Ia. 950; Hope of Oakwood, H. W. Haines, Adco, Ia. 100; Bloom Dawn, J. G. Micks, Adco, Ia. 600; Rose of Sharon, A. Charles, Cedar Rapids, Ia. 600; Belle Rose of Sharon, E. M. Jones, Towauna, Ill. 550; Rosa Sharon, A. J. Bevin, Des Moines, Ia. 825; Belle of Sharon, S. W. Jacobs, West Liberty, Ia. 500; Sharon Rose of Oakland, Gen. J. M. Tuttle, Des Moines, Ia. 500.

Table listing specific short-horn sales: Lady Mary 14th, same, \$30; Lady Fairy of Oakland, W. T. Smith, Okaloosa, Ia., 600; Red Dalry, D. L. Hughes, Vinton, Ia., 1,250; 10th Baron of Oakland, E. Duff, Winterset, Ia., 235.

Summary table for specific sales: 17 cows and heifers, average \$639.41 - Total \$11,210; 3 bulls, average \$148.33 - Total \$445. Total head average \$582.75 - Total \$11,655.

Table of Boonville Herd, D. M. Flynn: Minnie Hammondale, D. M. Bringsolf, Des Moines, Ia., \$2,500; Minnie Hammondale 2d, S. W. Jacobs, West Liberty, Ia., 2,000; Roan Prince, Rey D. L. Hughes, Vinton, Ia., 3,500; Lady King, S. W. Jacobs, 1,500; Queen of the Meadows, C. S. Morford, Cedar Rapids, 600; Daisy Dean, J. E. Logan, Lyndville, Ia., 620; Helen Mar 6th, A. W. Haines, 400; Helen Mar 7th, same, 200; Baron Landale, R. Miller, West Liberty, Ia., 625; Master Baron, M. W. Keimess, Mt. Pleasant, Ia., 200; Bloomer 4th, J. L. Hennessy, Eddyville, Ia., 220; Bloomer 1st of Carlisle, same, 200; Bloomer 2d of Carlisle, N. Cone, Eddyville, Ia., 210.

Summary table for Boonville Herd: 11 cows and heifers, average \$912.72 - Total \$10,272; 9 bulls, average \$231.11 - Total \$2,080. Total head average \$621.85 - Total \$12,352.

Table of Walnut Hill Herd, Mr. Flynn: Emerald Maid, Her. Sprague, Des Moines, Ia., \$270; Miss Katy, H. Chase, West Liberty, Ia., 350; Melora 10th, J. H. Davis, Chariton, 600; Tea Rose, Dr. Sprague, 355; 4th Duke of Wellington, S. H. Mallory, Chanton, Ia., 275.

Summary table for Walnut Hill Herd: 9 cows and heifers, average \$302.22 - Total \$2,720; 5 bulls, average \$166.00 - Total \$830. Total head average \$233.97 - Total \$1,890.

Sale of Lord Dunmore's Short-Horns.

Again the hitherto highest Short-horn average has been surpassed, and the sale of a Bates bull for more than twice as much as ever before was given for a bull, will dispose of the assertion that the value of fashionable stock is declining. At Dunmore Castle, near Strirling, Scotland, on August 25th, Lord Dunmore held his second sale. The gathering was as unprecedented in character as the prices were superior to any before recorded. Dukes, Earls and Lords were as plentiful as blackberries, and the sale list will show that the noblemen are determined to occupy the highest position in stock-breeding that money will enable them to attain. The herd from which were drafted the 39 animals mentioned below has been gathered together by the Earl of Dunmore within the last seven years. The Earl has spared no expense, and several times has sent across to Canada and Kentucky for the strains which English breeders will not sell to other English breeders. He still retains a herd of forty animals, the value of which is enormous. Below is the sale list.

Table of Cows and Heifers from Lord Dunmore's sale. Includes entries like 'Wild Fives Duchess, Mr. T. Wilson, Shotley Northumberland' and 'Royal 2th, Mr. R. Loder, Whitebury, Northampton.' Total sales amount to \$10,000.

Summary table for Cows and Heifers: 30 females, average \$376.66 - Total \$11,299.84; 9 bulls, average \$292.16 - Total \$2,629.44. Total head average \$334.41 - Total \$13,929.28.

Table of Bulls from Lord Dunmore's sale: Duke of Connaught, Lord Fitzhardinge, \$4,500; Third Duke of Rutland, Mr. J. W. Larking, 3,000; Lord of Braganza, Mr. W. Busby, Australia, 100; Earl of the North, Mr. John Hope Canada, 70; Second Marquis of Worcester, Mr. G. W. Kinsinger, Kentucky, 150; Marquis of Oxford, Mr. C. A. Barnes, 200; 4th Duke of Devonshire, Mr. G. W. Larking, 175; Scots Fustler, Earl of Zetland, 155; Wild Chieftain, Mr. H. W. Beauford, 60.

Thorough-bred Stock for New Brunswick.

A Commission, consisting of Hon. A. McQueen and Hon. W. E. Perley, members of the Executive Council, and Mr. Inches, Secretary of the Provincial Agricultural Association, appointed by the Government of New Brunswick for the purpose, have been examining the stock on several of the leading farms of Ontario and Quebec, with a view to purchasing on behalf of their Government. The money usually voted to Agricultural Shows in that Province has this year been granted for the purpose of improving the live stock, and a large addition has been made to the fund. The Commissioners were sent out to make selections of stock which will afterwards be offered to the farmers for sale by auction, conditioned that the animals remain in the Province for five years. The money realized from the sale will again be invested in stock, and so on until the appropriation is exhausted.

The Commissioners have made purchases of Ayrshires and Jerseys from Mr. Gibb of Montreal, and Mr. Ball, of Stanstead, and of Shorthorns and Berkshires from Mr. Cochrane and others. In Toronto they have been in treaty for several fine imported Clydesdale stallions, and in the Western States for Percheron horses. On their way west the Commissioners closed a bargain with Mr. Brown for a draft of thirty Shorthorns from the Bow Park Herd. The lot consists of twenty young bulls and ten heifers, and the animals are said to be of great beauty and quality.

Coming Stock Sales.

- List of coming stock sales: Sep 29-Boone Co., Mo., Assn., Columbia, Mo.; Oct 6-T. Smith, Creston, Ill.; Oct 7-J. S. Lathmer and Robt. Holloway, Galesburg, Ill.; Oct 8-W. J. Neely, Ottawa, Ill.; Oct 12-J. J. Adair, Shawhan's Sta., Ky.; Oct 12-J. Feather, Sankam, Ill.; Oct 13-Wesley Warwick, Cynthiana, Ky.; Oct 14-B. B. Groom, Winchester, Ky.; Oct 15-H. P. Thomson, Thomson's Station, Ky.; Oct 16-Rikhan Imp. Co., Lexington, Ky.; Oct 19-J. A. Gano, Centerville, Ky.; Oct 19-J. P. Goff, Winchester, Ky.; Oct 21-M. S. Meter, Sankam, Ill.; Oct 21-J. W. Prentiss, Winchester, Ky.; Oct 23-Redman Bros., Winchester, Ky.; Oct 25-J. Scott & Co., Paris, Ky.; Oct 26-F. J. Barbee, Paris, Ky.; Oct 27-Ayres & McClintock, Millersburg, Ky.; Nov 4-B. B. Groom, Winchester, Ky.; Nov 10-M. S. Meter & Dawson, Dexter Park, Chicago; Nov 10-Brockway Bros., Eyota, Minn.; Nov 11-A. B. Conger, Dexter Park, Chicago; Dec 3-J. R. Craig, Toronto, Ont.

New Granges.

- List of new granges: 225. ASTON, County of Perth.—Thomas Evans, Master, St. Mary's; James McSugg, Secretary, Fish Creek. 229. MARYS VILLAGES, County of Wellington.—Thos. Eadie, Master, Glen Annan; Geo. B. Scott, Secretary, Glen Annan. 230. FARMINGTON, County of Dufferin.—John Braidon, Master, Farmington; John McLaine, Secretary, Farmington. 231. CRANBROOK, County of Huron.—John Whitfield, Master, Grey; John McNeil, Secretary, Grey. 232. WALES, County of Stormont.—John J. Adams, Master, Wales; Hiram W. Wood, Secretary, Wales.

Hon. J. C. DOUGLASS, Oakridge, has recently bought in Scotland the Clydesdale stallions, Marquis, black, 5 years old, and 3d prize winner at the Highland Agricultural Society's show this year; and Young Emperor, bay, 4 years old and also a prize winner.

BRITISH ENSTON, an imported bull calf by British Prince, out of Nonpareil 32d, has been sold by Mr. James Russell, of Richmond Hill, to Mr. Philip Poerneyer, of Ohio; also the two heifer calves, one Rose of Autumn 2d, by High Sheriff, out of Rose of Autumn, the other Wallflower 14th, by High Sheriff, out of Wallflower 11th.

MR. J. R. CRAIG, of Burnhamthorpe, has recently purchased from Col. J. B. Taylor, the Red Rose heifer, Rosa Jackson; the 11th, 12th and 13th Duchesses of Springwood; and the 17th Duke of Airlire. The price paid is a long one, but except that it is over \$12,000 we have no information of its amount.

DRIFFIELD, YORKSHIRE, claims the honor of having bred "the first short-horn." This famous animal, of which a picture was on view at the Show, was bred at Mr. Coates' Field Farm, not half a mile from Driffield, and now in the occupation of Mr. Craven. It was exhibited all over the country in a caravan. An immediate descendant, the sire Patriot, was sold for £500, a sum equivalent to perhaps double the amount at the present day.

JOHN SNELL'S SONS recently sold two Berkshire sows, to go to the Kansas Agricultural College.

THE SHORTHORN bull Sylvan Pride has been sold by Mr. Nicholson, of Sylvan, to go to Minnesota.

AWILD EYES cow purchased by Mr. Megibben of Kentucky, at Col. King's sale, has died lately from the effects of a fall.

MR. JOHN GRANT, for many years publisher of the *London Farmer*, died in Edinburgh, on Aug. 7th suddenly, of heart disease.

THE CHESTNUT FILLY, WILD BRIAR, has been sold by Mr. John Hendrie, Hamilton, to Capt. C. F. Elwys for \$1,500. She is a three-year-old by imp. Australian.

The Midland Farmers' Club has presented Mr. Mechi with ten Shropshire Down ewes and a ram, at a cost of about £60, in remembrance of a recent visit to Tipree.

ORANGE BLOSSOM 18th, imported last year by Ed. Hes from the Sittytton herd, has been sold by Messrs. Kissinger & Co., of Clarksville, Me., to Mrs. Kimberley of Iowa for \$3,500.

HON. MR. COCHRANE'S Airdrie Duchess 2d (dam of the \$18,000 cow) has given birth to a yellow-red and white bull calf by 11th Duke of Geneva. He will be called 6th Duke of Hillhurst.

JIM CHRISTIE, the famous half-mile race horse, is reported as having been sold by Mr. Middleton, of Orangeville, to a gentleman of Toronto. The price paid is reported to have been \$25.

THE "RESERVE NUMBER" two-year-old short-horn heifer at the late Glasgow Show, exhibited by Mr. Low, New Keig, has been sold to Mr. Collum, of Canada, for 150 guineas.—*London Farmer*.

THE EARL OF BECTIVE has sold his red bull calf, Duke of Underley 2nd, born February 25, 1875, by Third Duke of Gloucester, dam Eighth Duchess of Oneda, to Sir Curtis Lampson, for the sum of 1,750 gs.

FOOT AND MOUTH DISEASE exists extensively in King's and Queen's Counties, Ireland; and the Tipperary Farming Society will not hold their Annual Meeting in consequence of the prevalence of the disease in their district.

THE *National Live Stock Journal* announces that there will be issued from its office, at the commencement of 1876, a Short-horn Supplement, to contain such matters of detail relating to Short-horns as the *Journal* is unable to find room for.

SEVERAL YOUNG SHORT-HORN bulls from Lord Feverisham's herd were sold lately at Duncombe Park, Helmsley. Among them were:—Soekburn Duke, purchased by E. C. Tisdill, 48 gs.; Ryedale Duke, W. P. Horne, 50 gs.; Lord Oxford Bright Eyes, Lord Stourton, 50 gs.; Oxford Ryedale 2d, Mr. Snarry, 50 gs.

IN THE CANADA FARMER for May was a paragraph about Mr. Vanmeter's practice of working barren cows and his success in breeding from some previously supposed to be sterile. The 3d Duchess of Thorndale was mentioned as having been got safely in calf after three years barrenness. It now appears that she was not in calf at the time Mr. Vanmeter supposed her to be. This one instance to the contrary does not invalidate Mr. Vanmeter's theory, as working has proved successful in many other instances.

WE LEARN FROM *Bell's Messenger* that Hon. M. H. Cochrane has bought the Grand Duchess of Barmingtona, 3 yrs, 600 guineas, from Mr. E. Olliver; another from Mr. Sly, 500 guineas; and another from Mr. Leney, 200 guineas. Mr. Douglas of Ontario has purchased several fine Clydesdale horses—one, the Marquis, 5 yrs, for 400 guineas. We understand Time o' Day, 5 yrs, which took second prize at the Highland Agricultural Society's show at Glasgow last month, is also destined for Canada.

SALE OF A SHORTHORN HEIFER CALF FOR \$12,000.—Mr. E. H. Cheney, Gaddesby Hall, England, has sold to Messrs. B. B. Groom & Son, Vinewood Herd, Winchester, Ky., the red-roan heifer calf calved some seven weeks since, by 24th Duke of Airdrie 1725, out of 16th Duchess of Airdrie, by 10th Duke of Thorndale 826. The 16th Duchess of Airdrie is the heifer lately purchased by Mr. E. H. Cheney of Mr. A. J. Alexander, of Woodburn Stud Farm, for \$18,000, and she had this heifer calf since her purchase, for which Mr. Cheney receives \$12,000, making the 16th Duchess of Airdrie cost him only \$6,000.—*Live Stock Record*.

THE SALE OF THE LATE LORD SONDES' celebrated herd of polled Norfolk cattle and flock of Southdown sheep took place last month. The highest price was 60 guineas for Rosebud, a six-year-old cow, by Mr. J. J. Colman, M.P. The heifers sold remarkably well, several making 40 guineas. Fifty-one head of cattle realized £1,640, being an average of £32 each for young and old. Lord Henniker gave 55 guineas for Thursford Rose. Among other purchasers were Sir Robert Buxton, Sir William Ffolkes, Mr. C. S. Read, Mr. Brown, of Marham; and Mr. Cooper, agent to the Duke of Grafton. The sale of sheep realized over £3,300. The Duke of Manchester gave the highest price for a ram—37 guineas—and Mr. Colman gave 9 guineas each for five shearing ewes. The Prince of Wales bought a ram at 33 guineas, and several pens of ewes at 7 guineas each.—*London Farmer*.

MISSOURI HAS 2,032 Granges; Indiana, 2,031.

THE DOMINION GRANGE will hold its second annual meeting at Toronto on October 27th.

A SALE OF LAMBS at the South Mart in Edinburgh, Scotland, is announced at which 36,000 head are to be disposed of.

MR. ALBERT P. BALL, STANSTEAD, QUEBEC, has bought from Alvin Adams, the Jerseys, Empress, 216, and Lady, 288.

A DISEASE RESEMBLING the old epizootic has broken out among the cattle near Avon, N. Y. Forty animals died in two weeks, twelve in one day.

MR. JAMES RUSSELL, Richmond Hill, has sold to M. J. Corkery, the red bull calf Duke of Hamilton, by Imp. Inkerman (31416), out of Imp. Bloom 3rd.

MR. J. L. GIBB, Compton, has sold the Ayrshire bull Pilot to Richard Taft, Profit House; Lord Dufferin to Jas. Stephen, Trout River; heifers Crocus 2d and Park 4th, with a number of Cotswolds, to W. T. Lewis, Halifax; and Cotswolds and Berkshires to numerous buyers in Canada and the United States.

DEATH OF 6TH DUKE OF TREGONNELL.—Colonel Gunter has lost his most valuable bull calf, 6th Duke of Tregonneller, by 18th Duke of Oxford (25995), from his celebrated cow Duchess 9th. He was admitted to be one of the best Duchess calves the gallant colonel ever had. His death resulted from stricture of the gut.

JOHN SNELL'S SONS recently sold twenty cotswolds to go to Kentucky for \$1,200. Among them was "Cotswold Champion," two years old, whose weight was 425 pounds, whose girth was six feet three inches, and whose first fleece, at fourteen months old, weighed 12½ lbs. The price realized for him was \$200 in gold.

DEATH OF A PRIZE SHORT-HORN.—We (*North B. Agriculturist*) observe the death reported of another famous cow belonging to Lady Pilot, viz., Rose of Wytham, the three-year-old red which was first in the yearling class at Hull in 1873, and third at Bedford last year. Rose was by Gunpowder, now the property of Mr. Yool, Coulard-bank, Elgin, and was a thick, heavily-fleeced cow, of good Booth blood.

THE BEST OF THE LAST YEAR'S Lot of yearling Short-horn bulls presented to the Elnes tenantry, on Speyside, by the very liberal proprietor, Mr. Grant, was sold the other day to Mr. Collum, for export to Canada, at 80 guineas. The bull is a very superior animal, and was like the others distributed among Mr. Grant's tenants last spring, bred by Mr. Bruce, Newton-of-Struthers, Forres.—*N. B. Agriculturist*.

SHEEP SALES.—The *London Agricultural Gazette* for August 14th, contains reports of several sales of Long Wools: Cotswold rams averaged £10 17s; Oxford Downs £16; Hampshire Downs £18 2s 6d (one selling at 40 guineas); Leicesters averaged £13 (one bringing £86 2s); Shropshires ranged from 8 to 40 guineas. At Bingley Hall, the sale was the largest ever held at this season. The *Gazette* says a large proportion of the stock was bought for export to Canada and Kentucky.

SHEEP FOR THE MODEL FARM.—The *Guelph Mercury* says: Mr. James Striton, stock manager at the Model Farm has, for the past few days, been engaged in selecting from the flocks of the principal sheep breeders in Ontario. He returned home last night, having succeeded in securing over thirty of the finest Cotswold ewes that could be obtained. There are now, in all, about forty Cotswold and twelve Leicester ewes (all pure bred) on the farm, and it is intended shortly to add a flock of Southdowns.

MR. A. P. BALL, of Stanstead, Q., has sold to the New Brunswick Government the yearling Jersey bull Jamott 1532, and a bull calf; yearling heifer Fawntta and a heifer calf; cows: Beauty 2d 3623, and Beauty 3d 3624; also Ayrshire bull and five heifer calves; yearling heifers, McMartins' Lassie 3d 2869, Dutely 2d 2282, Sithead 2d 3190, Gypsy 7th 2443, Lachine Lass 4th 2618; two-year-old heifers, McMartins' Lassie 2d 2868, Jenmet 4th 2552, and cows Julia 3d 1361, and Whiteface 3295, together with a Berkshire boar, and sow in pig.

MESSRS. MAJOR & SONS, Whitevale, have lately purchased in England Lady Fuchsia, a red and white of 1871, by Earl of Gloster (21,614), out of Cambridge Fuchsia, by 2nd Duke of Cambridge. She is of Bates blood, of his Fletcher tribe, and the only one on this side of the Atlantic, so far as we know. There are but few of them in England. At the late sale of the herd of Mr. Philips, Heybridge, Fuchsia 9th brought 960 gs., and Lady Fuchsia's 8 months old c. c. sold for 430 gs. She is now at Hillhurst, on a visit to the \$14,000 2nd Duke of Hillhurst. Next come two of the Verbena family. Verbena 4th is a fine, large, stylish, red and white cow, of very aristocratic appearance and lineage; and she had a red b. c. since leaving England. The other, Verbena 6th, is a younger sister, red and stylish. Both are by Wolfra (25,469), out of Verbena 2nd, by Lord Liverpool (22,165). The family has been bred by Earl Ducie, Capt. Blathwayt and Mr. Philips, by building Bates and Knightley blood, with a cross of Treason through Usurer, on a good solid foundation of Robertson of Lady Kirk's blood.—*Country Gentleman*.

THE DATE OF THE SALE of Messrs. Corbin & Patterson's Short-horns, Paris, Ky., has been altered from October 28 to October 18.

THE NEW ZEALAND LAND COMPANY, by their agent, Mr. Brydone, recently bought three very promising Short-horn heifers from the Duke of Richmond.

COL. L. P. MUIR of Kentucky has become associated with Mr. Wm. T. Bailey in the publication of the Short-horn Reporter, abandoning the intention of establishing one of his own.

THE DEATH IS ANNOUNCED of James Douglas Hazzard, once Secretary and Treasurer of the Royal Agricultural Society of Prince Edward Island. He died at his residence in Charlottetown, aged 78 years.

THE TWO-YEAR OLD SHORTHORN HEIFER, Wallflower 12th, by Kinnellar 2d, out of Wallflower 11th, and the yearling heifer Wallflower 13th, own sister to Wallflower 12th, have been sold by Mr. J. Russell, Richmond Hill, to Mr. James Gardhouse, Highfield.

MR. ABRAHAM RENICK'S Rose of Sharons, says the *Live Stock Record* are in great demand in England. He received a cable dispatch on Monday inquiring the price of five of them. He answered, giving their price, and no doubt we will shortly chronicle their sale.

THE TOTAL SUM REALIZED at the sale at Paris, Ky., lately of the Short-horn herd of James Sudduth was \$5,200 for 31 head, averaging per head \$163. The highest prices were:—Carnation 3d, Patterson and Corbin, \$490; Windsor Belle, J. J. Ireland, Paris, \$310.

KIRKLEINGTON DUCHESS 20th has been sold by Mr. R. Pavin Davies to Mr. John Martin, of North Lancashire, for 390 guineas. Three heifer calves by 6th Duke of Kirkleington, out of Jessie 35th, Jessy 37th, and Gazelle 3d, have also been added to Mr. Martin's herd.

THE RULE OF THE SHORTHORN SOCIETY of Great Britain disqualifying for entry in the Herd Book of bulls with only four crosses in their pedigree has been relaxed. Such bulls will be entered in the forthcoming volume of the Herd Book but will be recorded in a separate list.

MR. JESSE S. LONG, a noted Short-horn breeder of Central Iowa, committed suicide recently, by hanging himself. The cause was extreme anxiety caused by the near approach of his first sale day, an event to which he had long been looking forward. He was quite wealthy.

A NEW DISEASE HAS BROKEN OUT among the swine in Western Missouri, which affects them most singularly, and has resulted in the death of a number of hogs. When first attacked, the hog squeals as if in intense pain or fright; the legs and back then break out with an eruption, leaving the flesh raw, and his porkship soon after yields up the ghost.

MR. HENRY DENIS DE VITRE sold at the recent Taunton Show, his first prize bull calf to Mr. Brydon, the representative of the New Zealand Land Company. The calf is named Duke of Oak; he is red and white, 11 months and a few days old, and was bred by Mr. De Vitre; sire, Duke of Kinnear (30977), dam, Grand Duke's Butterfly, by 4th Grand Duke (19874).

MR. DOWNING, OF FERMOY, COEK, sold at Taunton at the Royal Agricultural Show, his fine two-year-old heifer Veronica, for export to the United States. Veronica was highly commended in her class, she is red, and not yet turned 2 years and 2 months old, and was bred by her calculator; sire, Lord Stanley (21466); dam, Vestal Queen, by Hero of Thorndale (18061).

MR. J. R. CRAIG, of Banhamthorpe, will hold a sale of his Short-horns at Toronto, on Dec. 3. The great attraction will be three Red Roses of the same strain as the two animals that at Lord Dunmore's sale realized 1,950 and 1,250 guineas respectively. One of Mr. Craig's Red Roses is due to calve in about six weeks.

MR. F. W. STONE, HAS RECENTLY RECEIVED the following Short-horns from England:—Consolation by Earl of Lancaster (21607); Anchoy by Caballer (28114); Polyanthus by Duke John (30913); Sultana 7th, by 2d Grand Duke of Geneva (31288); May Flora 3d, by 6th Duke of Oneda (30997); Desdemona by 3d Duke of Geneva (21592); Queen of Weston 2d by Duke of Kent (23979); Queen of Weston 5th by Cherry Fawley (30711); Sempstress by Cherry Grand Duke 5th (30712); Dadora 3d by 2d Duke of Milcote. These cattle are from the herds of Messrs. Levey of Wateringbury; Sir George R. Philips, Weston Park; and Mr. A. Mumford of Brill.

WE (*Michigan Farmer*) REGRET TO BE OBLIGED to announce the loss of the grand three-year-old Short-horn heifer Twelfth Maid of Oxford, one of the herd purchased by Messrs. Avery & Murphy from L. G. Morris, of Mount Fordham. This cow was in calf and seemed in perfect health up to a short time before calving, when she died quite suddenly. A post mortem examination showed the cause of her death to be a piece of wire, such as is used to bale hay and which had penetrated some distance into the substance of the heart. The piece of wire was about six or seven inches long. The Twelfth Maid of Oxford was very highly bred, and was originally purchased at the sale of Messrs. Walcott & Campbell of New York Mills. Her sire was the 4th Duke of Geneva (30959).

Seeds, &c.

Winter Wheat—"Gipsy" Wheat.

EDITOR CANADA FARMER:—Will you, or some of the readers of the FARMER, or both, give the real names of some of the varieties of winter wheat that succeed best in the Dominion or the United States, and would likely to do well in Southern or Central Ohio? The variety that succeeded best with me the present season is that known as the "Gipsy." The name is not very prepossessing, but if the article continues to give satisfaction, we can make due allowance for the name.

Pleasant Plain, Warren Co., O.

WM. FERRIS.

In Canada, the Seneca or Clawson, this year, has succeeded better than any other sort, and it is, without doubt, the coming wheat. The *Diehl* is grown extensively, and is a good variety. Treadwell succeeds well, but is only a No. 2 wheat, grading with Spring Soule's has been good, but is run out. Mediterranean and Turkey, bearded wheats, stand our winter well. Scott and Midgeproof, two amber wheats, closely resembling each other, have also been successfully grown. Our readers would find it to their interest to exchange information on these points through our columns in no freer than they do at present. Now, some of you, just tell us what you have found out this year about both winter and spring wheats.

The Liability of Seedsmen.

EDITOR CANADA FARMER:—There is one evil under the sun to which farmers are often exposed, without being able to help themselves, and that is the failure of seeds to prove true to their name. I am not disposed to join in the complaints so frequently, though not always with sufficient cause, brought against seedsmen because seeds fail to grow, for that is very often the fault of the purchasers, who often neglect to observe the conditions requisite to secure germination, especially of small seeds, most of which can easily be tested before sowing. But when seeds do grow, and grow well, and yet turn out to be a different variety from what they were represented to be, then at least the farmer is not to blame.

I have on two different occasions purchased seed beans from two different seedsmen for Dwarf Beans, on both occasions they came up well, but as the crop advanced, they proved to be about half of them white runners. Certainly, these produce as good crops as the other, but they are too late in ripening, and as we generally have more or less rain early in the fall, part of the crop is pretty sure to be lost.

I have not complained of this before, because I was under the impression that I had no legal remedy. I complain now in hopes that our Ontario Legislators, who are all directly or indirectly dependent on the farmers for their support, will, at the next session of our Ontario Legislature, be induced to pass a law to enable farmers to recover from seedsmen the price of any seed which may grow well but prove untrue to name, and thereby confer a benefit on those who not only work hard to provide the means for their support, but also by their votes return them to Parliament whenever the occurrence of an Election gives them an opportunity of doing so.

SARAWAK.

Hulless Oats.

In answer to our request, last month, for information from uninterested parties, as to how the Hulless oats are turning out, we have received the letters below, and also a good big sheaf of the oats, together with a small sample of the grain. The grain is a nice-looking sample, certainly not inferior to that which was sent to us in the Spring. The straw is about four feet long and stout in appearance, but was decidedly musty either on account of it having been rained on or from it having been out green. Probably, the latter is the case as the "promoters" of the oats claim cutting green to be a quality of the oats will not thresh.

If there were not the experience of the preceding generation against them, the experience of this year with the Hulless oats might be taken to demonstrate that they are a valuable acquisition. We have done our duty to our

readers in acquainting them with the historical facts in the case. By printing the letters below, we give the case in favor of the oats, in doing which we are merely carrying out the idea of impartial and fearless justice with which the CANADA FARMER will treat all questions relating to the welfare of its readers.

The oats will stand or fall on their own merits. They are pretty well known now, and, if valuable, will be the better for the attention that we have directed to them. If they fail to come into general use, we shall have saved thousands of dollars to our readers. The correspondence mentioned above, follows.

EDITOR CANADA FARMER:—Being asked, as a disinterested party, to give my opinion as to the Bohemian oats, I would say that, although a mechanic by trade, I was brought up a farmer and have a knowledge of the science of agriculture. I have visited a number of fields of Bohemian oats growing in the vicinity and feel bound by a sense of duty and a desire to benefit my fellow beings to state, as my opinion, that these oats are far superior to any other variety of oats I ever saw, being a finer quality of grain and yielding more pounds to the acre.

WILLIAM WALKER
Carriage Maker

Peruvian Flour Mills, Beamsville.

EDITOR CANADA FARMER:—Having been asked the question by a number of farmers on the propriety of raising "Bohemian oats," not being a farmer, as a disinterested person, having visited many farmers in this locality on which the oats are being raised, I have much pleasure in stating I am fully satisfied that those parties raising them will reap a rich reward, being a very heavy crop on the ground; and as they are about one third heavier than the common varieties, the yield per acre in bushels will far exceed them. I have also tested them for domestic purposes in the manufacture of oat meal which has been pronounced by competent judges to be the best they ever used in their families.

ROBERT HEMPE, J. P.,
Reeve of the Township of Chatham.

EDITOR CANADA FARMER:—Having been invited as disinterested persons—being neither growers or dealers—to inspect a field of Bohemian oats on the farm of Mr. R. S. Merrill, we went there for this purpose on the 24th inst.

The field contains ten acres. The oats were cut and Mr. Merrill with four men were engaged loading and setting up. They had nearly half of the field in shock. There were seven rows of shocks, thirty-five in the row, ten sheaves each. On pacing the remainder of the field, we found it would yield eight rows more, making in all something over 5,000 sheaves. The shape of the field is like a sheet taken up at three corners. At each of these corners about one acre was left, the three acres yielding about 1,000 small sheaves, the other seven acres giving 4,000 large sheaves. Judging from their weight, we think they will yield five H of grain, that is a bushel of fifty from each shock or 500 bushels from the field.

Mr. Merrill informed us he sowed twelve bushels of seed on the field, and that he has fifteen acres more as good as this, but we did not go to them. The twenty-five acres got thirty bushels seed at \$10 per bushel, \$250. He says he was a little scared at the investment, but with the prospect of getting fifty bushels an acre in return he is very well satisfied, as the cost of the seed is only twenty-four cents per bushel.

We heartily congratulate Mr. Merrill on his magnificent crop.

J. B. OSBORNE,
CAPT. KILBORN, J. P.

Beamsville

Australian Wheat.

Mr. Meeh says, in the *Agricultural Gazette* Australian wheat—which is, I presume, only English wheat Australianized (for the aborigines never grew any wheat)—sown on November 30, was ready for harvest fully 14 days before the English red wheat sown the same day beside it. It appears to me to bring with it the climatic characteristic of a hot, ripening season, with very little straw and flag, but a kernel well filled with flour, and less watery than ours. Still it does not look like a yielding crop as compared with our own, either in corn or straw, but that I shall test, and report upon hereafter. It looks as though it would "stand" high farming, and not be laid like our home-grown sorts. At present it is estimated to yield only half as much grain as its neighbor. This wheat was steeped in a solution of sulphate of copper (blue stone), and is the first I have succeeded in getting perfect, having previously omitted to steep the samples sent. A neighbor who sowed some this season and omitted to steep it, told me it was an entire failure, just as mine used to be. There is a tendency to beardness and irregularity of sort, as though there had been neglect and crossings in the seed. The sample sent was of very fine quality, and I have to-

day received two additional samples from Tasmania. It becomes a question whether, in late districts, growing corn from hot, early ripening countries might not be advantageous. Trials on a small scale can do no harm.

BRITISH QUEEN STRAWBERRY.—Among all the strawberry berries, writes *The Gardener*, that come to Covent Garden Market, Myatt's British Queen still retains the first position, both as to flavor, price, and the quantity sold. This fact is, of course, well known to most London strawberry growers; but in many country gardens this fine variety is so often discarded for newer and less meritorious ones that the above facts may be worth bearing in mind.

CANADIAN BARLEY is in some danger of falling from the high estimation in which it is now held in the United States. Objections are made that the two-rowed and six-rowed varieties are mixed together and their value thus destroyed for malting purposes. Barley is so risky a grain to hold that farmers cannot be too careful in cleaning and giving it the best appearance. No, 1 barley is always marketable at the highest price, while common grades may go a-begging when there is the least sign of a glut.

NEW POTATOES.—A market gardener writes to the *American Farm Journal*: "Of potatoes it is nearly impossible to take any stock in new kinds at all. The Early Rose is all right, and the peerless is all right in some places, in others it is worthless. The Early Vermont is certainly the Early Rose, or all the potato growers here are mistaken, as well as ourselves. The great Compton's Surprise turns out to be the old Jersey Blue-Nose that was discarded years since. Brownell's Beauty seems worthy of further trial; possibly some good thing may come of that. So in the whole list of garden vegetables, there are lots of humbugs. They would not amount to much if all the gardeners would write accounts of their failures, but the trouble is the most of them do their 'cussing' to themselves, and let the rest learn by experience, and all the seedsmen rejoice therewith." The CANADA FARMER has also good reports about Brownell's Beauty. We give the remainder of the above information for what it is worth.

Correspondence.

Lucerne.—Will our Brantford subscriber, with whom we had some conversation last spring about Lucerne in which he was about to sow, give us some particulars of his success or non-success?

POTATO-DIGGER WANTED.—W. C. D., wants to know where he can obtain McCallum's Potato-Digger and Picker combined. The makers of the implement should make their whereabouts known through our advertising columns.

SPIDER GRASS. Subscriber, Munroe.—The beautiful grass growing in swampy places, and known familiarly as "Spider grass," is the *Agrostis capillaris*. Michx. calls it *Poa hirsuta*. Lamour, *Poa capillaris* and *Panicum capillare*.

SALT CRACK MUCK.—W. H. M., Upper Woods Harbor, N. S., writes us: "Would you be kind enough to inform me of the best way to apply salt crack muck to the land, or if it is any good as a fertilizing agent. This salt crack muck, so called, consists of a deposit of decayed eel grass, marsh mud, and other marine matter lying in the bottom of creeks or small inlets opening into the harbor. As many more readers of the CANADA FARMER may be interested in this subject, I should like to see it treated from experiments already tried."—We have had no experience with salt crack muck, but should say that in conjunction with farmyard manure it might be valuable. Will some of our readers who are better posted oblige us and the enquirer by telling what they know?

PLANT AND MOTH FOR NAME.—C. J., Presque, Ont.—The plant sent is Early Cress, *Arabis hirsuta*, a cruciferous plant. The moth is the *Arctia Americana*, the largest of the *Arctide* family and closely resembling the English Tiger-moth, *Arctia carya*. It is rare in this neighborhood, but is common in new countries. The larva feed on the *Chenopodium*, Lamb-s-quarter, and on lettuce and several other plants. They hatch out and when winter comes are about three-quarters of an inch long, in which condition they hibernates. Your second letter, two moths one having plain ash-gray wings marked underneath with bands of bright rose pink and black. It is the *Catocala ulmona*. The larva feed on willow and poplar and sometimes on wild plums. The other moth was so damaged in transit that the only thing determinable about it is that it is an *Agrotis*, the larva of which is injurious to cultivated crops.

Miscellaneous.

Running Splice.

EDITOR CANADA FARMER:—The knots described by Mr. Spence in your last number are very useful at times. I can only add a description of what is called a "running splice," used when a rope is required to run through a block, for which a short splice would not do, as it doubles the thickness of the rope. It is put together in the same way as a short splice, but after the strands have been untwined far enough (and they should be untwined farther than for a "short splice") one half of each strand is cut off lengthwise, so that when the splice is finished, the part spliced is no thicker than it was before.

If Mr. Spence will take a cord composed of more than three strands, he will find it can be spliced as readily as any other.

It is not always considered a disgrace for sailors to go up or down through the lubber holes, as some masters of vessels will not allow fattock shrouds to be rathened, so that the men must use the lubber holes, and besides they can go up faster that way, whenever that useful instrument, the marine barometer, gives indications of an approaching squall, and all hands have to be sent aloft in a hurry to take in sail. SARAWAK.

The Norwegian Method of Making Hay.

A correspondent writes to the *Agricultural Gazette*, apropos of the bad haying season to call attention of farmers to a plan adopted by the farmers of Norway for the purpose of protecting their grass, when cut, from rain. It is not at all unusual there for the grass to lie out for two months, or even more, and of its quality, when it has been so treated, experience speaks very favorably.

The plan is this:—Stakes about 6 feet long are put up in sets, of four or five in a line, in every part of the field, the lines running in a direction about east and west. Across these, and about 15 or 18 inches apart, are lashed thin cross poles made from the waste of wood clearings, and untrimmed. When the hay is cut, the men, women and children go out in the fields, and in whatever condition the grass is, whether wet or dry, hang it over these cross bars. To do this, a good large handful of grass is taken, one end thrust between the bars, and then the two ends, on different sides of the bar, are bent down so as to hang across it like clothes on a line. In this way the grass is piled up all along the bars and handful above handful to within a few inches from the bar next above. That is next taken, and in this way the hay is packed up into what appear like grass walls, and by this means it stands out defying the worst weather of a climate so wet as that of Western Norway. The spaces serve for ventilation, the thickness is not sufficient for heating, and it is raised above the wet and steaming earth, so that sun and wind when they come have their full effect upon the mass and speedily dry it; while the protection afforded from the rain is quite remarkable for such a simple system.

Medicinal Uses of the Sweet Flag.

The Sweet Flag, *Acorus calamus*, says Anslic, "is a very favorite medicine of the Indian practitioners, and is reckoned so valuable in the indigestions, stomach-aches, and bowel affections of children, that there is a penalty incurred by any druggist who will not open his door in the middle of the night and sell it if demanded." A bath made of the infusion of the root "is regarded as an effectual remedy for epilepsy in children." Schroder informs us that "it possesses virtues in obstructions of the spleen and liver." The Egyptians regard it as a valuable aromatic and stomachic. The Turks prepare a confection of the root, and employ it "as a preventive against contagion." "European practitioners have considered the root as tonic and aromatic, and occasionally prescribe it in cases of intermittent fever and dyspepsia."

Dr. A. T. Thomson recommends it as an anti-periodic; and Dr. Æ. Ross reports that it is an excellent stimulant and diaphoretic; he looks upon it "as most serviceable in atonic and choleraic diarrhoea. As an insecticide, particularly with reference to fleas, I have always found it very efficacious; but for this purpose, the root must be obtained fresh. Last year, the chief cause of mortality among the house patients of the Seoni Main Dispensary was dysentery; the gael population also suffered very much from the same disease. The disease is most prevalent about the middle of the rainy season, that is, during the

months of July and August. The disturbance probably of the water-supply, especially when this is derived from tanks and streams, and the dampness of the season are, in some measures, I think, accountable for the appearance of the disease. In many of these cases, a malarial taint could be detected. Ipecacuanha does not, I regret to say, always succeed in these cases. There were no less than sixty-nine cases of dysentery treated in the Main Dispensary during the months of July and August. I found a decoction of the rhizome of the *Acorus calamus* very effectual in arresting the flux of blood, especially in the dysentery of children. The decoction is prepared thus:—Of the bruised rhizome, 2 ounces; Coriander seed, 1 drachm; black pepper, half a drachm; water, 1 pint; boil down to twelve ounces and set aside to cool. The dose for an adult is an ounce three times daily; for a child, 1 to 3 drams, sweetened with sugar, two or three times a day. Astringent extracts or quinine might be added if necessary."

Where Do They Come from?

A correspondent of the *New York Tribune* asks the question about the sudden appearance of a new order of plants on soil of which the previous condition has been altered. The case is cited where the Hon. George Geddes reclaimed some ten acres of land which for seventy-five years had been submerged by a mill-dam. It appears that this pond in that time had filled up from four to six feet deep with brook sediment; that this sediment was so soft that it was mid-summer before a man could go over it to sow some grass seed; that this seed germinated and promises an abundant crop. A strange thing happened in connection with this pond mud that is not easily explained. It is this to which especial attention is drawn. There appeared upon it, late in the season, an immense growth of a strange grass, overtopping the plants that came from the seed he sowed, and became so dense and long that he supposed it would smother out his plants. He had the strange grass cut and made into hay of little value. This new-comer, that sprung out of the pond mud—not in sparse plants, but in a dense mass—Prof. Prentiss of Cornell University calls rice-cut grass. Then he asks a pertinent question, which learned and experienced contributors are requested to satisfactorily answer: "Where did it come from?"

Did it come from seed which had been washed down by the brook from above, and if so, did this seed lie and keep sound in that mud thus covered by water for generations, and germinate so luxuriantly as soon as the water was drawn off, and take the lead of pure, sound seed so recently sown by the writer? These strange things are continually happening. "I am told that the old fields of Virginia, which have been cultivated for hundreds of years, when abandoned, as they frequently are, are almost certain to produce a crop of pitch pines, and no other kind of evergreens or trees. Do they come from seed? Again, when the dense forests of hemlock are cut off for lumber, and the annual fires run through and burn up the limbs and other refuse, the next season is sure to bring a dense crop of what is commonly called fire-weeds, and nothing else, to be succeeded the next year by an equally dense growth of blackberry vines. There had not been any fire-weeds or blackberry vines growing on this land for perhaps a thousand years before. Again, I have seen quite a dense growth of hemlock spruce (*Abies Canadensis*) growing out of earth taken from the bottom of a shaft sunk for iron ore, perhaps 50 feet deep or more. Now, there had been no vegetation growing out of that earth for 20 centuries, and it may possibly be 20,000,000 of years. Many other instances of the kind might be mentioned, but these are sufficient for my present purpose. The question recurs and demands an answer: "Where did they come from?" Did they come from seed? If so, then seed must have a most wonderful vitality. Or, is Prof. Tyndall correct in the formula recently advanced by him that "matter contains within itself the power and the potency of all life."

My opinion is that they did not come from seed, but that a certain condition of soil (or matter) and climate will produce a certain kind of plant, which opinion I may hereafter more fully elaborate, if not convinced to the contrary."

TO FIT A KEY.—When it is not convenient to take a lock apart to fit a new key, the key blank should be smoked over a candle, inserted in the keyhole, and pressed firmly against the opposing wards of the lock. The indentations in the smoked portion made by the wards will show where to file.

ASCENT OF WATER IN TREES. Prof. McNab has presented to the Royal Irish Academy a memoir on the ascent of water in the stems of plants, to investigate which point very many experiments were made. He finds in the privet the rate of ascent to be about six inches per hour; in the elm, 16.6 inches, in the cherry laurel the rate varied from 24 to 12 inches. Experiments were also made as to the influence of sunlight and darkness, the influence of the leaves, and the influence of pressure.

The Wheat Weevil.

There is a wrong impression as to the character of this insect (*Calandra Granaria*) and especially in reference to the time of its chief depredations. Quite early in the spring, while wheat was not yet in blossom, reports came from some interior counties that the weevil was thus early committing extensive depredations. From many other localities we heard similar reports, but a little later in the season. These were founded in misconception, for the truth is the weevil properly preys only upon the grain, commencing its ravages about the time of its ripening and continuing them long after it is gathered into the granary—hence the name of grain or granary weevil.

The grain weevil in its perfect state is a dark or pitchy red winged beetle or bug, about one-eighth of an inch long. It has a slender proboscis or snout, curving a little downward. The thorax, or chest, constitutes about one-half of its body, and is nearly as large as the abdomen, or belly, lying back of the middle ring. The thorax is punctured with a large number of holes, giving it a rough appearance. Over the abdomen are delicate wings, which are shielded by wing covers, having lines or furrows upon their upper surface running parallel with their length. The wings do not entirely cover the tip of the abdomen. The female punctures the ripening or ripened grain with her beak or rostrum, and deposits one and sometimes two eggs.

From the egg is hatched a grub or worm, which eats its way into the grain, closing up the aperture behind it with excrements so that it lies perfectly shielded from external injury. No mechanical action short of crushing the kernel can disturb the destroyer. They are effectually destroyed by kiln drying the grain. This grub or worm grows to about one-twelfth of an inch in length; its body is white and soft, with nine rings around it. The head is small, round, yellow-colored and provided with cutting instruments. Arriving at maturity, which is not till the flour portion of the wheat kernel has been principally devoured, this worm or larva assumes a nymph or chrysalis state (like that between the worm and the butterfly), and within two weeks after the perfect weevil is formed, which eats its way out through the shell and goes forth to deposit its eggs in turn upon other sound kernels. They are very productive, a single pair often multiplying to 5,000 or 6,000 in a single year. Both the perfect insect and the grub feed upon the grain.—*New York Herald.*

TO DRIVE AWAY RATS.—An English Journal gives the following recipe which it says has proved very successful: Take some glass and powder with pestle and mortar, then mix with some lard into pills, and drop into the rat holes. It will drive rats and mice out of the place; they die of decline.

TREATMENT OF NEW WOODEN UTENSILS.—Wooden vessels for containing articles of food and wine, and wooden vessels for culinary purposes, can be rendered fit for immediate use by the removal of the unpleasant extractive matters, by treatment with a solution of washing-soda. Thus an ordinary barrel should be half filled with water, and a solution of about two pounds of soda in as much water as will dissolve it; then head up the barrel and thoroughly mix the liquids by shaking the barrel, which should then be filled to the bung with water, and allowed to remain for twelve or fourteen days; then after withdrawing the discolored liquid, it should be well rinsed and filled with pure water and allowed to remain several days, when it will be fit for use. Other wooden vessels may be treated with a similar solution of soda.

CONCRETE.—In answer to your question respecting concrete or asphalt, I have done a great deal successfully for walks and some kind of floors, such as the floor of a pig-house, but have never attempted it for heavy traffic. It is neither difficult nor expensive. Of course a great deal depends upon the cost of material; the labor is trifling. I have used screenings of gravel (I don't like it clean, but mixed with sand); I have used sand alone when I could not get anything better, blacksmiths' ashes, and ashes from my engine. The last I did was for our churchyard walks; for those I got the screenings of Leicestershire granite, which made a splendid path, but of course, more expensive—the granite cost 10s. a ton. It is quite an unnecessary expense and trouble boiling the tar. Get your material dry, mix it with tar, turn it over twice, and let it lie a couple of days, then turn it again, and mix a little lime with it, about a tenth, let it lie another day, and then on a fine, sunny day lay it on, rake it even, and roll well as soon as it will roll, in an hour or two's time; if the roll does not work well (it ought to do if the stuff is not mixed with too much tar) scatter a little dry sand over it. Every summer I brush my walks over with cold tar, and give a good sprinkling of sand, and they are as good now as when first put down, fifteen years since. Any laborer can do it, only take care before laying it down it is of proper consistency. When ready, it ought not to show the least of tar, but should be a dull, dead black, and when moved with a shovel, ought to be "lively," exactly like a mass of mites in a cheese. The stuff will keep a long time in a heap if covered up or kept dry. I shall be glad to give any further information.—*Cor. Agricultural Gazette.*

COAL ASHES, sifted very finely, thoroughly ground, and mixed with oil, make a good cheap paint. Any coloring matter may be added.

"THE PATRON'S STANDARD," quartett and chorus, E. N. Mosser & Co., Mechanicbury, Pa., is a spirited and simple song, intended and adapted for Grange use.

THE CONSOLIDATION IS ANNOUNCED OF THE Missouri Farmer and the Journal of Agriculture, the joint product to be published weekly in St. Louis. It will doubtless be a valuable journal, as each of its components had good points.

THE FORTHCOMING CATALOGUE of the Lansing, Mich., Agricultural College will contain the names of 156 students, being 15 more than ever before catalogued. Of these 16 are seniors, 22 juniors, 22 sophomores, 83 freshmen, and 13 specials.

Mr. L. H. SMITH, of STRATHROY, ONT., has recently sold to Mr. Middleton his held trial setter bitch, Lissey, by Leicester, out of Dart. Mr. Middleton takes Lissey to Japan, and we trust he will not share the fate that has met so many fine dogs imported into that country and China. The last named is a particularly fatal climate for dogs, a setter seldom lasting more than one or two seasons. - Fanciers' Gazette. Is our contemporary making a joke about Chinese gastronomy? Dogs are the same to a Chinaman as a cold missionary to the South Sea Islander.

BEECH TREE STRUCK BY LIGHTNING.—The question has been frequently asked for years if ever lightning was known to strike the beech. A gentleman writes to the North British Agriculturist. - I am now able to state that lightning does not evade the beech, and that a beech tree of some 25 to 27 cubic feet clean, and free from branches, has been struck by lightning some two or three weeks ago during one of our passing thunderstorms. The electric fluid seems to have struck the bole about the middle of stem (where it is quite shattered), and rent the tree from top to bottom from the heart. It is to be seen in the middle of a small wood, called Dingdale, surrounded by trees of a similar size, north of the "Downe Arms," Wykeham, near Scarborough.

WINTERGREEN OIL.—The Wintergreen, Gaultheria procumbens, is distilled and an oil produced in the same manner as the oil from peppermint, spearmint, etc., says a Country Gentleman correspondent. - When peppermint was a staple article of production in Berkshire County, Mass., the farmers often wound up the season with a few charges of these other articles. Wintergreen oil can be produced where the plant grows in sufficient abundance, as it generally does in the mountain regions of the Eastern States, and I presume in the northern and eastern parts of this State. Within a year or two I remember passing a small wintergreen distillery on the road from Beach's bridge, over the Black River, in Lewis County, to Kenton's.

BUTTER AND CHEESE EXPORTS.—For the twelve months of 1874, the receipts of Butter at New York were 980,943 packages, against 948,520, in 1873, and 695,829 in 1872. The receipts, reduced to pounds, in 1874, were 68,666,010 pounds, and the year previous 66,396,400 pounds. The average price for all grades, both eastern and western, was about 30c., which gives over \$20,500,000. The receipts of cheese in New York for the twelve months of 1874 were 2,046,575 boxes, against 2,007,663 boxes in 1873, and 1,718,732 boxes in 1872. The exports from all United States ports during the fiscal year ending June 30, 1874, were 90,611,057 pounds. The official statement of Canadian exports were 23,183,223 pounds, exclusive of exports to the United States, making a total American export of cheese of 113,794,280 pounds.

WHAT WE ARE MADE OF.—Dr. Lancaster, of London, recently analyzed a man, and presented the results of his investigation in palpable form to his audience during a late chemical lecture. The body operated upon weighed 158.4 pounds. The lecturer exhibited upon the platform 23 1/2 pounds carbon, 2.2 pounds lime, 22.3 ounces phosphorus, and about 1 ounce each sodium, iron, potassium, magnesium, and silicon. He apologized for not exhibiting 5,695 cubic feet of oxygen, weighing 121 pounds; 105,900 cubic feet of hydrogen, weighing 15.4 pounds, and 52 cubic feet of nitrogen, likewise obtained from the body on account of their great bulk. All of these elements combine into the following: 121 pounds water, 16.5 pounds gelatin, 132 pounds fat, 8.8 pounds fibrin and albumen, 7.7 pounds phosphate of lime and other mineral substances.

A SINGULARLY FATAL OCCUPATION.—The statement has been made by a Sheffield, England, physician, that the fork-grinders' employment is probably more fatal to human life than any other pursuit in England. According to this authority there are generally from eight to ten individuals at work in the room in which this industry is carried on, and the dust which is created, composed of fine particles of stone and metal—the grinding being always performed on dry stone—rises in clouds, and prevades the atmosphere to which the operatives are confined. The dust, which is thus every moment inhaled, gradually undermines the vigor of the constitution, and produces permanent disease of the lungs, accompanied by difficulty of breathing, cough, and a wasting of the animal frame, often at the very early age of twenty-five, and the average longevity of fork-grinders is found not to exceed thirty years.

SUBSTITUTE FOR HEMLOCK.—The Lewiston (Me.) Journal says: "It has long been a question what the Maine tanneries would do for bark when the hemlock forests should become exhausted, which bills fair to occur at no distant day, but it has now been found that sweet fern, which springs up in great quantities where the woods are removed, possesses valuable tanning properties, and measures are being taken at Ellsworth and vicinity to utilize it."

SCREWS vs NAILS.—Most mechanics who work in wood do not appear to understand the eminent superiority of wood screws over brads and nails. In many places one screw is worth three or four nails. When one is securing cleats to batten doors, or cleats to a wagon box, nails are very unsuitable when compared with the efficiency of gimlet-pointed screws. Screws will hold two pieces of wood more rigidly than nails; and, if the timber should shrink a trifle, the screws can be turned up tight; whereas it is difficult in most instances to tighten up loose work with nails in all places where there is an unusual strain on the parts to be held together.

THE WADSWORTH ESTATE is the subject of a letter from Mr. A. B. Allen to the Agricultural Gazette. He says that it consists of about 80,000 acres, occupying parts of the five counties of Genesee, Livingston, Monroe, Erie, and Niagara, in this State: "One may walk from a few miles above the village of Genesee to the city of Rochester, a distance of about 36 miles, without stepping off this magnificent domain." About 3,000 acres are flats in the Genesee river valley, from one to three miles in width, overflowed almost annually by that stream, and thus constantly enriched without artificial agency. The chief business of Messrs. Charles F. and James W. Wadsworth, who retain farms of about 3,000 acres each under their individual management, is the grazing of steers; and it was in this way that they were led to devote especial attention to the breeding of Short-horns. Of their herds Mr. Allen speaks in the most favourable terms, as might be expected.

BOYS WHO WILL NOT MAKE GOOD FARMERS.—If the only good that a boy ever did about the farm was to repair the pump, hang gates, make mole-traps, put in rake teeth, file the saw, and hang the grindstone, and he did these things well, obviously the farm is not the place for him—but a machine shop is. If a boy will walk a half-dozen miles, after the day's work is done, to hear a political speech; if he takes time from play to attend trials before a Justice of the Peace, and sits up half the night when he is going to school to learn declamations which bring down the house at spelling schools, most likely he will do the world more good if you put a law-book and not a manure-fork into his hand. If he earn more money in trading jack-knives and fish-lines on rainy days than he does in hoeing potatoes and cutting grain in fair weather, give him a chance at the yardstick, and not have him around troubling the other boys who are handling horse-rakes and pitch-forks, and the like employments. Again, if a boy is skillful in skinning small animals and stuffing small birds; if he practised making pills of mud when he was a child, and extracted teeth from the jaws of dead horses with pincers when he got older; if he read physiology while his brothers are deep in Robinson Crusoe, he will be far more likely to succeed with a lancet than with a scythe.

EPPS'S COCOA.—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Epps has provided our breakfast tables with a delicately flavored beverage which may save us many heavy doctor's bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack, wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame."—Civil Service Gazette. Made simply with boiling water or milk.—Each packet is labelled—"JAMES EPPS & Co., Homoeopathic Chemists, 48 Threadneedle Street, and 170 Piccadilly; Works, Euston Road and Camden Town, London."

MANUFACTURE OF COCOA.—We will now give an account of the process adopted by Messrs. James Epps & Co., Homoeopathic Chemists, and manufacturers of dietetic articles, at their works in the Euston Road, London."—See article in Cassell's Household Guide.

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