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# THE CANADA FARMER.

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## Agriculture.

### Composting in Fall and Winter.

Change the ordinary plan of pitching your stable manure promiscuously out of doors. Give the composting and sheltering method at least one fair trial during the coming fall and winter, and you will be surprised at the result. Have you a vacant shed or outhouse on the premises? If so, use it for the purpose of storage; if not, erect something of the kind, however cheap and temporary. A common board or slab roof, resting upon bare posts, is better than no shelter at all. Early in the fall, before you begin housing your cattle, cart a few cords of good dry loam or muck into some place convenient and handy to your stables. If muck cannot be got, use any other absorbent, straw, leaves, even sawdust, sooner than nothing. Lay a wheelbarrow load or two of this absorbent every day in the trenches behind your cows and horses, and, in cleaning out your stables, night and morning, wheel earth and all out under the storing shed. Continue this during the winter, sprinkling the heap occasionally with plaster of Paris to retain its ammonia, and in spring you will have ready for your fields a fertilizing material worth fifty per cent. more than the best ordinary barnyard manure. When straw alone is used as an absorbent—and no doubt it is most extensively employed—just take the trouble of running it through the cutter beforehand, and you will thus not only lessen the difficulty of subsequent handling, but materially aid in its incorporation with the animal waste. In applying this compost to the fields, it is to be treated in the ordinary way, that is, spread broadcast over the surface and ploughed under, if on the green sward; or thoroughly harrowed in, if on the inverted sod. The principal gain effected by composting is the preservation of the liquid excrements, which by the usual method are almost, if not altogether, lost; and when both science and experience alike prove these to be of more enriching value than the solid, surely it is to the farmer's interest to do all he can to conserve them and enjoy the profits accruing from their application.

### Conserving Pasture.

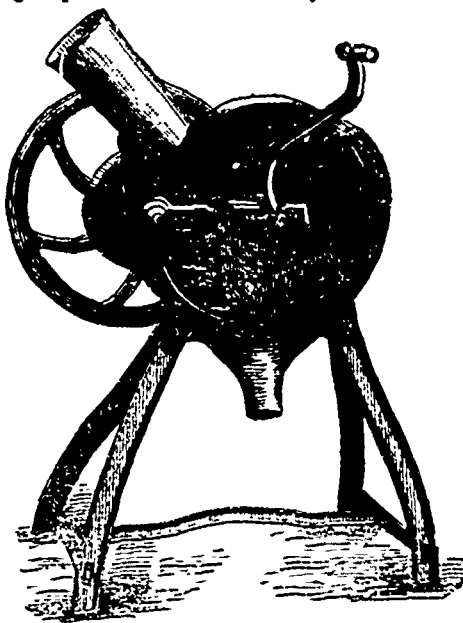
"In the month of May the cow's mouth has fire in it" is an old proverb very prevalent in France and many other European countries. The simple meaning of it is that when a sprouting young pasture has been suddenly cropped low by cattle or otherwise, so that the hot sun's rays penetrate the soil, the young roots are soon killed or burned out, and further vegetation ceases there for the season; in other words, that pasture is destroyed. The adage has considerably more truth than fiction about it, and if applicable to the mild climate of Europe must be still more so to this country. Here we have to contend with every variation and extreme of drouth, heat, rain and sunshine.

Europeans, however, not only lay up the proverb in their hearts, but practise it in their lives, and it may be worthy of consideration whether Canadian farmers would not do well in some cases to follow their example. The Channel Islanders, for instance, recognizing the great importance of conserving and protecting their pastures, notwithstanding that they enjoy one of the finest climates in the world, always see to it that no cattle are allowed into the fields until the grass shall have reached the height of at least ten inches or a foot; and then, on no consideration are they permitted to roam at will. "Cattle," say they, "destroy, by tramping, just about as much pasture as they consume," and consequently all animals are tethered by means of a rope or chain, one end fastened to the horns, the other to a portable iron pin in the ground. A radius of ten or fifteen feet is thus allotted to each ani-

mal, and it is allowed to graze on its little area until the herbage has been reduced just so far, when it is removed to another spot. By this method, it will be observed, no grass is trampled, nor is any spot eaten bare enough to endanger the roots. While we in Canada consider four acres per head an ordinary allotment for the season, these Channel Islanders rarely go beyond one acre for each animal. Of course the wide disparity of climate in both countries must be taken into consideration, and will, no doubt, account in part for this difference, but it is, we believe, mainly due to the course of grazing followed.

### A Hand Corn-Sheller.

The great majority of Canadian farmers raise but a comparatively small quantity of corn, not sufficient to warrant a large expenditure in corn machinery. The cut here pre-



sented illustrates a cheap sheller for hand use. The frame is all iron. The corn, fed ear by ear into the hopper at the top, passes between two toothed or serrated wheels, so driven as to give it a rotary motion, entirely stripping the corn which is delivered through the spout below, while the cob is carried up and delivered at the side through an aperture not shown in the cut. The machine is easily driven by hand and shells about as fast as a person can feed in the ears, one by one—an average day's work amounting to 100 to 125 bushels.

### Leaves from Farming Experience—No. 11.

#### Dairy Farming.

The manufacture of butter in Canada needs great improvement; there might be double the quantity made that there is, and sold for a third more money than is now got for it; and it is an almost certain loss to the merchant. Butter has been bought by a country merchant here, and put into firkins at eight pence, sent to England and sold at four pence. Such butter is melted in Britain, and the oil used by the wool-spinners, curriers, &c., and to make grease for locomotives, or railroad grease. The cows' food must be sweet, not mouldy; her drink clean and fresh; her house well ventilated and lighted, and free of frost. I give my cows fully two ounces of salt each, mixed in their food, as there is much salt in milk. I used three kinds of churns; the barrel churn has a defect in having to stop often to let out the gas, otherwise it did well. The Blanchard churn operated well, but it is not easily kept clean. The plunger churn is counted best, but it is heavy to work by hand. Where more than twelve cows are kept, some motive should be used steadier than human.

Steam is used in Scotland in making butter, and any number of churns may be attached to one motive power. When making cheese, one man cut the grass or cornstalks, brought them home, and fed thirty cows, kept them clean, and helped to milk. He also fed the swine, and kept them all in good order. We tried to have the milking done by six o'clock in the morning, and by seven o'clock in the evening. The same person always milked the same cows. If it could be done, there was no talking at the time of milking. The cows were milked in their stalls; a man carried the milk to the cheese-house, weighed it, and strained it into the tank, marking the weight in a book. When the milk was put in the tank at night, three or four pails full of water were mixed among fifty-two cows' milk, and the space between the tanks was filled with water till the milk floated, there being no constant stream of water. The milk being frequently agitated when the morning's supply was added to the evening milk, the fire was lighted and the heat raised to ninety degrees or thereabout, according to circumstances. Then the rennet was added and well stirred. The milk was coagulated within an hour (during that time heat was absorbed very fast by the milk—from six to eight degrees was the difference of the temperature within forty-five to sixty minutes), the curd was then cut and kept gently in motion, the heat being let on and kept increasing to about 120 degrees, and kept stationary until the curd was firm enough not to stick together when pressed in the hand. Experience will discover some other signs that it is ready for the salt. During the time of the heating and stirring the whey will be running off, so that the curd will be nearly drained and ripe at the same time. It was then lifted on the draining table, kept stirring, then salted and put in the mould. I found it useful to pack the mould firm when fitting it, to prevent a hole or recess in the cheese, often filled with water. Some pierce the cheese when putting on the band, that all the whey may get out; and the screw should be gradually tightened for the same purpose. After the cheese is on the shelf to dry, it must be gently turned often, and rubbed with butter. The rennet should be carefully made, have no unpleasant smell, and be twice, at least, carefully strained, that none of its solid matter may get into the cheese, to cause it swell or heave. The annatto should be carefully dissolved and strained. A farmer should be careful that every cow he owns gives at least sixteen quarts of milk and upwards daily, to the middle of October. They should be fed in the house. Mine were not fully fed in the house, except during the last year that I was with them, when we had no doubt of getting 300 pounds of cheese from each cow of the herd of fifty-two cows. The great fire on the Ottawa scattered our cattle, and they have not been replaced. For two years we averaged near 700 pounds in about eight months for each cow. A number of the cows were not the best, and were not fully fed in the hot summer months, whereas the last summer they got cut grass, corn, peas or rye three times daily, all they were able to use. My cheese sold at the best price in the market, and after many tests was reckoned equal to the best. We made no cheese on Sabbath—all our Sabbaths' milk being used on Monday morning without any difficulty. When winter came we made the cheese in a cellar easily. Butter might be made after the cold weather begins, and cheese from the skim-milk, which sells readily in small cheeses, and is excellent food. Our cows were grade cows approaching to the Ayrshire. When one of our best milkers brought a bull calf which we liked, we raised it for our cows. In the months of June and July he got two feeds of broken oats daily, or should have got them, and as much cut grass as he could eat. We tried to have all our cows to calve before the end of April. I may say our farming with dairying was a success.

Bell's Corners.

J. ROBERTSON.

### Superphosphate and Top-Dressing.

A subscriber from Barrie, commenting on an article on this subject which appeared in our last issue, desires information as to the time, manner, quantity, and cost of application. To which we reply: Apply in spring, broadcast; about the end of April for winter wheat, and about a month later for spring wheat, at the rate of from two to three hundred-weights per acre. Occasionally a fall application, near the beginning or middle of October, has been attended with good results, but more frequently with no appreciable effects, because of autumn rains and winter thaws which appeared to leach out the soluble manures, and they were lost. Superphosphate costs about \$30 per ton, and is preferred generally for green crops, although its application to wheat has been found highly beneficial. Nitrate of soda is esteemed a better top-dressing for the wheat crop. It is usually mixed with about three times its weight of salt, and applied in the same manner and at the same times as superphosphate. It is however more expensive than superphosphate, and this fact constitutes one of the most formidable barriers to its extensive use. Similar remarks are applicable to guano and ammonia. Perhaps the cheapest top-dressing for wheat is a mixture of plaster, salt, and ashes, in the proportion of say two parts of the first to four of the second and six of the third respectively. A correspondent, writing us in 1871, declared his full confidence in gaining from fifty to one hundred per cent. by the application of this mixture, and that too, after having tested the matter for several years in succession.

### The Double-Furrow Plough.

An implement which is at present attracting much attention at Philadelphia is the double furrow plough, an instrument which is not by any means new, but which has of late years been very materially improved. It is claimed for this implement that it not only economizes labor, but performs its work more efficiently than the single plough, for the simple reason that the sole or slide is so objectionable in the latter can be entirely dispensed with, the shares and turn-furrows being fixed to a frame which, in turn, is supported on wheels. The dynamometer test applied recently at Hull, England, showed that three horses pulling a double plough were not quite so heavily weighted as two horses drawing a single furrow implement, and since then, a large English manufacturing company has supplied figures, showing the respective draughts to be 165 lbs. per horse for the single, and 134 lbs. for the double plough. The same firm also sent out a number of queries to be answered in connection with the implement. The first of these was: How much work can you do comparatively with the double plough:—to which the reply was in almost every case "double." Out of 107 answers to the question "How many horses do you use?" 77 said "three," and 8 had found two horses equal to the task. Would it not be well for some of our Canadian manufacturers to give this matter their attention? Much of our land is quite as well adapted for the double plough operations as that of England, and if, as is claimed, the implement has reduced the cost of ploughing there from 12s. and 14s. down to 6s. and 8s., why should its introduction not prove proportionately advantageous here? And now that so much attention is being given to the breeding of heavy horses, the double-furrow plough should attract more attention, or one of the chief directions in which greater weight in horses is desirable will be lost sight of.

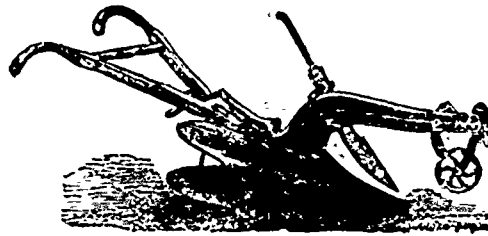
### Draining.

Select early fall for the purpose, when harvesting is over and you have some leisure time on your hands, also when any ext. assistance may be procured at reasonable wages. The investment will soon repay itself in larger crops of better quality, and a generally healthier tone throughout the land. Like almost everything else, the best method, viz. tile-draining, though dearest at first, is the least expensive in the long run. Place the tiles at a depth of from three to five feet below the surface. Four feet is a very good average. The deeper the drain, within certain limits of course, the greater range of surface will be affected, and consequently the fewer and farther apart the drains to be dug. At the depth mentioned, in ordinary soil, not too muggy or damp, twenty to forty feet may intervene between drains. If tiles are considered too expensive, or if

they cannot be procured, stone may be used with great advantage; indeed a little care in construction will render a stone drain quite as durable as our mode of tiles. Observe simply that a clear channel, straight as possible, be left through the drain, and that the stones be very compactly adjusted so as not to slip or give way before top or side pressure; also that the crevices be sufficiently close to exclude the surrounding soil. When neither tiles nor stone can be readily obtained, use wood—anything sooner than nothing. Cedar or hemlock is the best material for this purpose, either of which will well repay itself ere it decays. Inch boards will be found amply sufficient, and the drain may be made either square or v shaped. If the boards receive a slight coating of coal-tar before being covered, they will last considerably longer. Of all three systems of course boards are cheapest and tiles dearest, temporarily speaking, but in the end this order will just be reversed.

### The Side-Hill or Swivel Plough.

The plough here illustrated is designed principally for side hills where the furrows require to be all turned the one way. It may also be used to great advantage on level ground, as it not only allows the seeding and harrowing to be pushed up to the last furrow each evening, but also saves the time of crossing and re-crossing from one furrow to another every time of turning. The mouldboard and



share are hinged in such a way that they can be changed from one side to the other, making it either a right-hand or left-hand plough at will, the arrangement for changing being so simple and convenient that it can be done by merely swinging the plough by the handles, in four or five seconds, locking itself effectually, when in position on either side. The Coulter is also reversible and can be set on either side of the beam, to suit the position of the mouldboard. When the ploughman has reached the end of the furrow he can change the mouldboard and coulter and go back in the same furrow, turning over each furrow slice in the same direction as the previous ones.

### Comparative Exhaustion of the Soil by Oats and Barley.

There is a tradition among farmers that oats exhaust the soil much more than barley. If the degree of exhaustion of the soil by different crops be in proportion to the amount of valuable minerals extracted therefrom, it is seen by the following statement of Prof. Caldwell, of Cornell University, in the *N. Y. Tribune*, in answer to a question, that barley is more exhausting than oats: In the following table the quantities of nitrogen, potash, magnesia and phosphoric acid in 1000 lbs. of each of the two kinds of grain are given as follows:—

	Nitrogen.	Potash.	Magnesia.	Phos. Acid.
Barley,	19.	6.1	2.1	9.0
Oats,	20.	5.5	2.4	7.5

Our correspondent gets 40 bushels of barley and 60 bushels of oats per acre, and he estimates that the weights of the two crops are equal in that case; and, supposing the straw to be returned to the soil in both cases in the manure made on the farm, the crop of barley would be somewhat more exhaustive than the oats with respect to those ingredients of plant-food that are given in the table. As for the silicate, of which both crops contain a large proportion, the supply in the soil is so abundant that the question of its exhaustion need not be taken into account. The draft on the supply of lime is also far within the supply, for the quantity required by either crop is much smaller than the quantity of magnesia, and the stock in the soil is usually abundantly large. It is supposed by some that oats will flourish in a soil where the other cereals cannot find nourishment enough for a remunerative growth. Perhaps this is the reason why some sow oats only on their poorest land, where barley or wheat would not yield a paying crop. And yet farmers of long experience say that oats are much harder on the soil than barley, and I am inclined to trust their long-time observation before the analyses of science. *Boston Cultivator.*

### Application of Manures.

We do not have to farm it many years in the New-England States, without coming to the conclusion that our account of profit and loss is closely connected with the cost and the amount of the manures that we apply to our soil. Now most of our farmers fall into an error when they reckon up their account of the profit side of the book, for they do not give credit enough to the value of the manure that is left in the soil, and are not very apt to reckon any but the income of the first crop; when in fact they would come nearer the mark, should they add as much more for the next crop.

But how to apply our manures to the best of advantage? is a very hard question to answer; in fact I think that it cannot be answered in a satisfactory manner. For our wisest and our most judicious farmers testify, that after years of practice they feel as though they were groping in the dark. Plaster on some soils may be worth twenty dollars per ton, and would pay well to use it at that price, while on other kinds of soil it would be worth nothing at all, for it would produce no effect upon the growth of our crops on that kind of soil. Or it might be beneficial on some particular crop, while on another crop it would have no effect. The same might be said of most of our commercial fertilizers, and also of most of the manures that we apply to our farm crops. Who then does not see that the subject of application of manures is the most important study for the farmer; and his success in farming will greatly depend on the knowledge that he has upon this subject. Then how shall we go to work to become masters of this study? or to study it as it should be, understandingly. "Science and practice" must work together; these two must be combined, we think, in order to accomplish it. And we farmers (or most of us) who are not very well versed in the science, shall have to rely mainly upon practice, until we shall become better educated. For if we could know how to feed our crops with the same exactitude that we feed our domestic animals, we should be on the right track, but until then we shall remain as it were in the dark. However, we know that if we apply more in the way of plant food than our crops remove from the soil, we shall not be troubled with exhausted lands and bad farming. I have not feared the subject, but my sheet is full.—*Germanstown Telegraph.*

### The Middle of the Stack.

Experienced stackers do not need to be reminded of the importance of keeping the middle or the centre of the stack quite full as soon as the top of the bilge is of the proper height. If the middle of the stack is kept much higher than the outside, before the stack is high enough to begin to draw in the butts of the sheaves, the sheaves will be liable to slip out.

In giving the proper pitch to the bundles, so that they will shed off the rain, the butts of each bundle must be thrust with considerable force down into the bundles underneath. If possible, the pitcher on the stack should have the teams drive up on both sides of the stack, or else the part of the stack where the pitcher stands will settle the least and the stack will lean.

If, when you come to thresh your grain, which should not be done until the sweating process is fully gone through with, you find that the bundles lie so slanting that you can hardly stand to pitch them to the machine, you will then know that your grain was properly stacked. It is particularly important that the straw on the outside courses of the stack should always be so inclined downward that they will conduct the rain outward, from straw to straw, until the water will all flow off the bilge of the stack.—*Rural World.*

### A Good Gate.

There are many ways to make a good gate. I send you a description of one I made which has been in use ten years or more, and is yet sound and strong. Anybody can build it with a little help from the blacksmith. The main post to which the gate is hung, is 8 inches square and firmly set in the ground. The other post may be lighter. Oak or red cedar is good enough. For a door yard gate the posts may be smaller, and the gate not so long as those used in the field where loads of hay are to pass through; 10½ or 11 feet for field and 9½ to 10 feet for carriage way roads is wide enough. For the frame cut the end pieces 3 or 4 inches square and 4 feet long of almost any kind of sound wood; pine is good enough. The bars are 2½ by 4 inches, framed into end pieces, with an inch mortice and tenon, and pinned with half inch pins. The pickets are 1 by 3 inches for a field gate, or 1 by 2 inches for smaller gates, and securely nailed on the bars. The hooks used in hanging the gate should be 3 inch square, passing through

main post, and secured with screw and nut. For the brace, use an iron rod  $\frac{1}{2}$  inch in diameter with an eye to hook on the upper hook in post. Pass this brace entirely through the heel post of the frame, bend it down to near the bottom on the other end of the gate, passing through the end of the other post of frame, and secure it by screw and nut with a washer, as at that place much of the weight of the gate rests. At the bottom hinge use a common eye with washer in heel post of frame.

When shut, the end post of the frame at the bottom rests on what I call a "shoe" or piece of thick plank spiked on the foot of the post near the ground, and on which the gate rests when closed. Into the frame post drive a staple on each side; into the post drive two staples, with a hook in each from four to six inches long. The gate thus opens each way, and as it rests on the wooden support at the bottom, where a slight notch is made for the frame post to rest in, there is no sagging or getting out of place by the wind. In any case the gate cannot sag except very slightly, as the iron rod is sufficient to hold all in place. Either one of the hooks at the top keeps the gate in place. A gate of this kind requires less work to keep clear of snow drifts than any other that swings horizontally, as there is no bottom board at the bottom of the pickets.—Country Gentleman.

### The Prickly Comfrey.

We have given in the CANADA FARMER from time to time all the information we could get about this promising new forage plant, for we believe that there is reason to expect the comfrey to suit our climate, as it is a native of a climate with similar extremes of heat and cold. Additional information is to hand from the English *Live Stock Journal*. It seems that the true sort is a perennial herbaceous plant, native of Caucasus, perfectly hardy; introduced into England in 1799, simply as an addition to the then collection of herbaceous plants. It belongs to the family of Anchlussa or Borage plants, in annuus's system of botany, class Pentandria, order Monogynia, genera Monopetalous Tetraspermus, and is therefore safe as a food, non-poisonous in all stages of its growth; herbage not unlike stem or haulm of potato, but very much stronger and fuller of leaves, particularly at the base of the stems; leaves greyish green, rough in texture, elongated like the fox-glove—*Digitalis rubra*—but much larger, with several stems, throwing up almost shrub-like; the flowers are produced on the points of the stem, small in size, blue colour, only four seeds in a small capsule. The seeds are rarely known to be fertile raised in this country, unless it becomes impregnated with pollen of *Symphytum officinale*, a native of Britain, the common comfrey, a worthless plant, which no domestic animal will touch. Seedling plants are therefore tainted stock, useless to grow as fodder. Both species, *Symphytum asperinum* and *Symphytum officinale*, are somewhat alike when growing, also the root, but easily discernible when seen together; also in taste and smell. The *Symphytum officinale* has a dirty dead taste, and is decidedly a purgative, with very little mucilage; the true *Symphytum asperinum* has a brighter taste, and is full of a not unpleasant glutinous mucilage, very useful in the cure of wounds interior and exterior, a diuretic, hence preventive of fever. The simple extract is given to adults and children as a tea or syrup, sweetened with sugar or honey, in cases of severe colds, coughs, and lung complaints, with good results. For horses and cattle the mucilage extract is made by boiling the herbage in summer, and the roots in winter, given both warm or cold, as the case may require, in the form of a drench, made palatable with a little sugar. In cases of constipation or incipient fret, known as colic or gripes, which some horses are subject to after having worked very hard or been a long time without food or water, it has been used with the best results, acting as a solvent on the system, as well as on the bowels and urinary passages.

All domestic animals, from the horse down to the pig, can be made to eat it with avidity; a reluctance may be shown at first, in which case the best method is to take some leaves and stems fresh from the plant, run it through a chaff-cutter, cut short with good clover and meadow hay mixed, one-third of *Symphytum asperinum*, two-thirds of hay. Give them this with a usual feed of oats or mixed corn, all mixed. After three or four consecutive feeds the animals will not fail (the horse particularly) to remind you that its feeds are deficient in quality, should you fail to replenish it with the green herbage. After this he will eat with the same avidity as in eating green clover or tares. Cattle—all classes—do well on it, thrive

and fatten, if judiciously used. To horses with broken wind and to such as have had a chill in the blood after being much heated by hard driving, which often produces a surfeit or scurf disease on the skin—hard, very hard to cure, as well as being irritating to the horse as soon as harnessed, and very unpleasant to the owner in using an otherwise valuable and favourite animal—more good has been known to result by feeding with the herbage and mucilage extract in the feeds of corn than all the nostrums devised in the shape of powders, nitre, &c., given as diuretics and skin cleansers, which are ruinous to the horse's constitution, and after which he often dies suddenly. In common parlance he is then said to have died through his lungs being "as rotten as a pear," he really having been destroyed by repeated doses of black powders in his feeds, with the view to give him a sleek-looking coat, an abominable practice, wherever carried out.

The correspondent whom we are quoting says that the *Symphytum asperinum* will, without doubt, become one of the best summer forage plants grown, if not the best both in quality and quantity. Forty years ago the plant was grown rather largely in a clergyman's large garden in North Hampshire for three or four seasons with the greatest success, but the then state of affairs in this district, owing to the unsettled feeling of the country and the agricultural interests (riek-burning and mobbing being common about then), did not admit of a new forage plant



being introduced as a permanent food. Where the plant did get a trial, in most instances, when the produce came to be cut for use, it was found the wrong variety had been cultivated, and the cattle would not eat it. This mishap was brought about by the farmers and other intending growers buying for cheapness anything that was offered, providing it could be called a *Symphytum* or comfrey. The wild *Symphytum*, or common comfrey, both plants and seed, was searched for in all directions, and palmed off as the real thing; this, as a natural sequence, totally destroyed for year. A chance of the introduction by proper cultivation of a most valuable plant.

All railway companies ought to have brought into cultivation their available slopes, both from the rails downwards and up the slopes to the boundary fences, where the ground was found to be suitable. In the first all available ground has been removed and pulverised in forming the embankment; therefore, where the nature of the soil is suitable, it has been ready for years to receive plants and grow heavy crops of the true *Symphytum asperinum* which must be so much needed as horse fodder for the immense number of heavy draught horses the railways now employ, as well as the vast number of horses now in general use. The plant having no turpentine in its constitution runs no risk of being destroyed by the fire of the engines, neither, from its component parts, can it be likely to take up into its system any noxious vapors which, in using, would make it injurious to animals. It would be wrong for our seed merchants to send out seeds raised in this country for the true sort, as it cannot be raised true, and it is to be hoped that no nurserymen will, under any circumstances, buy of promiscuous collectors of *Symphytum*

roots, and send them out as true *Symphytum asperinum* plants.

The clergyman before spoken of gave it to his cow, a fine young animal of large size, which had not long calved. The calf was sent to a farm, the rector requiring all the milk and butter that could be had for his family and household, which was large. The cow, when fed on *Symphytum asperinum*, gave thirty-six quarts of milk every twenty-four hours (thrice milked), being an increase of rather more than twelve quarts on what she had given previously, from which was made a goodly quantity of splendid butter twice a week, while new milk was used freely in the family. No positive statement was ever attempted to be made of the quantity of butter made, but the milk was good, and by no means deficient in rich cream. The clergyman's horses, donkey, pigs, rabbits, &c., all fed on it, and did well—they all had the run of a meadow. The growth—three cuttings in the season—was carefully estimated to weigh at the rate of 86 tons per acre. Four cuttings were tried, which increased the weight cut considerably, but not equal to either of the three cuttings, it being too late in the season for making a good growth.

To add to the interest with which the above will be read, and for the information of our new readers, we reproduce an engraving of the Prickly Comfrey from our column of last year.

### Laying Out a Farm.

EDITOR CANADA FARMER:—Can you, through the medium of your valuable paper, inform me of a plan to lay out a farm of one hundred acres, with buildings, orchard, and all modern conveniences. Said farm is square and perfectly level, with concession in front and side-line along side.

Collingwood.

A SUBSCRIBER.

"A Subscriber" has not mentioned here what system of cultivation he intends to adopt, whether dairying, stock-feeding, or general farming—an important desideratum, for the last mentioned, or a mixture of grain crops with stock-raising and dairying on a small scale, requires a different plan of subdivision from either of the other two. Assuming, however, that his object is general farming, we cannot do better than quote the following remarks on the subject by Alex. Hyde, in the *New York Times*. He says—"For a farm of eighty to one hundred acres, upon which the usual rotation of clover, corn, oats, and wheat is followed, and stock, chiefly cows, with a small flock of sheep, is kept, to consume the bulky portion of the crop, a pasture of twenty acres will be found sufficient. This should be divided into at least three fields. One would be grazed by cattle, followed by the sheep—for these should never be pastured together—but the latter, being close feeders, may follow the former with advantage, while the former could not find subsistence in a field that had been cropped by the latter. The third field then rests while the others are being fed off. The alternation would be beneficial for both the grass and the stock. The rest of the farm should be divided into fields or plots of proper size by bands of grass, which can be moved, or by simple paths. The most convenient division is into six fields, which would give each year one each of corn, wheat and oats, and three of hay. One of the latter three fields might be appropriated to provisional crops, such as potatoes, roots, corn-fodder, buckwheat, or millet. The orchard, garden, barn-yard, with the building sites, and a few paddocks around the barn-yard for calves and colts, will occupy at least five acres upon a farm of the size here described. All these must necessarily be permanently and safely inclosed, and the whole farm will be surrounded with a substantial fence. However much the abolition of fences may be desirable, it is improbable that it will soon be found practicable. Such fences as are here mentioned may be taken as the least requirement in that way of any well-managed farm under our present circumstances. Outside fences may certainly be done away with if a general understanding is arrived at to that effect.

The low banks which mark the boundaries of farms in parts of Europe might be amply sufficient for our purposes, if the general consent were once obtained, and farmers and drovers would exert themselves to prevent the trespass of their stock upon others' fields; but so radical a change cannot be expected to be made very soon, however much it may be desired. In the meantime, by doing without a large portion of their inside fences, farmers will learn to do without exterior fences in course of time.

The manner in which the fields are laid out is to be considered with reference to convenience of access and cultivation. The homestead should be placed as nearly as possible in the centre of the farm. This will reduce the



time and labor necessary to reach distant parts of the farm to a minimum. In the Western States, where the general divisions of the land, as originally surveyed, are in squares or parallelograms of a length equal to twice their width, the division of the farm may be made very readily. The buildings, orchard, garden, &c., should be placed in the centre, approached by a lane from the public road. The pastures would be most conveniently placed on each side of this lane, with gates opening into it. This would not only give convenience of access from the house and barn, but the stock would always be in sight, which is an important consideration. A wise farmer, both from prudential motives and from a proper pride of possession, would give his farm the most attractive aspect from the public road, and there is nothing that so much adds to the beauty of a farm as a foreground of verdant pasture, occupied by well-conditioned cattle and a well-kept flock, thrown into relief by a neat homestead, with trees and orchards; and a pleasing landscape may well be made up of nothing else than a succession of such farms. How much such evidences of thrift and carefulness add to the market value of the land is appreciated by those who desire to purchase farms, if not by the owners themselves. From the rear of the barn a short lane, which may be made to answer for a paddock for calves, and thus be made useful, should give access to all the cultivated fields. A gate from this lane should be specially provided for each field, or each division of the cultivated land, so that it will never be necessary to pass through a growing crop to reach any portion of it. This manner of division will be modified somewhat by the character of the surface of the farm and the water supply, but it should not be departed from more widely than is needful. If the land is rolling, with valleys intervening with the uplands, the portion of the farm selected for the house should be higher than that chosen for the barn, and should be sheltered, if possible, from the north by still higher land, or a belt of trees, or an orchard. If possible, the site for a dwelling should slope in every direction from the house, so as to secure ample drainage; and this necessity for careful selection will influence to some extent the other arrangements of the farm. To properly place the dwelling is the first consideration; the site of the barn and stables comes next, and will depend upon the position of the house. The homestead is to be made the key of the general division of the farm. Where the boundaries of the farm are irregular, the manner of division will require to be studied with care, basing the general arrangements upon the principle here laid down.

#### The Indigenous Forest Trees and Shrubs of Ontario.— No. 2.

In the last CANADA FARMER was published a list of the indigenous forest trees and shrubs of Ontario, compiled by the writer from several published and unpublished lists, from contributions by amateur botanists, and from personal research. It is now proposed to go through that list and give some information relating to each of the trees or shrubs included in it, with some particulars as to the location in which they occur:

*Clematis verticillaris*, TRAVELLERS' JOY.—This is among the best of our native climbers and deserves to be in cultivation. The flowers expand in early spring, are about 2½ inches across, of a bright purplish blue color, sometimes shaded with white. This *Clematis* ranges from New York State to Lake Superior, and from New Brunswick to British Columbia. Not very common in Ontario, Toronto, rare: Hamilton; Shore of Lake Huron.

*Clematis virginiana*, VIRGIN'S BOWER.—A hardy climber, flowers white, inconspicuous, but the tufts of persistent styles in the ripening fruit very pretty. In low situations, river banks, sometimes climbing twenty feet high, usually trailing over low shrubs; common in cultivation. Ranges from Virginia to British Columbia. Common in Ontario. County of York, common.

*Magnolia Acuminata*, CUCUMBER TREE.—A small tree with us, in Ohio sometimes 100 feet high; leaves 5-10 in. long, flowers three inches across; petals greenish-yellow; fruit like a small cucumber, whence the common name; wood resembling white wood. Niagara Falls. Borders of marsh near lake shore, between the town of Niagara and Port Dalhousie, the most northern point reported.

*Liriodendron Tulipifera*, TULIP TREE, WHITEWOOD.—In the Western States, a tree sometimes 150 feet high,

8-9 feet in diameter and "straight as a candle;" much less in Canada. Wood as boards and plank well known in the lumber trade. Hardy in cultivation, as an ornamental tree, about Toronto. Not common, confined to Southern Ontario: St Catharines, Hamilton (now cut down), St. Thomas, Chatham, Township of Tuckersmith its northern limit in America.

(To be continued).

#### Manures for Root Crops.

Theories and experiments are all good as far as they go, but a few facts outweigh them all. On good loamy soils, well worked, and finely pulverized, 10 cwt. of superphosphate is by no means an overdose. Crops of turnips and coleseed are thus produced, of extraordinary weight and quality, and what is more, in the succeeding year, the crop following partakes of the dressing, which is readily seen. For potatoes or mangels, it has not been ascertained to what these aids may profitably extend. Very heavy crops of potatoes are now standing, produced from 12 cwt. of superphosphate per acre, without other aid; and the wheat crops after such management are splendid. Seven cwt. per acre, along with farmyard dung for potatoes, is the lightest satisfactory dressing, as is shown from hundreds of instances. For mangels it is almost impossible to decide as to the best quality to be applied. One fact is well known, the grower uses from 20 to 25 cwt. of superphosphate per acre, together with farmyard manure and salt when the plant is forward. The produce (which are Long Yellows) has exceeded 63 tons of mangol (besides their leaves) per acre for the past six years in succession. The field is six acres in extent, and a loam of medium quality. The above must suffice, or many other facts could be stated, of extra produce from extra dressings. The object in penning this short paper is to show that much greater produce may be profitably realized by the more liberal use of chemical aids.—*Cor. Agricultural Gazette.*

#### Winter Wheat.

The preparation of the soil for winter wheat is a matter of much importance. A crop of fifteen bushels per acre is grown at a loss for the simple preparing and sowing of the ground, the seed and harvesting will cost all that the crop comes to. These are fixed expenses, that are no less for a small crop and no more for a large one, and we cannot estimate them at less than eleven dollars per acre. The rent charge for the land or interest upon its cost will amount to at least five dollars per acre, thus bringing the cost of a wheat crop of fifteen bushels per acre up to over one dollar a bushel for these incidental expenses alone. But without manure even this yield cannot be secured, so that the result of our average crops is a positive loss of money, or else the farmer works for half pay, or nothing at all. There are a few things that we have found absolutely necessary to produce a fair crop of wheat; these are clean soil ploughed in season so as to have the stubble thoroughly broken up and mellowed, when it will remain moist and will not bake and become too hard for the final ploughing; well-decomposed manure, which should be evenly spread upon the surface just before the final ploughing; a final cross-ploughing no deeper than will turn under the mellow top-soil, and to have the manure mixed with it not more than three or four inches below the surface, where it will be in the right place to receive the seed from the drill. The last ploughing should be followed by a deep harrowing, which will bring the clods to the surface, and leave the seed-bed fine and mellow. Managed in this manner during August and the early part of September, the ground is well prepared for the seed. This cannot be too well selected. With good care in selecting the best seed, and with soil prepared in the above-mentioned manner, we have had a better yield from one bushel of seed per acre than from five, six, or seven pecks. We would, however, lay down no rule as to the quantity of seed, because it depends much upon the condition of the soil and its cleanliness whether a thin sown crop will tiller and cover the ground or become overgrown with weeds. Here we would remark that the prevalent carelessness in permitting the self-sown seed of the former crop to smother the young wheat in a mass of thrifty verdure is a great mistake and injury, for it robs the plants when they are weakest and least able to sustain the loss, and they go into the winter prepared in the worst possible manner to resist its hardships. The seed should by all means be drill-sown, or else covered with the plough or cultivator. Ploughing in the wheat upon soils that are subject to surface water, we have found a good plan, as the land can be laid up into beds of the proper width, with water-furrows between them. These furrows, if made no deeper than necessary to collect and carry off the water, will become nearly filled up and leveled in the spring, and a rolling then will fit the surface well for the harvester or mower. We would advise the entire chan-

donment of broadcast sowing and harrowing in the seed as a wasteful, costly, and laborious practice. If a field is too rough or strong for the drill, we would plough or cultivate in the seed, but never again harrow it in. The practice may answer for a spring crop, but not for winter wheat. Wheat must be grown; we cannot choose any crop as a substitute. The demand for it increases year by year, and is likely to increase. It is the business of the farmer, not to fold his arms and idly say "it will not pay; I will grow no more wheat;" but to manage so that this crop around which his five or six years' work rotates, and must continue to do so, may be made profitable. It would be a strange thing if the crop which yields the "staff of life" of the civilized world could not be produced profitably to the growers, or that any one section of the country should be beaten in competition with another in producing it.—*N. Y. Times.*

#### Canada Thistle.

My experience and observation have led me to the conclusion that the more a thistle patch is cropped with wheat, oats, barley, rye, buckwheat, corn or potatoes, the more prolific will be the next year's thistle crop, and the more the pest will spread; and the reason is plain enough. If you plant a whole potato, you will get only one or two sprouts from the "seed end." But cut into a dozen pieces with an eye on each piece, and plant them, and you will get a sprout from each eye. Just so with the Canada thistle roots. The more you plough or cultivate among them, the more you cut them into small pieces, separating the eyes from each other; and every piece with an eye on it left in the ground will grow.

If every piece could be taken from the ground and dried or burned, that much of the pest would be destroyed. But every piece left in the ground is ready to grow. If you wish, I will give you a little of my experience with a Canada thistle patch in Wisconsin.

In August, 1872; while cutting my oats, I discovered a patch of the pest about three yards wide and six long, about half of which was pretty thickly covered with thistles. My first thought, after the astonishment and mortification I felt at the discovery, was, "I will sell my farm and try again to get away from Canada thistles." But after a little reflection, I made up my mind I would kill them. I dug the patch all over with my spade from twelve to sixteen inches deep, and picked up all the roots I could see and burned them; then in a few days I ploughed it, and had my two boys follow and pick up every piece of root they could see, and I burned them. I continued to plough and pick up the roots about once a month till winter set in.

During the summer of 1873 I continued to plough and gather roots as often as a few thistles showed themselves above ground, occasionally salting them to induce the sheep to dig for them. By the time winter set in, I thought I had conquered them. But when the spring of 1874 opened, I found I had still a few sickly-looking thistles, and these I cut off at the surface of the ground with a hoe, and sprinkled salt on them; and by August of that year, two years from the time I commenced, I had them all killed. I think had I commenced to cut off with my hoe, and salt them, and continued to do so as often as they came up, I would probably have killed them just as quick, but if I had continued to crop and cultivate them with the rest of the field, I should now have had them all over my farm.—*Cor. W. Rural.*

**SALTING HAY.**—We are glad to know that salting hay as it is hauled into the barn is losing advocates. It may possibly prevent the barn from burning when the hay is too green and improperly cured, but it undoubtedly damages the hay. It is true that cattle will eat it and rather prefer it to unsalted hay, but it is unwholesome and injurious. Lime is better, if it is deemed necessary to use either; but it is better not to use either, but to cut the grass at the proper time, and that time is when the timothy or clover or meadow-grass begins to show the blossom, and then to cure it carefully and enough to do without the salting or liming. Better to run the risk of a wetting than to house hay only half-dried.—*Germantown Telegraph.*

**USING THE HAY FORK.**—On some rainy day go into the barn or shop (every farmer should have a shop and a few tools) and take a stick of hard timber about 3x4 inches square and five feet long. Fit the ends into a pair of old wagon wheels—market wagon wheels or the sulky cultivator wheels—in the form of an axle; then make a tongue, the same as you would for a marker, by splitting the large end of a pole and putting it into the axle through two-inch auger holes. Bore the draw hole far enough from the axle to let the whiffletrees clear the wheels. The tongue should be nine feet six inches long from the draw hole to the end. Attach the rope of the hay-fork to the doubletree, then when the order "back-up" comes, the boy has only to handle the lines, the cart carrying the whiffletrees. This arrangement will save considerable time and is light for the team, besides making it pleasant and encouraging for the boys.—*Ohio Farmer.*

## Horticulture.

### What Strawberries to Plant.

**EDITOR CANADA FARMER:**—Will you kindly inform me what is the best kind of strawberry to plant, the time to plant, and the best method of protection in winter?  
Cobourg. M. F. R.

Opinions differ as to what individual variety is preferable to all others. For several years past the Wilson has held a leading place, and may be regarded as the best variety where prolificacy, hardiness and ability to stand transportation are concerned. Where it is desired to grow strawberries for profit the Wilson is the best. It is worthy of remark however that, at the recent Ontario Fruit Growers' Convention, opinions were about equally divided on it (the Wilson), the New Dominion and the Colonel Cherry. Mr. Arnold, who has had very extensive experience, claiming a preference for the New Dominion as having "more of the real strawberry and less wood than the Wilson." M. F. R. will not go far astray in selecting either or all of these varieties.

Plant in early spring, and make the soil very rich if you would have an abundance of large fruit. Fall setting is also practicable up to about the middle of November, but it is of course attended with the risk of "heaving" should the season prove damp. The principal advantage claimed for fall setting is a larger growth of fruit for the first year, and, it is questionable if the gain is worth the risk.

Fruit growers appear to have agreed that straw furnishes the best winter protection. Barnyard manure, leaves, &c., have likewise been employed successfully for the same purpose.

### Growing Roots, Kohl Rabi, and Cabbage for the Farm.—No. 2.

The seed in this bed may be sown the last thing in the fall, so as not to grow—or it may be sown the very first thing in the spring, before the frost is out of the soil. The seeds will not grow till they are ready, but when once they begin, they will continue, as the glass will bring them on.

If the fly is dreaded, the seeds should be wet with turpentine before they are sown; or, as soon as the plants make their appearance, they may be well sprinkled with soot and water, the soot being from a chimney in which soft coal is burnt (hard coal soot and wood soot are not efficacious); a dusting with sulphur is recommended by some, or the plants may be watered with corrosive sublimate water—one quarter of an ounce of corrosive sublimate to four gallons of water; this will destroy all insect life, but it must be most carefully used, as it is a deadly poison; it must never be mixed in a metal vessel, as the galvanic effect at once throws down the mercury in a metallic shape; although poisonous, it never hurts the plants or makes them unwholesome. Or Paris green may be used, either with water or with flour.

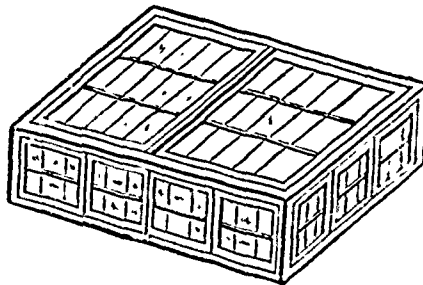
Any of these operations (if well done) will be successful, and will keep off all insect plagues—all the plants, being together in a frame, are easily cared for and managed. If the plants do not come on as fast as they could be wished, water them once or twice with water in which nitrate of soda is dissolved; make the strength of the liquor so that you can just taste the salt. The way the plants will grow after this operation will astonish any one who has not seen the effect of it. If nitrate of soda cannot be had, the nitrate of potash (common saltpetre) may be used with equally good effect, but it is dearer than the nitrate of soda. The quantity used is so small, however, in a frame sufficient for ten acres of plants, that it is almost inappreciable. By the middle of May the plants in the frame will be fit to set out, and will then have from six weeks to two months' growth on them.

The seed bed should be carefully hoed and cultivated, and fresh, rotten manure added during the rest of the season, so as to kill all seed weeds. Root weeds, in so loose a soil and confined a space, can be easily dealt with.

Annexed is a drawing of the frame and sashes—no strength being required to manage this frame, although so large; it can be looked after by a woman or girl, when the man is away on the farm or elsewhere.

Having thus followed up the plants from the time of sowing until ready to plant, we will now take up the land where we left it, namely, at the second harrowing, with all the weeds killed. You will now provide yourself with a dibbling machine, which is fully described further on. This machine makes either two or three rows of holes, according to the breadth and weight of it. It is drawn over the surface of the land by a single horse, and makes the holes clean and clear, and fit to insert the plants in. It will be seen from the description that these holes are all equi-distant from one another, and from its construction it makes them parallel to one another in the row; and when used correctly, it makes the holes also exactly parallel to each other in the cross-rows; it cannot vary, but leaves the spaces exact and at right angles with the rows lengthwise.

In each of the holes so made one plant is inserted always at the same part or angle of the hole; they will thus be exactly placed. If the growth of the crop is doubtful, from season or otherwise, two plants may be inserted in the two upper corners of the hole. This double planting would, of course, insure a certain plant and crop without space, and the writer has found from experience that such plants may be planted reasonably close together, and yet flourish equally well as if planted farther apart, provided a correspondingly wide space is left between the rows; but such double planting may require a hand-hoeing not otherwise necessary. To show the possibility of raising double plants successfully, the following may be instanced: At Portsmouth, England, where the finest broccoli and cauliflowers in the world are grown, the plants are always set out in fours; they are planted out in the fall, and each set of four is covered by a hand glass of about twenty inches square, one plant being in each angle of the glass. Here they remain, and are covered all winter. As the spring advances, the hand glasses are raised, first set on bricks, on the flat, then on bricks edgewise, then on bricks end up, and finally the glasses are removed altogether. By this time the leaves nearly or quite fill the space inside the hand glasses, the gradual



raising of the hand glasses has hardened the plants, and on the removal of the glasses the plants fall or are made to slope away from one another, and although so close, they grow to an enormous size, and finally produce heads of from ten inches to a foot in diameter of hard white solid flower; but the rows, or rather the groups of four plants, are kept from four feet to five feet apart, and if the ground is not excessively rich, even greater spaces are allowed.

Of course the ground is exactly adapted to the plants, and is made as rich as manure will make it, and the result of the crop is something wonderful.

By this it will be seen that we need not dread to plant two plants in each hole, if people prefer to do so. It is certainly not necessary. If sufficient space is left between the rows for the rootlets of the plants to spread and get their nourishment, the double plants will flourish.

SUBSCRIBER.

### Hen-Manure Water for Insects.

As every one is aware, gardeners who raise market vegetables, squashes, cucumbers, &c., as well as the smaller fruits, such as currants, raspberries, and even grapes, have always been put to their wit's end to devise means of preserving their vines and bushes from the ravages of spring bugs and worms. Plaster, ashes, lime, hellebore, Paris green, anything and everything, are freely applied, sometimes successfully, sometimes not, and it is not at all uncommon to lose half a season's plants ere the marauders have been conquered. A new remedy, recently suggested by a correspondent of the Lancaster Farmer, has, he says,

been tested thoroughly upon cucumbers, squashes, rose-bushes and currants, with the most gratifying success. The writer thus describes his mixture:—I throw into a common bucket-full of water a heaped spade-full of fresh manure, taken from beneath the hen-house roosts. Mix well, and apply from a watering-pot. A little goes a great way. It is thus sufficiently strong, and the effect will be discovered immediately. On rose-bushes and currants it should be thrown under the leaves with a large syringe. Upon ground vines it may be applied easily. I have found this so singularly beneficial that I now make the fact known in the interest of poultry keepers, that they may save the hen manure carefully. If they don't wish to use it on their own premises, there will be a market for it as soon as their neighbours try it, if they succeed with it as I have. And if it will destroy the potato bug (as I sincerely believe it will) there must surely be a lively demand for this often wasted article, should the "Colorado beetle" really show itself in this region.

The writer further adds that the mixture not only accomplishes all here claimed for it, but it is an excellent fertilizer. It must not, however, be applied too strong, or it will burn up the vines, leaves, and even stalks of tender plants.

### Potato Planting in Autumn.

In our number for May 22 last, we drew attention to M. Tellic's method of planting potatoes in the early autumn, and protecting them by straw from the cold of winter, by which means he succeeds in obtaining good crops of healthy potatoes by the beginning of the following spring. This system was adopted last year, as an experiment only, by M. Tourniol, President of the Horticultural and Botanical Society of Limoges, who communicates the results in a long letter to the *Revue Horticole*, from which we take the following remarks:—The seed potatoes were selected from a quantity gathered in April, 1875, and were stored on shelves in a garret until towards the end of August, when the planting out was proceeded with. The workmen called upon to assist in this operation did so with many broad groins and much shoulder-shrugging, while the neighbours made merry by describing M. Tourniol as a most fitting resident for the locality, the point of which rather obscure witicism lies in the fact that his property adjoins an extensive lunatic asylum. In two months the plants had made stalk rapidly, when M. Tourniol was obliged to absent himself from home for a time. On returning about the first week in November, he found that his orders to tend the crop and cover it over with straw had been entirely disregarded—not a leaf was to be seen, the cold and the snails had destroyed everything above ground. Nevertheless, on digging up the soil, it was found that the experiment, despite the adverse circumstances under which it had been conducted owing to this neglect, had been a complete success. The first turn of the fork uncovered ten healthy potatoes, varying in size from a walnut to a hen's egg. M. Tourniol was triumphant, and his self-satisfied workmen proportionately abashed. This year he commenced operations on the 1st of June, and intends to plant out every fortnight till the end of September. We hope to be able to announce, in due time, that satisfactory results have been obtained.—*English Farmer*.

### The Plum-Knot.

From time to time things occur to make one believe that there is very little progress in practical knowledge, in spite of the progressive literature so freely scattered over the land. Old notions, long exploded, continually come up, and seem to have as ready an assent from certain classes as if it were the profoundest wisdom. But now and then circumstances arise which give us more encouragement, and show that our labors in the cause of enlightenment are not wholly thrown away.

The black-knot in the plum and cherry is an illustration. At first most fancied this was caused by an insect. But as soon as the phenomena were studied, it became clear that it could not be. The knots come out of old, thick bark, so hard and thick, that it is impossible an insect like a curculio could make the puncture to deposit an egg. There are many similar objections to an insect theory; the whole making it one of the most impossible things "possible," and yet because the young curculio and the young of other insects are found in the oozy matter composing the knots, there are people even unto this day that write and argue on the insect theory. The misfortune of this theory is that if it were true there would be little

hope of a remedy. The curculio has successfully fought us in plum culture, and frightens us to a great extent in cherry-culture; and if it were another of his attributes to make cherry-knots, we might give up in despair.

The exact and positive proof that the plum-knot is not the work of an insect, but is the work of a minute fungus, has now been made manifest by Professor W. G. Farlow, of Boston, who, in the proceedings of the Bussey Institute, has described and figured the whole process of germination of the fungus, and its influences on the wood of the tree from the beginning to the end. The little fungus grows from seedlike spores. These spores germinate in early spring. They attach themselves to the bark from the outside and penetrate to the new wood that is being formed, and in this delicate substance easily play destruction. The fungus runs riot through the substance, passing through its various stages all the summer season; not until near winter does it ripen a set of spores for next winter's work.

Now, in spite of the clearness with which all this has been proved and explained by Professor Farlow, there will no doubt be some scattered writers who will tell us about the insect origin of the knot for some years to come; but the man of average intelligence and others upwards will accept it, and go to work accordingly. If the spores germinate from the bark outwardly and work through inwardly, a wash of some sort in early spring will be a thorough preventive. There are numerous articles, such for instance as preparations of carbolic acid, lyes, sulphur washes, even whitewash—all fatal to these delicate organisms and yet quite innocuous in regard to stronger vegetation; and there is no doubt but, applied to the stems of the plum and cherry in early spring, any of them would be a complete preservative against these terrible foes.

In regard to the origin of this fungus, Dr. Farlow tells us that it is an American, and that the plant it loves to attack in its wild state is the Virginian or choke-cherry, a small growing kind, and a near relative of our common black wild cherry. The Morello cherry is in structure and habits something like this, and hence is a great favorite with the little parasite.—*Germantown Telegraph*.

#### Non-Heading Cabbage.

Last autumn I was mourning over an unusual number of half-developed cabbages, which were only fit to be fed to the cows, and mentioned the fact to a Dutchess County farmer, who is in business in New York, and has lately bought a farm near us, asking if his crop had turned out badly. His answer was that he had no more soft heads than he wanted, or to the effect that he would feel disappointed if he had not a considerable number. Now we, neither of us, raise cabbages for market, but for our own consumption mainly, and I was utterly at a loss to know what he could do with a quarter of his crop that failed to make heads. He told me that he dug a wide trench, so deep that after some top soil was thrown in he could set the cabbages out in the trench as close as they could stand, and their heads would not come up level with the top of the ground. When planted, he covers the trench with boards and some brush, corn-stalks, salt hay, and earth on the top, keeping it open at the ends or elsewhere until cold weather, and then covering it in close. He said they would all have firm, solid heads in the spring. I tried it, and this spring we are enjoying the best cabbages we ever ate. They are rather small to be marketable, say four and a half to six inches in diameter, solid and sound, crisp and tender, as delectable as cauliflowers, and what is most remarkable, I never know we are going to have cabbage for dinner until I see it on the table. The great objection I have to this most wholesome and delicious vegetable is, that it usually fills the house with its detestable odor, so to have cabbage without this drawback is worth all the trouble it costs.—*Cor. American Agriculturist*.

#### The Phylloxera or Vine-Louse.

Our readers will remember what consternation there has been of late in France among the grape growers, in consequence of the ravages of the phylloxera, and the efforts that have been made to destroy, or in some way get rid of the pest, which threatened to blot out the vineyards and put an end to grape-growing. We are pleased to learn that a remedy has been discovered, and it has been endorsed by the French Academy of Sciences. "M. Dumas recently announced to the French Academy of Sciences that a mode of treating vines attacked by the phylloxera had been discovered, which is certain in its results in destroying the insect and in restoring the vine to health and fecundity. The remedy is the combined employment of sulpho-carbonate of potash, which kills the insect at any depth to the soil, and of potassic, ammoniacal, and sulphuretted manures. M. Dumas himself is the fortunate discoverer, though his announcement to the Academy was not made until after his process had been tried by exhaustive experimenting by the commission appointed to examine into the various plans submitted. This being the case, Dumas became the possessor of the \$60,000 reward, besides numberless other smaller prizes."—*Fruit Recorder*.

#### Winter Berry.

Those who are familiar with the usual style of winter decoration, and realize how gloomy a room is made by the heavy dark wreath of cedars and hemlocks, unrelieved by a flower or berry, or any bright colour, will thank us for urging them to save every flower that will keep in colour during the winter. Make all wreaths light and airy, and enliven them with bright flowers. In England, the Holly, with its bright scarlet berries and beautiful glossy leaves, furnishes the choicest of Christmas trimming, and the condition of the Hollyberry crop is a matter of no little concern. At our last visit we were several times desired to observe the fine promise of an abundant crop of Christmas berries. We need some bright red berry in America to fill the place of the English Holly, of which we give a little sketch. The French rely almost entirely upon flowers for winter decorations. Americans have been content with a mass of sombre evergreens, but we need only point out the better way. In no other country is horticultural taste making such rapid progress as in our own pleasant land.



Another excellent shrub, and one to be found almost anywhere, we believe, in the North, on the banks of creeks and in most places, is the Winter Berry, *Ilex verticillata*. Many of our marshes are ablaze with its masses of fiery berries at this season of the year, and in this section we have nothing to equal it in beauty. Though natural to most places, we find no difficulty in transplanting it to our grounds, where it seems to flourish as well as in its natural localities. *Vick's Floral Guide*.

#### Linseed Oil for Pear-Blight.

The *Rural Home* says:—Two or three years ago, a paragraph went the rounds of the agricultural press to the effect that Mayor Ludlow, of Norfolk, Virginia, had treated the pear blight with remarkable success by applying linseed oil to the diseased parts. It was read by D. P. Westcott, of this city, among others. That same season Mr. Westcott had a tree attacked with blight, the bark of the trunk, below the branches, presenting that blackened, burnt appearance, so indicative of what is called "fire blight."

By cutting through the bark Mr. W. discovered that the inner bark and sapwood were black and apparently dead. Remembering the oil prescription referred to above, he washed the diseased parts thoroughly with raw linseed oil. This was in the autumn. The next spring the tree leafed out, and commenced growing, and upon cutting into the diseased bark, he found that a new inner bark had grown, and the tree is now alive and flourishing.

Last summer his trees commenced blighting again, some of them very badly, and he applied the linseed oil again. The blight was arrested, and the trees have put forth their foliage in good condition this spring, and the new bark under the dead exterior is alive and apparently healthy. We have just called, at his request, to see the trees, and find them as reported above.

Although Mr. Westcott lives in a densely settled portion of the city, he has a liberal lot well stocked with ornamental trees of the smaller kinds, shrubs, fruit trees, grapes, raspberries, strawberries, and quite a variety of garden vegetables, all so well cultivated and pruned as to

be really ornamental. His pears are of a number of varieties, both dwarf and standard, and both kinds have been attacked by the blight.

Although Mr. Westcott does not claim to have fully demonstrated the fact that linseed oil is an infallible remedy for pear blight, he will be very likely to try it again, should his trees be again attacked, and we would advise our readers to do the same, and see what its effects may be in their cases.

**POWDERED WHITE HELLBORE** is, we have frequently stated, a complete and thorough exterminator of the currant-worm; it may be dusted over the leaves when the dew is on, or may be stirred in water and applied with a syringe.

**CURRANT WORMS.**—Dr. Worcester, of Massachusetts, employs carbolic acid for currant worms, and says he finds it less costly, fully as efficacious, and not as dangerous as hellebore. He sprinkles it over the bushes when the worms first appear. Neither the foliage nor fruit is injured, and the worms are soon destroyed. We hope some of our readers, who have occasion, will try this remedy and report the result.

**PROTECTING MELONS, &c.**—A writer to the *Western Farmer* says that he protects the young plants of cucumbers and melons by planting the seeds rather shallow on a low surface, and then placing around each a small, square box, about six inches long by eight inches wide, open at the top and bottom, and three inches high. Against the outside of this box earth is drawn and pressed down solid. The box, which is made a trifle smaller at the bottom than at the top, is then withdrawn, thus leaving a small pit for the plants, which, being protected from winds, soon come up. A pane of glass is placed on the pit to protect the tender plants from striped bugs and increase the warmth. A handle to the box enables the gardener to work rapidly in making the pits.

**CULTIVATING APPLE ORCHARDS.**—Whether to cultivate an orchard or not, depends on several conditions. If the color of the leaves is good, if the growth is good, if the trees bear well of nice fruit, they are doing well enough, even if they are in grass and have been for years. But if the leaves begin to look pale, the growth of the upper twigs much less than a foot a year on trees which have been set twelve years, if the fruit is small in size and yield, then something is the matter. After apple trees are well established they may need no culture in some parts of Pennsylvania, Ohio, and westward and southward, but in Michigan I have never seen or heard of an apple orchard injured by frequent culture. On the contrary I have seen hosts of them, some in every county I have visited, which were suffering for want of the plough, the harrow, the cultivator, or a heavy mulch or a heavy coat of manure as a substitute for culture.—*Cor. Michigan Farmer*.

**BLACK SLUGS.**—The black slug is found upon the under side of the leaf. This fellow, if left to himself, will, in a short time, completely destroy a thrifty vine. Its devastating march is like that of an army of caterpillars. Whenever you find these depredators present, you must at once give them their quietus, or they will ruin your grapevines. In July we found that these little rascals had gained full possession of some of our vines, and at once we took measures for their effectual removal. In four days from the first application of the remedy not an enemy could be seen. They were most effectually destroyed, both the aphid or thrip and the black slug, and the vines being free from these pests soon recovered their wonted greenness. Yet they were much retarded in their future growth and bore much less fruit than they would have done, had they been unmolested by these insects. We use to destroy the slug strong soapsuds, making the solution with hot water. We let it cool before using, and apply it from a garden syringe having a fine rose jet to the under side of the leaves only, repeating the operation twice each day. Soapsuds will effectually kill the slug. The suds made with carbolic soap or tobacco soap is preferable.—*N. Y. Herald*.

**PRUNING TOMATOES.**—Many persons find much profit in pinching back the branches of the tomatoes; and it is a good practice when judiciously done. It may be overdone, however, and injury result. In the first place it is no use to attempt it after the flowers have fallen. The idea is to force the nourishment into the fruit at the earliest start; for it is at that time that the future fate of the fruit is cast. A few leaves beyond the fruit is an advantage. It is only the growth that is to be checked. And then much damage is done by taking off the leaves as well as the fruit. The tomato plant needs all the leaves it can get. It is only the branches that are to be checked in their growth. No one who has not tried it can have any idea of how valuable the leaves are to the tomato plant. One may for experiment take off most of the leaves of a plant, and he will find the flavor insipid, and every way poor. Of course it is the peculiar acidity of the tomato that gives it so much value to all of us; but the acid from a tomato that has ripened on an insufficient amount of foliage, is disagreeable to most tastes. The same principle has been found to work in managing grapevines. The man who judiciously pinches back the branches does well; but he who strips off the foliage to "let in the sun and the air," generally finds that he has made a bad mess of it.—*G. Telegraph*.



# Live Stock.

## Treatment of Young Horses.

Mr. Brady Nicholson, of Staron Grange, Garforth, at a recent meeting of the West Riding Chamber of Agriculture, Yorkshire, England, read a paper on this subject, from which we make the following extract:—Young horses require, like all other young animals, good keep, and grazing upon pasture land that has been well boned. When I was at Newmarket judging greyhounds in 1845, the late Lord George Bentinck himself spread bone dust on the grass where his young yearling race horses grazed. Foals are better taught to lead as soon as taken from the mare and their legs and feet handled. If they happen to meet with an accident, unless they have been haltered and led, they are very hard to manage. Young horses, like children, require kindness and firmness. The more quietly you move about them the better. Numbers of horses are spoiled by ill-treatment. Horses do know the person who behaves ill to them, and most of them, when young, will, after ill-treatment, give a parting salute when they have an opportunity. I also look straight at the eye of a horse when I go up to him. If he drop his ear back, I give him a quick glance; I speak to him, which draws off his attention from kicking. If a man walks boldly up to a horse, he will seldom lash out. Rarey's success was due to his nerve and knowing the proper tackle to put on a horse.

At two years old a young horse had better be mouthed and carefully handled a few weeks before turning out to pasture. At three years he should be broken—a most critical time. Much depends on the proper treatment, getting the horse with a good mouth and manner. Should the horse unfortunately throw the breaker and learn wicked ways, he will try to do so again if he has the least opportunity. A man that rides a young horse should always be on his guard. When the horse is first saddled run him up and down the yard till he gets used to the saddle. By adopting this method, and keeping your heels from touching him when first mounted till he settles down, many a fall and accident may be avoided. Very few men can sit a horse when he arches his back, as they feel as if he were sitting on a grindstone; and if he begins to go up and down like mill-sails, they will most probably find themselves in the same position as the young nobleman yesterday, who was showing a young horse in front of a baronet's house to a bevy of admiring and fascinating young ladies. The horse was a magnificent animal. I have this year myself at two shows helped to award him two first-class prizes. He being much above himself did not approve of the nobleman's handling, and prostrated him on his back, unhurt, in the presence of the admiring fair ones. I, for myself, do not at all envy that nobleman's feelings. Probably, had the horse been run up and down first with the saddle upon him, the rider might not have come to grief.

## Selection of Rams and Ewes.

At the last meeting of the Inworth Farmers' Club, England, an interesting discussion took place on the best selection of rams and ewes for breeding purposes. We subjoin a condensed report.

Mr. Peto stated that it had been his custom for years to get ewes direct from Hampshire, and Cotswold tups direct from the Cotswold Hills. He always endeavored to select them from the best stock that was produced; and had always been perfectly satisfied with the result. He was persuaded that the Lincoln or Cotswold cross was the most profitable one for those living in his particular part of the country. The Down sheep produced a deal of mutton, and could be fattened quickly, and there would be a quantity of lean in the mutton itself, while in the Lincoln the meat is nearly all fat. Consequently the cross with the Lincoln and Cotswold produced such stuff as would benefit the farmer and the community at large. As to the feeding of sheep, he quite agreed that lambs should be fed early, and that a small quantity of oil cake should be used to keep them in a growing state. It was wonderfully against the grazier if he allowed his lambs to lose their lamb fat.

II. Stanley said, he had himself kept both a black-faced and a half-bred flock, and as he had always been careful in keeping an account of the results of the produce of the two flocks, he could say that during the three years he had kept them, he found that the produce of the black-faced flock was considerably more prolific than that of the half-bred flock. The former were a hardier sheep than the latter. There was no doubt that the pure-bred sheep took more time to mature than the half-bred, but when they did get fat, he thought they generally exceeded half-

bred sheep in price. With regard to the black-faced ewe lambs, there was no doubt that they were at least 10s. ahead of the half-bred ewe lambs in the month of August. He found that the buyers of black-faced were generally as three to one compared with the half-breds, as buyers would give 8s. to 10s. a head more for the former than the latter.

Mr. Mansfield thought a cross between a Southdown and a Lincoln, or a Hampshire Down and a Leicester, was as good as any. Then, again, there was another cross, viz., an Oxford Down and a Shropshire, both of which, he maintained, would produce good sheep of a similar character. He thought it was desirable to employ some pure breed. But if a farmer was unable to do that, the best thing he could do was to save the best ewes out of his own flock. He had known flocks produced in that way which paid the farmer a satisfactory remuneration. He thought the cheapest way of producing a good flock was to buy the best lambs they could about the month of August, and keep them in the same way as fat sheep are fed. With regard to the production of cheap meat, the great stumbling block to that was undoubtedly the amount of disease that had been raging in different parts of the country. If some means could be devised for eradicating the disease, it would be a capital thing for the farmer as well as for everybody else.

Mr. Goldsmith, in referring to Mr. Lugar's flock, said he knew the whole history of those sheep. Mr. Lugar's father bought some black-faced ewe lambs and by putting a pure Down tup to them, he first of all got the cross. He (Mr. Goldsmith) considered that they wanted to raise the best mutton they could, but not too fat. If they got a Lincoln and Leicester tup with a pure Down or cross Down ewe, they would then get some good mutton, as well as more wool, which was an important object.

Mr. E. P. Huddleston, whose flock had been referred to by Mr. Greene, stated that he bought the greater part of his sheep, which were bred from a Down flock, crossed by a long-wooled tup. He thought Mr. Stedman had been breeding a great deal at the time, and had used his new tups and had bred in-and-in to a great extent. Some time previous to that he (Mr. Stedman) had suffered a great deal from rickety lambs. The whole of the five years he (Mr. Huddleston) bred sheep, he used an Oxford Down tup, which he used to buy every year. He (Mr. Huddleston) used to pick out about four or five score of the best ewe lambs he had, which were tupped by the Oxford Down ram.

## Packing Wool.

Henry Stewart, in his *Shepherd's Manual*, just published by Orange Judd & Co., thus tells how this work should be done, and then shows the advance in value that arises from doing it well: The manner in which the fleeces are made up has no little influence upon the price at which the wool will sell. Wool buyers prefer to have the fleece loose, light to handle and elastic; and tied up so that it can be easily opened if need be. The method of packing in Ohio and Western Pennsylvania is to lay the fleece upon a table, turn in the head and tail, then the flanks, and roll it up in a neat roll, tying it with a string at each end. Sometimes the fleece is tied with one more string across the ends, but this is rarely necessary, excepting when the wool is very short. A Fleece thus tied is light, easily handled, shows the quality of the wool and can be felt all through. The effect of the manner of putting up the fleece is seen in the following quotations taken from the wool market report of Coates Bros., Philadelphia, July, 1st, 1875:

Ohio, Pennsylvania and West Virginia fleeces..... 107 5/2c  
New York, Michigan and Wisconsin fleeces, XX..... 40 1/2c  
Illinois, Iowa and Missouri fleeces XX..... 45 1/2c

The difference of four to five cents per pound is the value of the extra care in making up the fleeces. The difference is even greater than this, for New York, Michigan and Wisconsin wools of better quality than some Ohio wools, are bought at the regular rates quoted, simply because the Ohio fleeces come to market in better shape. This is no unreasonable distinction, as will be seen when the manner of sorting wool is explained further on.

Nothing should be tied up in the fleece, nor should coarse twine nor too much twine be used. All tags and waste wool should be scrupulously kept out of the fleece, as it should not only look good, but should be good. This observing of little things is one of the ways in which wool growing is made a profitable business. Tag locks and dirty wool should be washed in a tub with soft soap and cold water and sold by itself.

When the grower ships his wool to a distant market, he necessarily packs the fleeces in bales. The bale should be solidly packed both for economy in freight, which in light bulky articles is charged according to bulk and not by weight, and for the better condition of the fleeces on their arrival at their destination. A convenient method of baling the fleeces is to hang the sack from a trap-door in the wool loft. The fleeces are handed or thrown to the

packer, who places them in the sack, pressing them down close with his bare feet, and, as he reaches the top, with his knees; a handful of tags is put in each corner of the sack and tied tightly to make a handle by which the package can be hauled about in its transportation to market. When filled, the bale should be plainly marked with the exact weight, tare, and net weight, upon one of its sides.

## Feeding Values.

We receive many letters of enquiry concerning the feeding values of various cattle foods. This is a subject not yet thoroughly investigated, but we shall endeavor to give our readers the facts as fast as fully developed. In answer to a number of questions, we condense a few facts bearing on the case at issue.

The digestibility of foods is affected by the combination used. For example, a large amount of roots injures the digestibility of hay, etc.; about 4 1/2 pounds of potatoes to 10 of good hay being the best proportion for these two items; sugar beets about the same. Of turneps, mangolds, and carrots, a somewhat larger proportion may be used to advantage. To these add from one to three pounds of grain, according to the sort and the animal, and the ratio is complete. As is well known, the more digestible foods are best for milk cows. The percentage of digestible albuminoids largely determines the nutritive value, though the carbo-hydrates and fats are necessary in the proportion. Coarse material is often a correction to the too free use of concentrated food, and is generally a valuable admixture with good hay, roots and grain. No exact figures for feeding can be given with surety as to the results, but the following table compiled by Professor Atwater, after Wolff, is full of instruction:—

KINDS OF FODDER. 100 POUNDS CONTAIN	Total organic substance	Digestible Organic Substances.			The digestible organic substance consists of	Ratio of digestible albuminoids to digestible carbo-hydrates.
		Albuminoids.	Carbo-hydrates.	Fats.		
<b>A.—COARSE FOODS.</b>						
<i>Dry Hay.</i>						
Meadow hay, very poor.....	80.7	58.8	3.7	37.9	0.5	1:10.6
Meadow hay, average.....	79.5	47.4	5.4	41.1	0.9	1:7.9
Meadow hay, very good.....	78.0	50.5	7.4	42.1	1.0	1:6.1
Timothy, cut at first bloom.....	81.2	59.6	5.8	43.4	1.1	1:7.1
Red clover, average quality.....	78.7	46.3	7.	38.1	1.2	1:5.9
<i>Straw, Chaff, etc.</i>						
Winter wheat.....	81.1	33.1	0.8	31.9	.1	1:11.1
Winter rye.....	81.6	31.9	0.7	32.8	.1	1:11.1
Summer barley.....	81.6	38.7	1.4	36.9	.4	1:27.1
Oats.....	81.7	39.3	1.3	37.4	.6	1:29.9
Corn stalks.....	80.8	33.4	1.1	37.0	.3	1:34.4
<i>Green Fodder.</i>						
Grass, just before blossom.....	22.0	15.4	2.0	13.0	.4	1:7.
Pasture grass.....	18.0	12.7	2.4	9.9	.4	1:4.5
Fodder corn.....	16.7	10.9	0.8	9.9	.2	1:13.
Red clover, in blossom.....	20.3	11.9	1.8	9.6	.5	1:6.
<b>B.—CONCENTRATED FOODS.</b>						
<i>Grains and Seeds.</i>						
Barley.....	82.5	67.2	8.0	57.5	1.7	1:7.7
Oats.....	83.	55.5	8.9	41.8	4.7	1:6.
Indian corn.....	81.1	71.0	8.1	57.8	4.8	1:8.3
Peas.....	84.3	73.6	22.0	49.9	1.7	1:2.7
Field beans.....	82.4	68.0	23.0	43.6	1.1	1:2.1
<i>Roots and Tubers.</i>						
Potatoes.....	21.1	23.0	2.1	20.6	.3	1:10.1
Sugar beets.....	17.8	16.5	1.0	15.4	.1	1:15.7
Turnips.....	7.3	6.5	1.1	5.3	.1	1:5.1
Carrots.....	14.1	12.1	1.1	10.8	.2	1:8.1
<i>Refuse Products.</i>						
Barley slump (distillery).....	9.7	7.6	1.3	5.1	0.4	1:3.6
Brewers' grains.....	22.2	13.8	3.9	9.5	0.1	1:2.7
Malt sprouts.....	85.2	58.1	18.4	38.0	1.7	1:2.3
Wheat bran.....	81.5	51.9	10.9	37.6	3.4	1:4.2
Linsed cake.....	80.6	60.7	23.8	29.0	8.9	1:2.2
Cotton-seed cake (decort'd).....	82.2	55.7	28.8	17.0	9.9	1:1.5
Western mill'lings.....	85.2	71.7	8.4	61.3	2.0	1:7.8

\*1 pound fats is reckoned equal in nutritive effect to 2 1/2 pounds carbo-hydrates.—Scientific Farmer.

## Thoroughbred Stock.

A writer in the *New York Times* puts the question plainly, in saying if a farmer is raising cattle for beef, he can add 200 pounds to the carcass of each by the time it is ready for the shambles, by the use of a Short-horn bull. It will certainly be profitable to him to pay a good price for such a bull. This is the average result of using thoroughbred bulls on the native cows of the country, as estimated by the best stock-breeders; and this 200 pounds is a clear gain, for it is produced by no greater consumption of food. If the use of a thoroughbred ram on a flock of ewes increases the weight of fleeces one pound on the average, certainly more than "five in a hundred can make it pay," whether more than five would or not, is another question. And so with hogs. The difference between the common



breed of the past and the improved breed of to-day is beyond comparison.

Nothing can be more penny-wise than the practice of many of our farmers of breeding from scrub or grade bears. To the farmer who breeds ten or more sows a thoroughbred bear is cheaper at \$50 than a grade bear at nothing, even if the hogs are all to be fattened. A single dollar on a pig would make up the money, and I am confident that in many cases I have seen a difference of \$5 each, with the same care, between thoroughbred hogs and those that have been bred hap-hazard. On hundreds of farms to-day can be found stock hogs a year old that will not weigh over eighty pounds each, and that are not 10 pounds heavier than they were in December. If offered for sale now they would not bring over five and a half cents a pound, and they have probably consumed as much grain as the breed of hogs that, at the same age, weigh 200 pounds and are worth seven cents a pound.

The man who is carefully breeding pure stock is a public benefactor, and ought to be well paid for what he offers to the public, for it is valuable. Such men should be patronized and encouraged, for the farmer cannot do without them. In the good time coming, more attention will be paid to this matter than at present. Not only should this question be discussed in the grange, but the members should co-operate, and purchase such animals as will improve their stock.

Experimenting with Grades.

S. W. Hart, of Lapeer county, Mich., has been experimenting with grades, and the following is a report of the results as given by the *Milwaukee Farmer*. It shows conclusively that hay is not a *sine qua non* with stock, and that it can be successfully bred in seasons when the hay crop is short by the use of auxiliary crops. These cattle were bred from fair native cows, and the bull was a thoroughbred Short-horn, so that we may consider them half breeds. The cattle were sold as follows:

One pair over 3-year-olds	.....	2500
One cow	.....	1150
The 3-year-old steers bred and fed by Hart are as follows:		
1 pair 3-year-old steers	.....	2075
1 pair 2-year-old steers	.....	2000
1 pair 3-year-old steers	.....	2000
1 pair 3-year-old steers, steer and heifer	.....	2000

Hart raised these 3-year-olds on skim milk when calves, they never eat a ton of hay, and no hay at all, for the reason that he did not have the hay. All the past season he fed them corn stalks, turnips and gram. The driver who purchased them took the whole lot with an allowance for shrinkage of 91 lbs. for their delivery in Detroit, below their weight at Milton. We have a lesson here about feeding. Hart, by use of a good bull had good stock to work with, and taking into consideration that he was short of hay, fed a splendid lot of cattle, making up in attention to his stock for his want of hay. In this he has set an example, and we are much pleased to present his report to our readers, for it shows that "blood will tell." We ask, then, can any farmer that takes his chance of the bulls met with, show anything like this record?—*Boston Cultivator*.

Treatment of Shying Horses.

Shying generally arises from timidity, but sometimes it is united with cunning, and induces the animal to assume a fear of some object for the sole purpose of making an excuse for turning aside. The usual cause of shying is, doubtless, the presence of some object to which the horse has not been accustomed, and if he has defective eyes, which render him short-sighted, it will be difficult to convince him of the innocent nature of the novel object. There are endless peculiarities in shying horses, some being dreadfully alarmed by one kind of object which to others is not at all formidable. The best plan of treatment which can be adopted, is to take as little notice as possible of the shying and to be especially careful to show no fear of its recurrence when the "alarming" object appears in the distance. When the horse begins to show alarm, but not till then, the driver should speak encouragingly to him, and if necessary, with a severe tone, which may even be supported by the use of the whip if his onward progress cannot otherwise be maintained.

The principle which should be carried out is to adopt such measures as will get the horse to pass the object at which he shies, somehow or other, and this should be effected with as little violence as possible, always commanding an encouraging tone as soon as the purpose is gained. Nothing has so great a tendency to keep up the habit as the plan so common among ignorant groomers of chastising the shyer after he has passed the object of his alarm. If he can be persuaded to go quietly up to it, and examine it with his muzzle, as well as with his eyes, great good will be effected, but this can seldom be done with moving vehicles, and heaps of staves or piles of sand are generally only alarming from defective vision, so that each time they assume a new phase to the active imagination of the timid animal. Punishing bits only make a high couraged horse worse, and the use of "overchecks" rarely, if ever, prove beneficial.

Sheep Treatment in California.

The only disease of any consequence which troubles the Californian sheep-grazer is "scab." This is very troublesome at times, but is not of such a fatal character as the disease of the same name in Britain. Indeed, it is seldom or never fatal in California, and as the expense of removing is considerable where the flocks are so extensive and the appliances difficult of access, we find that in many flocks no attention is paid to the disease whatever, but it is allowed to run its course. In this case it is found that the disease leaves the sheep after a time, and the animal is again restored to its former health and quality of fleece; although of course during the time the animal is so affected it is almost worthless either for its mutton or wool. This carelessness, however, in regard to the disease referred to, is gradually but surely dying out, and it is very probable that in a few years either Government will find it necessary to legislate for its proper removal, as is at present done in New Zealand and Australia, or the grazers themselves will find it necessary for their own advantage to have the disease properly attended to. Among the more intelligent and wealthy class of sheep-owners in the country, however, we find that very great attention is paid to its cure, and in such cases I have seen flocks of 30,000 sheep belonging to one person where the disease was completely stamped out, and careful attention paid to its removal whenever the least signs were observed of its return, which sometimes occurred from proximity to ranches where the disease was not attended to. The ranch from which I have taken my observations on this subject was provided with a most complete arrangement for the cure of the disease by "dipping."

The ingredients used for the dipping were an infusion of tobacco with common sulphur—or about 20 gallons of the former to 1 lb. of the latter. The tobacco was allowed to steep for about a fortnight or so, before being used, in a large tank, capable of containing over 10,000 gallons at a time. When the infusion was complete, the liquid was drawn off into another tank, preparatory to its being used, while another infusion was set agoing in the first one. The liquid in the infusing and store tanks was heated by steam in a large boiler. The prepared tobacco juice was run from the second tank into what was called the "dipping tank," in such quantities as was required. It was then heated to 150 degrees, and mixed with sulphur in the proportions already given. The dipping tank was about 15 feet long, 6 feet deep, by about 3 1/2 to 4 feet broad, and was lined with lead.—*Cor. North British Agriculturist*.

The Comfort of the Horse.

Doubtless much of the cruelty exercised through the bearing rein is done in sheer ignorance of its effects upon the animal's mouth. The plan, or rather torture, originating with jockeys, solely to give the head a sprightly but unnatural cast, has been propagated through successive generations thoughtlessly, until it is now regarded as one of the essentials of a horse's outfit. It is nevertheless a piece of wanton cruelty, and should be cast aside as such. Mr. Flower, of England, an eminent authority, condemns it unconditionally, and has written a series of articles on the subject, which are attracting universal attention. From one of these, to the *English Livestock Journal*, we make an extract. He says:—The important object which it is sought to effect by the use of the bearing-rein is beauty of the head and neck. We doubt whether the desired objects are really effected by its use. The gag bearing-rein is the successor to the simple bearing-rein, a comparatively harmless contrivance, which was much in vogue some thirty or forty years ago. That the new apparatus occasions much pain to the animal there cannot be two opinions. The action of every muscle of the head is impeded, and should a false step be taken, we should imagine it would be more difficult instead of easier, as some assert it is, for the animal to recover its feet.

Perhaps the simplest, most effective, and most humane form of bit to use for riding or driving is the curb bit with port, &c., with an arch in the middle intended to make the pressure rest on the bars of the mouth instead of partly on the tongue. Such a bit is strongly recommended by Major Dwyer, and Mr. Sidney in his work draws attention to it. Even this, however, it will be very necessary to get properly fitted to the horse's mouth. An interesting fact is recorded by Major Dwyer as to the size of horses' mouths. He says that out of 400 horses belonging to certain squadrons of light cavalry, which he examined some eight or nine years ago, the width of the mouth was, for the smaller ones, exactly four English inches, and for nearly the whole of the remainder 4.2 inches, one or two only reaching 4.3 inches. What follows is also important, and applies with some force to the bits manufactured at the present day.—"A great number of bits," says the Major, "were put down for alteration as being a half to one inch too wide, and some thirty or forty went to the heap of old iron, as being useless from their immense size.

Let any cavalry captain in the British service take the trouble of ascertaining, which he may easily do, how many bits in the troop are half-an-inch, a full inch, or perhaps still more, too wide, he will probably then find a clue to many little annoyances he meets with during drill." The curb-bit is therefore the kind of bit recommended by the best horsemen of the day. It appears to possess all the essentials of a good bit, and if properly fitted to the animal's mouth will supply an easy and effective mouth-gearing. In the cases of horses that have acquired the bad habit—generally an incurable one with old animals—of getting their tongues over the mouthpiece, the action of the curb-bit is rendered occasionally somewhat uncertain. In such cases recourse may be had with considerable advantage to the snaffle for a time, after which a carefully-fitting bit should be secured.

CORN AND PORK.—For the benefit of hog traders, we give the following table, showing the quantity of corn required to produce a pound of pork, and the price of pork, which seemed to be governed by the relative price of corn: When corn costs 12 1/2 cents per bushel, pork costs 1 1/2c. per pound; corn 17c. per bushel, pork 2c. per pound; corn 25c. per bushel, pork 3c. per pound; corn 35c. per bushel, pork 4c. per pound; corn 50c. per bushel, pork 6c. per pound. Whether these figures are approximately correct or not, they will serve as a basis, at least for careful calculations.—*Colman's Rural World*.

HAY OR MEAL FOR COWS.—A correspondent of the *London Agricultural Gazette* traced the change of opinion with regard to hay in his own neighborhood: "Years ago the practice here was almost invariably to feed the milking cow on hay alone; then some few dairymen began to give those cows that had lately calved, two or three pounds of linseed cake per day; then some of the poor grass land on the dairy farms began to be broken up, and some mangles were grown. Now the rule is often to cut up straw and partly hay, and mix with pulped mangles, and give each cow four or five pounds cake or meal, or both."

HORSE FEEDING AT CIRENCESTER.—An old student, signing himself "W.," thus relates the system of feeding of farm horses on the College Farm, Cirencester:—First, with respect to last winter, thirteen horses were receiving weekly 30 bushels of brewers' grains, 20 bushels of oats given whole, 12 bushels of crushed Indian corn, wheat chaff (or chop) as much as required. The grains and corn were mixed with chaff in a conveniently-placed bin as required. The times of feeding, 5 to 7 a.m., 12 to 1 p.m., 5 to 7.30 p.m., and they were watered at 6 a.m., 12.30 p.m., and 6 p.m. No hay or fodder other than straw is given. In summer the thirteen horses receive among them weekly, 30 bushels of grains, 20 bushels of oats, and 6 bushels of split beans, with wheat chaff (or chop) as much as they require, and also as much green trifolium as they will eat. When on dry food they are found to consume about 5 bushels daily of the mixed corn and chop and brewers' grains.

FEED FOR SHORT-HORNS.—At a fine stock convention held recently at Vinton, Iowa, the well-known short-horn breeder and dealer, S. W. Jacobs, said the average weight of his short-horns at one year old was 1,000 pounds. He fed milk six months and grain six months, giving four quarts daily. He also said:—I treat a calf kindly, give it its mother's milk only; at four weeks old it will commence to eat dry shelled corn. I do not measure the quantity, but let it eat what it will eat clean; feed three times per day; do not let it out in the hot sun to graze; curry it sometimes; at three months old I feed some wheat, and about what will lay in my hand of linseed meal. That does not physic, and improves the hair and appearance of the head; and also, when an animal scours, give it oil-cake. For a large bull you want a double stall; half an hour of exercise by letting him run in the yard; water as often as he wants it. We water our stock three times a day. Feed a bushel of cut hay mixed with fifteen pounds of corn meal and three pounds of oil-cake.

BALKY HORSES.—The *Kentucky Home Journal* gives the following directions for breaking up the balking of a vicious stubborn horse: "Put on your harness and hitch him to anything you desire, either single or double, as you feel disposed, and give him the commanding word to go ahead. If he goes, you have nothing to do or say but let him go on and do your work; but if he refuses to go, take him out immediately, take all the harness off except the bridle, and take a small rope the size of a plough line, and tie one end to the bit on the right hand side, and pull it through the ring of the left under the chop, pull his head around to his left side, and slip the rope under his tail like a crupper and make it fast, keeping his head tolerably close to his side. Now all is ready, so let him go, and take a good long whip and make him go, talking kindly to him all the time. He will travel like a dog after his tail, for he can travel no other way, but after a while he will fall down, when you will immediately let loose the rope and let him get up; now talk kindly to him and caress him. Your work is now half done, for you have only to tie the rope to the other side of the bit, and pull his head around the other way, and make it fast like a crupper, the same as before, and start him off again and let him go till he falls down a second time; let him get up immediately and hitch him up, and you will probably never have any more trouble with him."

## The Dairy.

### Salting the Milk in Cheese-making.

**EDITOR CANADA FARMER:**—I have been informed that the plan of salting the milk instead of the curds is a decidedly preferable one, but, before I try it, I should like your opinion about it. Also, please state what is the proper quantity of salt for the ordinary method.

Ingersoll.

SUBSCRIBER.

We much prefer salting the curds, for the simple reason that the butter is equally as good, and a very large saving is effected in salt and whey. The usual quantity of salt for the curd is from 3½ to 4 lbs. for every 1,000 lbs. of milk; when the milk is salted instead of the curd this quantity has to be increased to from 17 to 18 lbs. for every 1,000 of milk, and then of course the whey is as good as lost, for it cannot be utilized for feeding.

Since the above was in type we find the *Rural New Yorker* confirming our view. It says: It is true the salting of the milk distributes the salt evenly through the mass and avoids the labor of mixing the salt with the curds; but these advantages are not sufficient, it would seem, to recommend its adoption among dairymen, and if the value of the salt and whey be taken into account, the gain by this practice would hardly balance the loss. We have tried salting the milk, but have not discovered that any improvement is made in the quality of the cheese, nor do we know that any improvement is claimed by such manner of salting.

Some ten or fifteen years ago the salting of cheese by applying it to the milk was highly recommended by certain dairymen, and although many cheese-makers were induced to try the plan, they soon abandoned it, and of late we have heard but little of its advantages.

In salting cheese in the curds, care should be taken to have the salt free from lumps. It should be passed under a roller or ground in a mill made for the purpose, for unless it is reduced to a finely divided state, it will not be likely to be evenly distributed through the mass—a point which is always essential in salting cheese.

### The Annatto Plant.

Annatto, used so extensively by dairy men, in coloring their products, is a substance taken from the seed pod of the annatto plant, *bixa orellana*, of Brazil. The plant is an evergreen, and is grown in some green-houses as a curiosity.

The coloring matter is wholly upon the outside of the seeds, which are about the size of common raisin seeds, which they much resemble. They are contained to the number of forty or fifty in the pods.

The coloring matter is about as thick as common writing paper, and may be scraped off from the seeds, leaving the latter as clean and bright as buckwheat grain, and of about the same color. This outer covering, from which the color is extracted, is a portion of the dried pulp of the fruit, adhering to the seeds like the mucilagenous matter of unwashed pumpkin or squash seeds. It is entirely free from taste or odor, and appears to be pure color and nothing else.

Annatto, as it is received in the paste form, from Brazil, has a peculiar aromatic or nutty odor, which is derived from the flour or meat of the seeds. This flour is as white as the flour of wheat or other grain, but is not as dry and starchy, resembling in consistency more the meat of a fresh shagbark or butternut.

Annatto was formerly used principally by dyers, and the preparation of the paste is carried on by the native Brazilians in a very crude and careless manner, but since it has become one of the necessities of the modern dairyman, its mode of preparation and manufacture has been entirely changed. The pure, clean annatto seeds are used by the natives in their soups, and for flavoring foods, as we use caraway and other aromatic seeds in our cookery, and they are as harmless as ours, but the paste, or "basket" annatto, as it is usually called, because it comes packed in basket work or straw mats, like those used for dates, is quite another affair. It is coarse, crude and dirty, and really only fit for the dyer for whom it was originally prepared.

Since annatto has come into such common use in the dairy room, our merchants, who make a specialty of dairy supplies, have found it practicable to import the pure annatto seed and extract the coloring matter here in a neat

and scientific manner, and thus obtain a perfectly pure and harmless product, as much superior to the imported article in purity as is a clear crystal of gum arabic superior to the school boy's chewing gum, scraped from a log at the saw-mill.

### 'On Souring of Milk during Thunder Storms.

It is a fact, to the truth of which all housewives will testify, that immediately after a brilliant display of atmospheric electricity, milk which was sweet before will be found to be sour. The souring of milk is undoubtedly caused by the sugar of milk being changed into lactic acid. But what produces this change in so short a time? Under natural conditions, milk will remain sweet for at least a day, while during a thunder storm the change will take place in an hour's time.

A great number of reasons have been given for this rapid souring of milk, as the jarring of thunder, etc. But the simple explanation was the result of an experiment tried by an Englishman named Andrew Crossee, about fifty years ago. The gentleman was endeavoring to produce crystals by decomposing a silicious solution by means of the electric current. After he had passed electricity through the solution several hours, he was astonished to find some oval bodies covered with bristles moving through the solution, and kicking out in every direction. At first it seemed as if electricity produced life, but further experiments showed that it simply hatched the germs already in the liquid, for if precautions were taken to exclude them, no animal life was produced by electricity.

These wonderful experiments set the scientific world to thinking and experimenting; and, as the result, Hällier, Pasteur and a host of investigators, have shown that the souring of milk is caused by the presence of a large number of minute plants called fungi. The presence of negative electricity is essential to the rapid development of these minute plants. By charging milk with positive electricity, it may be kept sweet for several weeks. This fact may prove to be of practical utility in the arts.

Now, during thunder storms everything is favorable to the growth of fungi. The air is warm, moist and charged with negative electricity. In a short space of time whole forests spring up in every pan of milk, and succeed in souring the milk and the temper of the housewife.

This explanation is given by Prof. W. K. Kedzie. It throws light upon a mystery. But how does thunder addle eggs upon which hens are sitting? That must be due to concussion or vibration, we suppose. Will not some profound Long Island buckwheat eater answer?—*Brooklyn Sun*.

### Butter Packing.

We wish to impress upon the minds of Western dairymen and makers of butter the necessity of paying strict attention to this great interest, which is yearly growing in magnitude, if they wish to compete with other sections. The packing and packages used are almost as essential points as making, and this fact should be remembered. Of course all butter is not alike, and it cannot be sold at the same price, but a little more care and attention paid in this respect (packing) would do considerable toward bringing about more uniformity in prices. Very often commission merchants receive complaints from country shippers, stating that their butter was as good as their neighbors', which was sold as choice, and probably two to five cents higher than theirs. This may be so in their estimation, but other parties may differ; their neighbors' butter may have been put in more desirable packages (probably new tubs) while theirs was packed in jars or old tubs. Then again, their butter may have been streaked—probably only the least trifle, while their friends' may have been straight and uniform in color—all of which would naturally tend at times to make a wide difference in price and create dissatisfaction. Parties should be careful and pack butter uniform in color, and should particularly remember the fact that streaked lots, no matter how sweet and choice, cannot be brought into competition with lots running uniform in color, the latter always commanding a much quicker sale at a fair premium and in every way compensating dealers for their extra labor and care.

The packing and packages used are, however, of no ordinary account in the matter of realizing the best market prices, and during hot weather particularly should shippers be especially careful in regard to packages. Jars should be avoided as much as possible, costing more freight, besides being a package not easily handled. In handling at the stations and express offices, and even in forwarding, jars are often placed on top of each other, and as there are

no covers for protection, the quality is materially damaged by defacement and the price is considerably lessened. Parties should be careful to pack their butter solid, completely filling the packages, and spread a piece of clean, new bleached cotton cloth over it, dipped in brine, neatly tucked in at the edges, so that when removed it will not damage appearance. Another fact to which we wish to call the attention of farmers and makers of butter is that they should buy their own package and pack their own butter in original packages, so as to do away with this country second-handed re-packing business, which causes so much streaked butter.—*N. Y. Com. Bulletin*.

### Philadelphia Gilt Edged Butter.

Many judges of good butter aver that the best butter that can be found in the United States is made near Philadelphia. But if the same degree of neatness and care be observed in other localities where the cows are supplied with as good grass, there will be no difficulty in making an article fully equal to Philadelphia print butter. The milking is done quietly and rapidly, the same milkmaid always attending to the same cow. The spring house is usually of stone, on a side hill, the floor covered with running water, and, therefore always cool and free from odor. Deep tin pans, painted on the outside, with bails for handling, are filled to the depth of three inches, placed on an oak floor, surrounded with cool, clear water of a temperature of fifty-eight degrees. The cream is taken off in twenty-four hours, kept in deep vessels holding two gallons, and stirred whenever a new skimming is added. A barrel churn is used, the churning lasting an hour, when a little cold milk is added to cause the butter to gather. The buttermilk drawn off, ice cold water is added twice, a few turns given to the churn each time and the last water is scarcely colored with milk. A gentle rocking of the churn soon collects the butter, which is left two hours to drain off the remaining water through a small hole made for the purpose. The butter is worked by a corrugated wooden roller revolving on a shaft supported over the centre of the table, which also revolves under the roller. The roller does not quite touch the table, so there is no crushing of the particles, but a separation which permits the water or milk to flow away. A cloth wrung dry in cold spring water is repeatedly pressed upon the butter until not a particle of moisture is seen upon it as it comes from the roller, and the butter begins to adhere to the cloth. That is called "wiping" the butter. An ounce of salt to three pounds of butter is then thoroughly worked in by the aid of the same machine. It is then weighed in pound prints, deposited in trays and set in water to harden. The next morning it is wrapped in damp cloths, each pound by itself, put in a tin case upon wooden shelves, with two compartments of pounded ice to keep it cool, and surrounded by a cedar tub, it is sent to market and sold at \$1 a pound.—*New York Herald*.

**SOMETHING ABOUT CREAM.**—There is a new discovery in the science of setting milk for cream, which bids fair to eclipse everything yet invented for bringing cream to the surface in the least possible time, thereby preventing the loss caused by the variation of temperature and the time required to raise the cream, as well as storage and labor. The plan looks very feasible, but has yet to be proved practicable. It is this: strain the milk into cans leaving some space in the top, then fit on covers air tight and pump the air all out of the top of the can over the milk with an air pump; this will cause a powerful suction through the milk, and aid greatly in bringing the globules of cream to the surface. Farmers try this and report in the *Cultivator*. The idea is just presented to me, and I have not had time to try it.—*Cor. Boston Cultivator*.

**NOVEL METHOD OF MAKING BUTTER.**—Dr. E. Wayne Sylvester, Wayne county, N. Y., recently related his experience with a French method for making butter, to which his attention was called several years ago. It consisted of putting the cream in a canvas bag, and enclosing that in still another bag, so as to prevent the cream from escaping and any foreign matter from entering; then placing the bag in the ground two feet deep when the earth was dry, covering it over, allowing it to remain twelve hours. This he did, and at the expiration of the prescribed time found the inner bag full of the most excellent butter. After receiving the same attention as butter gathered from an ordinary churning, it was pronounced by competent judges a superior article. Since this first venture he has repeated the experiment, sometimes with success and sometimes with failure. Consequently he explains the churning as due to electric currents, passing underground, the whole law of which not having yet been attained accounts for the failures.

## Veterinary.

### Laminitis, Founder.

The disease known as founder or laminitis, or fever in the feet, is one often noticed among the horses of this country, and as its name, laminitis, implies, it signifies inflammation of the sensitive laminae. The inflammatory action is however not confined to the laminae alone, but the other sensitive structures are also attacked. Laminitis occurs in the acute and sub-acute form: acute laminitis is a very serious disease, and is one of the most painful the horse is liable to, the parts attacked are extremely sensitive, and its hard and resisting hoof adds to the severity of the diseases of the foot generally.

In laminitis the same changes occur as in inflammation in the other parts of the body. After producing separation of the sensitive and insensitive laminae of the sole, etc., the bone is allowed to descend, causing a bulging of the sole which is known as pumiced foot.

**CAUSES.**—The heavier breeds of horses that have broad and flat feet are predisposed to laminitis, but it may occur in a very violent form in any kind of feet. The great exciting cause is hard and fast work when an animal is not in a fit condition to undergo violent exertion. The shoe being upon the sole is another common cause especially in horses with flat feet. It is apt to follow derangement of the digestive organs, and therefore very violent attacks frequently supervene upon an attack of indigestion, or from an animal eating a very large quantity of oats, wheat or barley, or from drinking of cold water immediately after a fast drive, a very common cause in the hot months of summer.

**SYMPTOMS.**—The acute form of laminitis exhibits all the symptoms of high fever, attended with great pain and disturbance of the normal functions, therefore the pulse is quick, full and bounding, the horse is so sore and stiff that it is with the utmost difficulty he is got to move. The fore feet are oftener affected than the hind ones, and when the disease is altogether confined to the fore feet the action is marked, and peculiar. He throws his weight to a great extent on the hind legs, causing an arching of the loins and trembling at the flanks. When both the hind and front feet are affected, the action is somewhat different; every movement gives him intense agony, and there is a peculiar twitching of the hind limbs at every step. The plantar arteries are throbbing and the feet are extremely hot, the breathing is also quickened and in most cases the bowels are very constive. If you attempt to force him backward he draws his fore feet along the ground, sometimes he will lie down upon his side with his head stretched out and every now and again pawing with his fore feet. From these symptoms one might fancy that he is suffering from some bowel affection, but if he is forced to rise, the true nature of the disease is very evident.

**TREATMENT.**—The constitutional symptoms are best relieved by sedatives and purgatives, and in some cases the abstraction of eight or ten quarts of blood is beneficial and the operation of blood letting has been very much extolled in the treatment of laminitis. Experience however tells us that often sedatives are equally as powerful and effective as blood letting, and in most cases I would decidedly give the preference to the *tincture of aconite* which should be given in ten to fifteen drop doses every three hours, and a full dose of purgative medicine, as aloes, eight to ten drachms, should also be administered in all cases where the bowels are constive. There may be exceptional cases where diarrhoea is present, when, as a matter of course, purgatives would be inadvisable.

The shoes should be removed and the feet enveloped in warm poultices, and bandages applied to the limbs as high up as the knees or hocks. The patient should be placed in a comfortable box or stall, and if he lies down, so much the better, and the body clothed according to the state of the temperature.

Give pure cold water, a little at a time but frequently, which is grateful to the sufferer and also appears to have a sedative effect. In cases where the pain is very severe, it may be considered desirable to administer an opiate.

Clysters of soap and water should be given occasionally until the bowels act.

By the third or fourth day, if the symptoms have become less severe, the sedatives should be discontinued and diuretics given instead, one drench of Iodide of Potassium or Nitrate of Potash morning and night. Whenever the patient can move tolerably well a shoe should be applied, and the best description of shoe is the one recommended by Mr. Broad of London, England. The shoe is thick at the toe, gradually becoming thinner towards the heels, therefore throwing the weight to a great extent upon the frog.

Bleeding from the toe is often practised by farmers in the treatment of laminitis and in most cases it is decidedly injurious, from the emotion produced by cutting into the parts. When however effusion is suspected, the sole must be opened near to the toe and the effusion allowed to escape.

Laminitis is not a fatal disease, but unless it is checked by the fourth to the seventh day, it proves very tedious and may render an animal almost useless. Where a tenderness remains after the acute symptoms are abated it may be advisable to apply a blister along the coronet.

### Inflammation of the Bladder in Sheep.

In ordinary fed sheep retention of urine and inflammation of the bladder is not of very frequent occurrence; but highly-fed rams and wethers seem to be peculiarly liable to it. This is a disease which requires the most delicate, and at the same time the most speedy treatment. The animals which become affected are generally those intended for some particular use, such as for exhibition, which have received liberal feeding, and are consequently of more than ordinary value to the stockowner. Being in a highly fed condition, they do not withstand, so well as other sheep, the operations necessary to get rid of the disease, and the fatality from the complaint is great. The disease is induced by gravelly sediment forming in the bladder of the animals, caused, there can be no doubt, by the rich food of which they partake. The first thing to be done when the disease makes its appearance is to endeavour to pass the sediment off by gently rubbing the part where the inflammation is. The part at the same time should be bathed with warm water. Should this have no visible effect upon the inflammation, immediate piercing of the bladder becomes necessary, or the inflammation being communicated to the kidneys, and subsequently to other parts of the internal organization, the animal will soon succumb to the extreme pain. Some sharp instrument should be used—such as a pair of scissors—to penetrate the part with, when, if successfully done, the sediment may be removed. This operation is the only one calculated to save the animal after the disease has exceeded its primary mild form, and should there be any appearance of straining, the sheep should be at once killed. Too much roots, particularly mangolds, are, to a great extent, blameable for this disorder in sheep, so that the farmer should regulate the quantity of this feed when given to his highly-fed animals. While the animal suffers, a small quantity of carbonate of potash—about a drachm dissolved in water, should be given to it once or twice a day. Easily digested food should also be given.—*English Live Stock Journal.*

### Hints for Calving Time.

The troubles which attend the calving time of cows are oftencst and best met in advance by the ounce of prevention, which is better than the pound of cure, or the many pounds of attempt to cure. Especially is this true in the case of heifers with their first calves, when it is all-important to establish a good and healthy habit of coming in right. Old or middle-aged cows, which are well established in good habits of this sort, may be left to go through by themselves, after having been carefully tended in the main operations of feeding and keeping from exposure to cold and wet. But the heifer is entering upon a new experience, which will subject her vital forces to the most extreme tension. A general carefulness in the treatment of all the breeding cows should be rigidly enforced. They should be kept from all sorts of violence and from the fear of it; they should not be made to strain or jump in getting over bars, fences or water gullies; they should not be made to travel faster than a walk; they should not be roughly spoken to; they should not be crowded and jostled among other cattle, or subjected to the pushing or hooking of others; but in all ways they should be handled gently and be made to feel that their master is their friend.

The swelling udder of the heifer should be carefully watched in this, its new experience, the most important function of her existence, since, without a good bag, she will be of small account as a cow. In the case of heifers

and cows which come in early in the season, there is less danger of inflammation from a too great flow of milk than in those which come in when grass is abundant; but this thing should be attended to at all seasons. If the udder is full and hard before calving time, and is likely to become inflamed, the best thing to be done is to draw off some of the milk before resorting to outward applications. If no milk can be drawn, in consequence of the bag having become hard before it was attended to, it should be carefully bathed with warm water, in which a little salt has been dissolved, or in a warm, weak soap-suds. An ointment of hog's lard and cream, or fresh butter with camphor in it, may be rubbed on the bag and teats by the hand.

If everything seems to be going on right with the animal, it is best not to interfere with the healthy process of nature, only to provide nutritious food, dry beds and shelter from the cold storms. If it seems necessary to administer internal preventives or remedies for milk fever, the most approved medicine among our dairymen is a solution of salt-petre, two teaspoonfuls a week for two or three weeks before calving, given as a drench. Plenty of pure water to drink, as well as plenty of good food to eat, is a staple item in the care of cows at the time of calving, as well as at all other times. Cows which are in high flush are most likely to be troubled with milk fever.

Immediately after having dropped her calf, the cow should be treated to a pailful of warm, thin mush of mill-feed in water, which will assist her vitality to expel the afterbirth, and enable her to go on with the motherly care of her calf, which she knows how to do, and in the doing of which she should not be meddled with, if the calf is able to get upon its feet and go for its dinner.—*Country Gentleman.*

A FRENCH SURGEON, noticing that the foot and mouth disease does not attack cattle affected with the cow-pox, vaccinated twenty five oxen, and not one of them had the disease, though living with animals largely infected with it.

**KILLING TICKS.**—A correspondent of the *Country Gentleman* sends that paper the following receipt for preparing a mixture to kill ticks on lambs: "One lb. of arsenic, 1 lb. of sulphur, 1 lb. of potash. Take a boiler large enough to hold 6 pailfuls of soft water; heat to a boil with the above mixture; add 1 gallon of soft soap, then stir until all is dissolved, when it is ready for use. To apply I use a pint oiling can with a spout; put carefully on by opening the coil around the whole body. The operator's hands should be free from cuts. I have used the above for many years with success for a flock of 100 sheep."

**SADDLE GALLS.**—To prevent saddle galls, the saddle should be lined with some smooth, hard substance. Flannel or woollen cloth is bad. A hard finished, smooth, raw-hide lining, similar to those of the military saddles, is preferable. Then, if the saddle is properly fitted to the horses' back, there will be no galls unless the horse is very hardily used. Galls should be washed with soap and water, and then with a solution of six grains of copperas or blue vitriol, to one table-spoonful of water, which will harden the surface and help to restore the growth of skin. White hairs growing upon healed galled spots cannot be prevented.

**"BISHOP'S" HORSES.**—The *Rural World* describes this fraud which consists of operating on the teeth of an old horse with a rasp or file, so as to make them resemble the teeth of a young horse. As the horse grows old the gums shrink away, making the teeth look long—one of the best evidences of old age. The horse's mouth is opened and an instrument put in it, so it can't close it, and the head is tied up high and the bishop's rasps down the teeth to about the length of those of a young horse. Sometimes the indentations in the teeth are also made so as to resemble those of a horse six or seven years old, and horses have even been taken by government inspectors, thus operated upon, without detection. The name, we presume, comes from a man by the name of Bishop, who probably introduced the practice. The operation is only carried on in our large cities by sharpers.

**FOOT ROT.**—The only preventive and perfect cure known to me is a dip in a solution of arsenic. At first my reason for dipping with arsenic was to destroy the parasites which are so injurious to sheep. At that time I dipped in October or November, at length I found September a more suitable time, at which time foot rot, as formerly stated, is very prevalent. I observed that in about two or three weeks after dipping, the cases of foot-rot were comparatively few in number. I now dip, if weather permits, about the end of February, which I find to be the most suitable time for the destruction of the parasites, and at the same time for the prevention of foot rot. So perfect is the preventive and cure that in October I now dispose of my draft ewes almost free from the disease. As to murrain or foot-and-mouth, I have not seen much of it, but what I have seen leads me to infer that it is an epidemic of a kind analogous to scarlet fever or smallpox, or as it were a combination of these. I believe the whole system is affected in the same manner as the foot and mouth, only it is more apparent in these parts. In a case of small pox, for example, very severe pain is experienced in the feet, in consequence of the unyielding nature of the sole, the covering of which must be thrown off, so as to allow the inflammation to expand. In like manner the hoof must break up in both mouth and foot-rot.—*Cor. North British Agriculturist.*



## The Poultry Yard.

### General Poultry Hints.

#### Gravel or Coarse Sand

Is a much needed for fowls as is ordinary food. With this their food is rendered digestible. Where the birds are confined to close quarters—especially in houses with wooden floors—the absence of gravel will quickly become apparent in the falling away in flesh and good health of the inmates.

The flat, scaly gravel found in some sections is not adapted to poultry. It should be either the rounded, water-worn sort, or angular fragments made artificially by pounding granite or other hard rock with a sledge, a method which may be resorted to on the prairies, or elsewhere at a distance from gravel beds.

Gravel serves the same purpose with birds, that teeth do with quadrupeds.

#### Mark the Eggs.

It is of importance that we set only fresh eggs, so that there may be no waste of eggs, or effort on the part of the hen in endeavoring to hatch old or stale ones. The method too often is, the eggs are gathered from day to day, and placed in a basket, box, or some place of general reception; and when a hen is to be set, the eggs on hand are picked over, either with a view to get those of a certain color, shape or kind, regardless of age; consequently some are freshly laid, while others are much older and perhaps stale; these undoubtedly would not be set if it was known how old they were.

This difficulty would be entirely overcome by marking with a lead pencil on each egg, at the time of collection, the date when laid, and if it is known by what hen, note that also; then in selecting eggs for a sitting, those of too great age are readily excluded.

#### Geese.

There are many sections of the country where geese might be kept with advantage and profit. They are a hardy and healthy fowl, requiring little attention or prepared food, and are quite remunerative when properly managed. As their numbers are probably decreasing rather than increasing each year, the profit to those who remain in the business is consequently greater, as the scarcity of an article always enhances its value.

They are, in some respects, of the nature of cattle, requiring grass as their principal food, and of this an abundance. As they are apt to be noisy, and in some cases even a nuisance, it is best to confine them in a fenced field or pasture, which contains a marsh or stream of water. From such ground they will be able to pick up much that would be otherwise of no account, and convert it into a valuable article of food, or into feathers, which are always of value, either for home use or for sale.

### Helping Chickens out of the Shell.

The following extract from the "Illustrated Book of Poultry" will be found of practical value. There are often chicks, which from various reasons are too weak to free themselves from the shell without assistance. We formerly made many attempts at such assistance in vain, and, like many others, rushed to the conclusion that chicks could not be thus saved; but a accidental discovery put another face on the matter. *Keep the egg in warm water (about 100°) while the assistance is being rendered, and success may be hoped for.* The shell must be cracked very gently, and the inner membrane very tenderly peeled off till the chick be at liberty, keeping all but the beak under water till nearly clear. The operation must be performed in a warm place, and tenderly as if touching raw flesh, and it will be found that the water greatly facilitates matters, liberating the membrane, if glued to the chick, and enabling it to be separated without loss of blood. The latter occurrence, nine times out of ten, is fatal; but if the operation be completed without blood-flowing, success may be anticipated, and the nearly dead chick may be put by the fire in flannel, or under the hen, if a quiet good mother—under her at night, in any case—and next day may probably be as well as the others.

A NEW PROCESS, that of drying eggs, has been set on foot at Passau, on the Danube, and the Prussian military authorities are about to give the product a trial for soldiers' rations. The *London News* says several German chemists are very sanguine as to the success of the experiment, and they pronounce dried eggs to have lost none of their valuable properties by the gradual evaporation of the water contained by them in the original state.

CORN-FED HENS do not lay in the winter for the simple reason there is no albumen material in the corn. When wheat is given to them there is fat enough in it to supply all that is needed for the yolk, and albumen enough to make the white, and lime enough to furnish the shell; it does not thus seem difficult to understand why corn-fed hens should not lay, as they do not, and why wheat-fed hens should lay, as they do.

EGGS PRESERVED BY SILICATE OF SODA.—Dr. Durand, pharmacist of Blois, has discovered a very efficient means for the preservation of eggs—i. e., a solution of silicate of soda. This solution, being very viscous, is kept in a liquid state by the addition of tepid water. The eggs are dipped into the solution and then dried; when they have been thus treated, and are well dried, and completely covered with the silicate solution, they can be placed in any receptacle, and may be kept for a year or more without undergoing decomposition.

EGG HATCHING BY ELECTRICITY.—Dr. Verson, superintendent of the Italian experimental silk farm at Padua, has discovered that the hatching of silk worm eggs of suitable age may be accelerated by a period of ten to twelve days, and a yield of at least forty per cent. of silk worm caterpillars secured by exposing the eggs to a current of negative electricity from a Holtz machine for a space of eight or ten minutes. It is suggested that the same method might prove useful in promoting the hatching of hens' eggs, and in hastening the germination of various seeds.—*Journal of Science.*

KEEPING EGGS.—Slake 1 lb. stone lime in 2 gallons water. When cool add 1 pint salt. Stir well and let the mixture thoroughly settle. Place the eggs in a stone jar, pointed ends downwards, and pour over them the clear liquid without disturbing the sediment. Be sure that the lime-water covers them. Close the jar tightly, and do not disturb until wanted for use. Be careful to break each one into a dish separately, as there will always be found a few which the lime will penetrate, but the proportion is very small. This receipt will preserve 9 dozen eggs.—*Cor. Massachusetts Ploughman.*

TURKEY INCUBATORS.—I have tried the plan of hatching hens' eggs under turkeys, and find it an admirable one. In fact, it has quenched a longing I entertained to possess an incubator, and in future I hope to use the poor foolish turkeys, that will bring out brood after brood of chicks and far from tiring of the confinement, seem only too well pleased when they find a fresh nest full of eggs, and grow fat and glossy as well. Not so foolish, perhaps, after all! for the weather was very cold, and I fed them well and kept them snug and warm. I set them early in January, and kept them sitting for over three months. I removed the chicks at once on being hatched, and have brought them all up (about 150) under one of Mrs. Chesbire's artificial mothers. "Admirable" mothers I think they should be called, and I hope while I rear chickens never to use any other. My first brood proved to be fully 7 pullets. Down to April 24, through very severe weather, I only lost 7 out of nearly 100 chicks.—*London Live Stock Journal.*

EGGS—HOW INCREASED.—If an increase of eggs be desired in the poultry yard, before large sums of money are expended in the purchase of everlasting layers, we would recommend the system of keeping no hens after the first, or, at the most, their second year. Early pullets give the increase, and the only wonder is that people persist as they do in keeping up a stock of old hens, which lay one day and stop three, instead of laying three days and stopping one; in some parts of England it is the invariable rule to keep the pullets only one year. Feeding will do a great deal a surprising work indeed—in the production of eggs, but not when old hens are concerned; they may put on fat, but they cannot put down eggs. Their tale is told, their work is over; nothing remains to be done with them but to give them a smell of the kitchen fire, and the sooner they get that the better. Of course there are some old favorites whose lives ought to be spared as long as they can send forth their representatives. Judicious mating, by which we mean the advantage of a comparatively youthful cockerel, may be the means of even exhibition poultry making their appearance from the eggs of the good old hen, and here we have the exception to the rule upon which we insist.—*London Agricultural Gazette.*

COOKED FEED FOR HENS.—A writer states in the *Poultry Standard* that people would better understand this matter if they considered for a moment a hen to be, as she is, a small steam engine, with an egg laying attachment and that there must be a constant supply of good feed and pure water to keep the engine and its attachment up to its work. In addition to keeping before hens that have complete liberty a constant supply of pure water summer and winter, I have found during the cool and cold weather of fall, winter and spring a dough compounded as follows, fed one day and then intermitted for two days, to produce excellent results:—"To three gallons of boiling water add one-half an ounce of common salt, a teaspoonful of cayenne pepper and four ounces of lard. Stir the mixture until the pepper has imparted considerable of its strength to the water. Meantime the salt will have been dissolved and the lard melted. Then, while yet boiling hot, stir in a meal made of oats and corn, ground together in equal proportions until a thick mush is formed. Before feeding taste to see that you have an overdose neither of salt nor pepper and to prevent the hens being imposed upon with a mixture not fit to be eaten, nor so hot with pepper that you could not swallow it.

## The Apiary.

### Timely Hints to Bee-Keepers.

Never use an old hive for a new swarm without first taking off the top-board and planing it; also the inside. The boxes for surplus honey should be made with four sides of glass, being very easily made, and making a neat package. Put in the boxes pieces of comb about two inches square. The bees will then have something to start from, and you will have as many combs as you put pieces. Put on the boxes in the spring as soon as they begin to carry honey, if you would secure much from the old swarms, and on the new swarms about three days after they are hived. Boxes that have been on a hive once must be taken apart and thoroughly cleaned before using, or they will not work in them. The comb is secured to the boxes by melting a little beeswax and dipping the comb in it. To remove surplus boxes I have found nothing so good as two pieces of heavy sheet-iron, three inches wide and seven inches long—a half inch of one end turned at right angles with the left; run both ends under the box; leave one end on the hive, the other draw off with the box, and not a bee can escape from either. Plug the holes up with twisted grass, as it is next to impossible to get anything else out after they have waxed it over. Put the box with honey and bees in a dark place, letting in just a little light, which will enable them to find their way out, and not back, which they will try to do. Do not examine them often when they are storing honey, or they will stop. The box covering the honey boxes should be well made and fitting the hive tight enough to exclude light; but be sure to have them well shaded in hot weather, or you will fail to get much else but swarms, of which there will be plenty. There should be at least two thicknesses of boards over the surplus boxes.

### Changing the Situation of Hives.

It often happens that the beekeeper for some reason or purpose finds it necessary to get a stock transported to a new situation in the apiary before the dormant season arrives. One of the plans usually recommended, is to move it duly towards the intended site by short stages, of about two feet at a time.

Another and more efficient plan sometimes adopted, is to take the stock to a distance of not less than a mile, and after allowing it to remain there three weeks, to bring it home and set it on the stance prepared. Both these methods are attended with considerable trouble, but it must be apparent the difficulty of shifting a hive would be in a great measure removed if we could put its bees into the condition peculiar to a swarm. This is what we attempt to do whenever we transport a stock from one side of our garden to the other.

Our process here is as follows: If the bees are in a common straw skep, we drive out half of their number with the queen, into an empty one—and put the driven bees on the old stance, and the skep, from which they are ejected, on the new, leaving them thus till the following morning. Then, before many bees are astir, we drive again the ejected bees, with their queen, into another empty skep, and place them for a few hours as near as possible to the hive from which they were first driven. These driven bees now act like a swarm, and, as they successively go out, examine and make themselves acquainted with their new situation. Towards midday we shake them out in portions on to a newspaper, and make them run into the original skep.

If a hive containing frames is to be shifted, let it, early in the afternoon, be carried at once to the place it is intended to occupy, and there opened. Look over the frames, till the one which has the queen is found. Take the frame to the vicinity of the old stance, and, by a jerk send queen and bees from it into a skep that has been used, and to which fragments of comb adhere. Adjust the skep on the stance, and restore the frame to its place in the removed hive. The skep will receive all bees that are out in the fields, when they come home, and all the more aged bees that will return from the shifted hive, as soon as they discover the absence of their queen.

Early in the morning following, drive, as before, queen and bees in the skep into another empty one, and set them beside the frame hive, and join at midday.

If the nights are cold, to prevent injury to brood from only a small number of bees being left, the driven hive should be taken before dusk into a warm, dark room and kept there till next day.

This method of moving hives to a little distance is more convenient than any other we have tried, and we have often practised it with success.



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

CANVASSING AGENTS WANTED.—First-class men, of good address, steady, and pushing, to canvass for the CANADA FARMER. Address, stating employment, previous engagements, age and references, Publishers of the CANADA FARMER, Toronto.

## The Canada Farmer

TORONTO, CANADA, AUGUST 15, 1876.

### Seed Wheat—The Lesson of the Season.

Forehanded farmers will already have selected or will be in course of selecting their seed fall-wheat. This year has been a trying one to many of the standard varieties. Those that are the least bit run out or degenerated have suffered heavily from rust and the midge, while the newer and more vigorous sorts have flourished alongside of them. We have heard of but few instances in which the Seneca or Clawson has rusted, and in one of those few instances we clearly traced the evil to the run-down condition of the land which had caused a sickly habit in the plant and thus rendered it liable to rust. Of the Silver Chaff, too, the reports are highly favorable. Both these varieties have escaped the midge. We have heard nothing but favorable reports of the Gold Medal wheat.

Some cases have come under our notice where, in the same field with the Seneca, the Soules wheat has been so affected by midge and rust as to be worthless, while the newer variety has stood it through bravely. This year has been especially disastrous to those pennywise farmers, who, because Soules and other old varieties succeeded well in the exceptional season of last year, thought they would "save money" by buying cheap seed wheat. This summer of excessive heat and frequent storms ought to undeceive them so thoroughly that they will never look at cheap seed again. In many instances, as things have turned out, it would have paid those farmers better to have given five dollars a bushel for their seed wheat, rather than have had to reap such a crop of hen-corn as is now in many a barn.

The lesson of the season is a more eloquent one than we can teach. Last year, when the midge and the rust troubled not and all kinds of wheat did well, there was some excuse for a young farmer believing that there was no occasion for him giving two or three dollars a bushel for his seed wheat, while other, apparently as good, could be got for half the money. The experience gained this year may have been costly but it will not be dead loss if it is turned to account. Have done, once for all, with cheap seed. Buy the new, vigorous, healthy, undeteriorated sorts. And whatever the variety chosen, it should after purchase be passed through the fanning mill several times. All that is blown away is not loss but profit, for in place of the light grains from which will grow light wheat, you will have heavy, smooth, plump grains, which will return heavier crops.

### Care of Farm Machinery.

By this time the mowers and reapers will have been laid away for the season. But how? In the old-fashioned manner of leaving them where the horses have been last unhitched, or have they been simply dragged to the fence side, or some field corner, to be out of the way until next needed? We should hope not. We have seen them so left; we know of instances in which they receive the same treatment still, and yet the owners, season after season, blame the manufacturers for cheating them with comparatively worthless articles of no enduring qualities whatever, while the fault is wholly and solely their own. It is not enough that a machine should be merely kept under cover. An open shed has generally a roof over it, yet to "house" a machine in such a place during winter would be very little better than to leave it altogether out of doors. Not only should the reaper and mower be protected from the alternations of weather, that is, kept in an enclosed place, the barn, shed, or better still, an implement house erected for the purpose, but the manner and condition in

which they are laid away must be very carefully attended to as well, if their future usefulness is expected or desired. First of all, then, let them be well cleaned and dried, observing to pick away all tufts or blades of grass that may have become entangled amid the iron gearing; for wherever these are found, moisture is not far off; and moisture, iron, and air in contact, mean simply oxidation or rust.

Remove the cutter bar. This is by far the better plan, for it obviates the sagging and twisting which usually follow either a folding up of the bar, or the more common practice of letting it lie in cutting order on the ground. Wipe every portion of the iron-work perfectly clean. For this purpose common coal oil is very serviceable to loosen and dissolve any oil that may have caked about the joints or axles. Dry thoroughly, and give the whole a light coat of good sweet oil. The wood-work may be treated in the same manner with the best results. The whole job may be accomplished in an hour or so, and at an expense of about ten cents, yet by this hour's labor and insignificant expenditure at the proper time, you do more to preserve your machine in good order than could be secured for twenty times the amount had it been left, as so many are, uncared for and exposed.

### Sanitary Effects of Sewaged Farming.

Mr. A. H. Smee, F. R. S., (Eng.) recently discussed this subject before the Society of Arts, claiming that the whole system of sewage farming is, both in itself and its productions, so detrimental to the public health, as to warrant the enactment by Government of a series of penalties for violation of either of the following rules:—(1), that sewage grounds should be located only by a Government official, and by consent of a majority in the district; (2), that no irrigation be allowed within 200 yards of any highway or public property; (3), that the sewage should be carried to the ground in covered ways, and then defecated and passed through the earth, the effluent stream being labelled, to show what it is; also (4), that the sewage should not be applied to any salading, and that no herbage should be sold or used less than one month after irrigation has ceased, nor given to milk cows less than six weeks after the cessation of the irrigation; (5), that no irrigated vegetables should be sold for human food within two months of irrigation; (6), that good and wholesome water should be supplied to the sewage grounds, and to any district where the wells are poisoned by the sewage; also (7), that in all towns having sewage grounds, the registrar of deaths should post every week at his office the number of deaths from zymotic diseases, and, where practicable, the number of persons attacked, particularising the name of the disease.

To this, the *Agricultural Gazette*, while conceding the propriety of Government supervision wherever sewage farming may prove a nuisance to the surrounding inhabitants, or where certain farms send their effluent water into the water supply of the population farther down, replies as follows, very pointedly disputing Mr. Smee's position on the sanitary question. It says: It ought to be borne in mind before a decision is reached, when considering the whole question, that there is already an immense mass of information—a great width and length of experience—relating to it, which certainly ought to have predominant influence on public opinion. Take the case of Edinburgh for example:—There you have the personal waste of the greater part of the population going over sewage farms, close to the city, before it reaches the sea. In one instance the drainage from some 80,000 Edinburgh people passes over 230 acres in the little valley north of Arthur's Seat, and has passed over it from time immemorial. There has been no inspection or coercion of any kind exerted here in the interest of the neighbouring population. The object of the proprietor of the lands alongside the so-called "foul burn," has not been to cleanse the stream, or produce any sanitary result whatever. If any sanitary effect has been produced, had or good, it has been altogether incidental, for the sole object of everyone concerned at Craighentimny has been to make money out of the filth which is there and which they deal with. And a most successful adventure from this point of view it has been, for the produce of the land has been sold annually for prices varying from £20 to £40 an acre. These immense sums have been realised at a very small expense. Rough channelling and a couple of men to lift the sluices

at proper intervals in the proper places has been the whole machinery. The foul water rushes over and through the grass and "drowns" the land or swills it almost anyhow, the only regulation obeyed being that every part of the surface shall have enough of it for the prescribed time, and that it shall afterwards run dry.

As a sewage farm, so far as special care for the avoidance of nuisance or for the thorough cleansing of the liquid filth, the Craighentimny meadow stands at the very bottom of the long list of sewage farms which have been established since. If Government supervision be needed anywhere for the public safety, it must have been needed here. Fortunately the experience here has been long enough to show whether, even under unsatisfactory management like this, the great evils which Mr. Smee desires to prevent, have any real existence. The grass is all consumed in the cowhouses of Edinburgh and Leith. It is all converted into milk and beef. Edinburgh has been fed on this "sewage" milk, if so it has to be called, for 150 years—for many generations of its inhabitants—and no ill has come of it. Moreover, Edinburgh is the seat of a most energetic medical school, where professional activity is quickened by every conceivable motive. If enteric disease could arise from eating the meat of cows which had been fed on sewage grass for eight months in every year before they are fattened for the shambles, it must have made its appearance here, and it must have been detected. If dysentery, typhus, enteric fever, or cholera, could have been produced by a large and an ill-managed sewage farm near an immense population, it must have been produced at Edinburgh. But notwithstanding the sharpest look-out, and the keenest desire to detect any connection between the Craighentimny meadows and disease of any form, the Edinburgh doctors have to confess that no such connection exists. Prof. Christison says, "My prejudices were all against the meadows. I have been compelled to surrender them. I am satisfied that neither typhus, nor enteric fever, nor dysentery, nor cholera is to be encountered around these meadows, either in epidemic or non-epidemic years, more than in any other agricultural district in the neighbourhood." Dr. Henry Littlejohn, the medical officer of health, has given testimony even more emphatic and (because the subject lay strictly within his professional duties) more conclusive as to the entire harmlessness of the sewage meadows, either on the score of neighbourhood or food production.

And there is ample evidence now from many other towns to the same effect. Watering places, like Tunbridge Wells, Leamington, and Cheltenham, which are nothing if not healthy, are all fed, at least to some extent, on the milk from sewage grass. At Merthyr, the annual reports of whose health by Dr. Dyke, its most able medical officer of health, excite an interest far beyond the limits of the population whom they more immediately concern, the consumption of vegetables grown, we may say, in sewage, is found to be not only harmless but most wholesome.

Every plant here stands for six hours out of every 24 in land that is waterlogged with sewage, and has it standing on the surface; for here it is an intermittent filter that is made into a garden. If any evil could arise from vegetable food grown thus, it must have been found out at Merthyr, for the sewage is extravagantly applied. Every acre receives the sewage of more than 1000 persons; and the field has thus supplied the town with green food for three years, and Dr. Dyke, one of the sharpest-witted men of the day, is looking on.

Surely the experience thus described, so extensive, so prolonged, and so intense, as we may call it, should influence public opinion more than the most detailed investigation of the circumstances of his two cows fed on sewage grass which have excited Mr. Smee's forebodings.

FROM BRIDGETOWN, Nova Scotia, we hear rather discouraging reports of the ravages of the caterpillar. One orchard, the largest in the country, whose trees a few weeks ago were covered with blossoms and gave every promise of an abundant yield, was literally stripped bare in a few days. News from the western portions of the Province indicate equally injurious onslaughts by the grasshoppers, while on the Fredericton Railway, New Brunswick, we are told a train was recently stopped by army-worms on the track. This last mentioned circumstance has called forth from the Maritime press a most vigorous and timely protest against the shooting, stomping, and indiscriminate destruction of insect-eating birds.

### The Crops.

The bright anticipations we were enabled to announce some weeks ago with reference to the wheat crop have unfortunately not been realized. The peculiar alterations of weather and temperature, just before and after harvest, have had a most injurious effect in developing rust; and grain that promised an abundant yield will, in many cases, not repay the expense of cutting. The loss to the country at large would no doubt prove considerable, were the deficiency in this respect not counterbalanced by what may almost be termed an excess of other crops. The hay yield is unprecedentedly large. Barley, though slightly injured in some districts by too rapid growth, will, it is believed, turn out a very fair average crop. Roots of all kinds are doing remarkably well. The oat crop will be heavier than in former years. Peas promise to reach the average. Potatoes have apparently outgrown the ravages of the beetle, and an abundant yield is expected. The fruit crop alone threatens to prove somewhat deficient, if we except apples and cherries, of which accounts are, on the whole, cheering. The spring wheat reports from all quarters are encouraging. Though it has not wholly escaped the ravages of rust, a fair average yield is expected. Altogether then, setting the superabundance of certain crops against the deficiency of others, the year's harvest will compare favorably with any previous one. From the Lower Provinces reports are highly encouraging.

### The Crops in Scotland.

In Scotland this year intense heat and drought have had a decidedly injurious effect on cereals. Wheat, it is reckoned, will scarcely reach the average yield, though the quality is excellent. Straw will be very scant on most farms. Barley is an exceedingly light crop, that is, in quantity, not in weight per bushel, for the berry is large and plump. Oats are fair, in some instances good after leaf, but thin and short after turnips. Harvest has been hastened on by at least a week, and a large quantity of the grain crops were prematurely ready for the reaper. The hay crop is, like our own, extraordinary both in quality and quantity, and has been well preserved. During the early part of July pastures were much improved by a few showers of rain, but drought followed, checking vegetation, and the grass season is, on the whole, poor, if we except mountain and hill grazings, which are reported in good trim. Turnips are suffering greatly for want of moisture. Potatoes look well, but are quite late. Beans are favorably reported from all quarters. Owing to the abundance of hill pasture the fleecy flocks have largely improved in condition, but the heavy mortality in spring is manifest in the quantity of sheep that comes to market. Prices for mutton, though not for wool, are consequently higher than last year's by several shillings per head.

### Lightning Rods.

Perhaps on the other side of the border you are not solicited as much as we are with itinerant vendors of these protectors, who come as regularly as the currant worm, the potato bug, and other summer evils and disorders. Statistics show that about as many buildings having rods are struck by lightning as those not having them, and illogical persons leap to the conclusion that they are of no use. But science and experience teach us that a house or barn can be protected by this means, but unfortunately the travelling vendors are not possessed of as much science as "gab," and talk the innocent rural population into having their buildings covered with metal, and yet the main protection—a thorough discharge into the earth at several points—is dangerously ignored. In cities the matter is reduced to a science, and proper measures are taken to prevent a discharge leaving the rod by having different terminations in the ground running six or eight feet into permanently moist earth, or into a bed of coke or charcoal. Let this be attended to, and the rod connected with all detached masses of conducting matter in or on the building, and all danger is avoided, and it matters not whether the rod be of iron or copper, insulated or attached directly to the building and chimneys, though the latter mode is considered the best, the notions of the pedlars to the contrary. The prices ordinarily charged for putting on these rods by the "peripatetics" is twice too much if they were

of any use whatever; but, as ordinarily applied, the terminal point below only sticking in the dry earth a foot or two, they are worse than none, and the house so covered is really in a more dangerous condition than if bereft of the rods altogether.

Any intelligent person, with the assistance of the blacksmith, can run up a single rod, welded into one piece if possible, or united by screw and bolt, carrying the point *one-half as high above the tops of the chimneys as the horizontal distance to them from the rod*, and having the lower end enter six or eight feet into moist earth, or into a hole of that depth filled with coke or charcoal. Do the same to the barns, where, instead of a chimney, a standard of wood can support the rod, and in either case the protection is as complete as in the usual method of many points on the roof, and the whole expense about one-third of that charged by the itinerant vendors. Farmers, otherwise ingenious and economical, are sadly taken in and done for by machine peddlers of all kinds, and if they would only study the newspapers a little more, and act on the information therein, they would be saved much useless expenditure and some law suits.

R. GOODMAN.

Lenox, Mass.

### Lightning Rod Swindles.

Our attention has been ere now directed to the apparent simplicity of our cousin farmers over the lines, and the facility with which they permit themselves to be duped by itinerant pedlars. The accounts are all taken from their own press, which appears struck rather with the sharpness of the scamps than the lack of it in their victims. The latest swindle is connected with the ever memorable lightning rod, and compares favorably with any of its predecessors. This is the *modus operandi*, as described by the *Chicago Times*:—One or two solicitors go around among the farmers and bore them as long as they will stand it, or until one is nearly dead with sheer exhaustion, and finally induce him to let them put him up a rod at some ridiculously cheap figure, "just to advertise the thing." When he has been sufficiently worried he consents and signs an order. A few days later other men come around with a waggon, and cover his house, or barn, or whatever it may be, with tubular rods until it fairly bristles with points and shines with its network of hollow wire. Having done this the party retire, indignantly refusing to take any pay, but stating that "the general agent," who is the "only man authorized to take any money," will be around in a few days and make collections. In a few days he comes, and when he comes the poor granger finds he has been grievously bunkoed. Instead of the innocent little contract which he signed "just to advertise the thing," he finds a bill for about five or ten times the amount he agreed to pay thrust in his face and payment persistently demanded. If he objects, as he generally does—for when a granger is on his native heath he can kick like a steer—he is told that it can't be helped now. The collector will even admit that it is all a fraud and a sin and a burning shame, but at the same time will insist that he must have his money, as he is paid by the month to collect, and he has "a poor mother and sister to support," and can't afford to loose his place.

One farmer near Harvard recently contracted with a gang for \$13.50 worth of their wares, and after his rods were up was presented with a demand for \$140, but finally managed to settle for \$50. Another signed an order for rods to cost \$13.50, and was called on for \$97. He also got off for \$50. Another made a more complicated contract by which he agreed to pay \$20, provided the lightning rod man would take a horse for \$100, and pay the difference. The collector came around and took the horse and rode off with him, and it took a constable and a law suit to adjust the matter.

The poor farmers in these counties are having a worse time of it with these fellows than Mark Twain had with his lightning rod man, and they ought to send the rogues to the penitentiary.

### Drinks for the Harvest Field.

EDITOR CANADA FARMER:—I observe in the agricultural press of Great Britain that English farmers have taken to discussing what they term the "relative merits" of beer and cider for labourers in the harvest field. A more careful scrutiny of the discussion in question leads to the suspicion that it is not the "merits" of either the one or the other they have at heart, but the "expense." Be that as it may, however, the general question of stimulants to harvest hands is one of importance, and one upon which many Canadian farmers, especially the older ones,

can throw considerable light. Twenty years ago the whiskey bottle was a pretty regular concomitant of almost every farm operation. It was present at every meal, and a goodly dash of its contents always graced the harvest water-pail. No raising could be properly conducted without it; threshers had always to be kept moist in order that their work might be efficiently performed; sheep-washing and shearing times were prolific of the same guzzling, if I may use that significant expression. Indeed, that farmer would be considered not only niggardly but lacking in good sense who did not keep a liberal supply of the stimulant always on hand, and dole it out just as liberally on all suitable occasions. The "little brown keg" was therefore a prominent feature in almost every farm waggon as it rattled periodically into the nearest village for store necessaries—for all stores sold whiskey in those days. But happily, Sir, these times are past, and the bad habits have disappeared along with them. People have long ago come to understand that the temporary animation produced by a stimulant is not what it seems, but an incentive to further exhaustion, an unnatural excitement, followed by a doubly prostrating reaction. By degrees whiskey and similar drinks have been replaced by others of a more harmless character. I have seen sweet cider used to good purpose, but it is expensive and not at all general, or easily procured at all times. Water, dashed with a taint of vinegar, makes a palatable and cooling drink in the harvest field, and, when the well or spring is at a great distance, a little oatmeal mixed with the drink renders it pleasant, even though it may have become warm. But cider, used in such quantities as will satisfy a thirsty harvester, is not good; on the contrary, it is positively injurious. Vinegar, we all know, is not to be recommended as a beverage; and oatmeal is heating. We are therefore driven at last to what should have been our starting point, viz., good, clear, cold water. And permit me to say, as the result of close observation for many years, that it surpasses all other beverages; nor will its place ever be adequately supplied by the compounds of man. By the exercise of a little ingenuity, it may be kept comparatively cool, with slight shelter, during the hottest weather, by simply keeping the vessel containing it covered from the sun's rays, and wrapped round and round with several folds of a thick, wet, woollen cloth.

Goderich.

A SUBSCRIBER.

### Farm Horses and Town Stables.

EDITOR CANADA FARMER:—I think it may be taken for granted, as a general rule, that farm horses, from the circumstances by which they are surrounded, the system of usage to which they are subjected—steady, continuous, but uniform work, good food and water in suitable quantities and at regular intervals, comfortable stabling, bedding &c.—are, and ought to be, in the healthiest possible condition compatible with daily labor, and, as a consequence, most likely to be free from disease. That they have their disorders, however, we have only to look around us to be convinced. Whence come these? Surely not from the green, fresh clover on which they feed, and the mild fresh air they breathe during the evenings of summer; surely not from over-work, for rarely, except in very warm weather, do they sweat in the harness; and surely not from lack of attention and cleanliness in their stables, for our farmers, very generally speaking, rather pride themselves on the fine appearance of their animals, and a fine appearance, you will understand, implies the best of attention. From close observation on this point during the past quarter of a century I feel convinced that the great bulk of horse epidemics on the farm arises from contact with infected troughs in cities, towns and villages. The livery horse is most liable to disease because every condition of his existence conduces to the undermining of his constitution. He is over-driven, under-fed, out at all hours, in short receives little or no care whatever. His body must therefore become, in time, a reservoir of all kinds of sick-germs, ready at the first favorable opportunity to burst forth in the most virulent form of bots, heaves, or some other distemper. Much the same may be said of the cab-horse, the express-horse, and the great majority of those driven around the country by itinerant pedlars. Now the resting places, the homes, so to speak, of all these is the city, town, or village stable; and if, by repeated contact, a disease animal will impart more or less of its

own corruption to its surroundings, it follows that the troughs, mangers, stable-pails, hitching posts &c. in towns should all be regarded with the utmost suspicion. In this portion of the Province it is the usual practice amongst us agriculturists to deliver any town business we may have on hand until Saturday of each week. On these days I have repeatedly seen all the town stables well filled with the country horses around. Every empty stall was taken up and, apparently without a thought on the owners' parts, the animals were allowed to stand there hour after hour, tabbing possibly the combined virus of half a dozen others in all stages of disease, that might have been there before them. The same water pail is used, without rinsing, to water a score or a hundred horses during the day, and thus disease is propagated and spreads, farmers the while wondering what has come over their horses, or, the trouble discovered, speculating as to what peculiar feature of the season or at a distance has induced it. I have known cases myself wherein three-fourths of the horses of a township took a most violent, in many cases fatal, distemper from contact with a trough out of which a diseased animal had previously eaten but two meals. Now what is the remedy for this—or is there one? There is; and it should begin with the keepers of town and village stables. They should, in cleaning out their stables every morning, see to it that every manger, both outside and in, every comb and brush, all pails, in fact everything employed in and about the building, should be scrupulously purged as well as the floor. But will stable-men do this? I think I may safely answer that they will not. What then is the other remedy? It is to see to the matter ourselves. Let us be careful in selecting our stall; clean out the manger well, carefully wiping those portions of it that horses usually nibble at, and be particularly careful when using the water pail to cleanse it thoroughly. These remarks are more directly applicable to the warm weather of summer, so favorable to the spread of disease. Happily the cold of our Canadian winter is an excellent disinfectant of itself, and obviates the necessity of some precautions otherwise essential. Let every farmer also have a vacant stall disconnected and isolated from those of his own stock, in which he may accommodate a strange animal when circumstances require it, as I have no doubt but itinerant peddling horses, carrying, as most of them do, the seeds of disease around with them, cause an incalculable amount of injury.

Durham.

FARMER.

NOTHING COULD BE MORE TRUE than the saying that "nobody works so hard for so poor a living as the thief does." And it is equally true that if professional swindlers were to devote to honest work the skill and intelligence which they bestow on their crookedness, they would become wealthy and honoured men. There is a new and elaborate way of swindling in vogue among our neighbours which may or may not be imported here; probably not, for the reason that with us the ways of the swindler are hard, and law is stronger and more economically, speedily and surely administered. But a few details of the *modus operandi* will do no harm. The method is as follows:—A party look over the advertisements of farms for sale, and having hit upon what they want, go to the advertiser and get description, price, &c. Then they take a trip to the country, see the farmer, exhibit forged deeds or some other bogus evidence of purchase of the property. Upon this they demand the rent in advance, offering an inducement or bonus if they will thus settle. If not forthcoming, they threaten immediate proceedings of ouster. This generally brings the rent. An instance in point: A few weeks ago a well dressed person came to an advertiser and said he wished to purchase. A full description was given, and the swindler went to the farm and demanded the rent for a year in advance. He secured it in the shape of a good team of horses and a note. He immediately went to the nearest town, sold the horses, shaved the note, and now the tenant will be obliged to pay his rent twice. It would be difficult in all cases where these pretences were checked, to make sure that a swindle was not intended. The farmer will know that the farm he rents has been advertised for sale, and he naturally will not be suspicious of the stranger who brings the deed and speaks him fairly, probably offering him a renewal of his tenancy on advantageous terms. It would be well in any case, no matter how honest the transaction may appear on the surface, for the farmer to withhold his money until he can communi-

ate with his landlord and ascertain whether such a sale has really been made. If the suspected swindler could be detained in the neighbourhood on some pretext while the correspondence was going on, he could, on receipt of intelligence, be handed over to the myrmidons of the law, or he could be dragged through a horse-pond, or pumped upon *ad libitum*—the law for choice, however.

ADVICES FROM KANSAS indicate the advent there of a new wheat enemy, the *Leucania Albilinea*, whose ravages have likewise reached Maryland, Pennsylvania, and other states of the Union. Professor Riley describes the caterpillar as follows:—A broad dark brown line along the back, divided along the middle by a fine white line, generally obsolete behind; beneath this broad line on each side a straw-yellow line, half as wide; then a light brown one of the same width as the last, and becoming yellow on the lower edge; then a narrow dark brown one, containing the white spiracles; then a sulphur-yellow as wide as the third; then a less distinct light brown subventral one, the venter being pale yellow. The head is large, straw-colored, and with two attenuating brown marks from the top to the lower face. The chrysalis is of the ordinary mahogany-brown color, and terminates in a stout horny point, with a corrugated base. The moth has the front wings straw-colored, with a pale line running along the middle to the outer third, and shaded with brown as follows—a shade beneath the white line, intensified at each end, where it joins the white; another along the posterior border, narrow at apex and broadening to the middle, where it projects along the middle of the wing above the white line, fading away toward base, and a fainter shade along the front or costal edge, intensifying toward apex. The species is one of the smallest of the genus, being but two-thirds of the size of the army worm. The *L. Albilinea* is not by any means a novelty to entomologists; on the contrary it has been known for many years back, although never as a very formidable aggressor until 1874, when its depredations began to attract more than ordinary attention. It is however undoubtedly spreading, and may, if not checked, prove as injurious in its sphere as the potato beetle. Professor Riley is following up his investigations assiduously, and will be able in a short time, no doubt, to announce both the cause of the pest and its remedy, both of which at present appear to be enshrouded in mystery.

YET ANOTHER NEW INSECT ENEMY has come to the front, in addition to the *Leucania albilinea*, mentioned above. This last addition to our many foes is heard of from our neighbouring state of Michigan, one of whose farmers sent specimens to Professor Cook of the Agricultural College. The latter gentleman declares the depredator to be the *Phytocoris leucolaris* of Harris, and the *Capsus ablineatus* of Say. It is of the family *Capsidae*, sub order *Hemiptera*, and is related to the destructive squash bug *Coreus tristis*, and the more dreaded Church Bug of Illinois and Missouri. Of the *Capsidae* family, the one in question is the only one that does serious damage, although the family is a very extensive one. This bug is about  $\frac{1}{4}$  of an inch long, olive yellow in colour, with a greenish tinge. On the thorax, or part back of the head, which is finely punctured, are two yellow spots, one on either side, that is narrowly bordered with yellow. While the scutellum, or triangular piece just back of the thorax, exhibits some white markings, of various forms, sometimes V shaped, sometimes like a Y, and sometimes simply dots, while in a few cases I find them altogether wanting. The thighs of the posterior legs—femur—are generally ringed with yellow. These bugs, like their near congeners, the Chinch Bugs, come in great numbers, but unlike them, are quick to take wing. The mature ones alone possess fully developed wings. Prof. Riley speaks of these as feeding on asters, dahlias, marigolds, balsams, cabbages, potatoes, turnips, and most of the fruit trees. When we add wheat and corn, we are led to the conclusion that they are not very particular where they sip or what juice they suck, that nearly all plants contribute to their aliment. Prof. Cooke suggests as the best remedy to burn all weeds and stalks, anything that would afford retreat in winter. Clean culture in summer and clean neat fields in winter—the same as recommended for the Chinch-Bug—will doubtless aid in the work of deliverance. The insect is stated to have destroyed ten per cent. of the wheat crop in Cass Co., Mich.

THE DAIRYMEN and milk consumers of New York are in a state of revolt. The lacteal fluid, always high priced enough in all conscience, recently took a sudden and mysterious flight from the normal cost of eight or ten cents, to twelve cents per quart, and hosts of good citizens found themselves one fine morning either minus milk altogether, or from ten to twenty cents extra out of pocket before breakfast. Inquiries were instituted and paterfamilias shook their heads despondingly, but all apprehensions were speedily allayed by the plausible dealer who explained that in the dairy districts many cows were sick, the supply of milk had consequently fallen off, and therefore, by the well understood law of supply and demand, prices of necessity must rise. So far conclusive at all events, if not satisfactory. But further enquiry revealed another state of affairs, certainly not very creditable to the coterie of milk-sellers. Farmers could never get from these business gents more than four cents per quart, even when the latter had raised their retail price to twelve cents. The difference was accounted ridiculously large. Remonstrance followed remonstrance without avail, and at length production was curtailed in every direction until milk actually became scarce—not from sickness or sign of sickness in the cows, but from the contemptible grasping of the vendors who have for some time past been dictating not only what consumers should pay but also what producers should receive. The present crisis is therefore a natural result of fraud, and will eventuate, as all such crises do, in a re-adjustment of the traffic upon an honest basis.

JAPAN, not satisfied with adopting English manners, dress and language, is going to attempt the transplantation of as much of English scientific agriculture as is found suited to the country. With this view they have selected some able teachers from that country, including Professor McBride, Custance, and Kinch, who have left for the new agricultural college at Tokio. The selection made, says the *Farmer*, is a good one, and yet our English friends must not think that they will do all the teaching. There is evidently something to be learnt from the Japanese. Their country is but little larger than the British Islands, while it has several millions more people in it. Notwithstanding this crowded population, Japan produces enough food for home sustenance, while the British Isles do not grow much more than half enough for their own use. And while the four corners of the earth are ransacked for fertilizers with which to keep up England's fertility, Japan imports not an ounce of manure. The difference lies in the fact that the Japanese are careful of their nightsoil, while English, and Canadians too, for that matter, think they are doing a fine thing when they have got rid of their sewage by dumping it into the nearest water, and thus not only wasting the life of the land but poisoning sources of the drinking supply. If the Japanese can teach us the solution of what will one day be the burning question here, as it is in England, the learned Professors will not go half round the world for nothing.

BRITISH FARMERS are notoriously slow to accept innovations, and this may be said without fear of hurting their feelings, as they are well aware of it, and in fact rather pride themselves on their conservatism. But they are now moving in a direction which possesses some interest to Canadian farmers. The United States and Canada may be said to have absolute possession of the British cheese market except for certain fine brands with which we do not compete. Our factory system has already made its way into Britain and as successful there as it is here. And now they are going to adopt another of our institutions, the Dairymen's Association. Certain leading spirits think it a shame that English cheesemakers can be beaten in their own markets and they are going to leave no stone unturned in the attempt to regain possession. Dear land and high taxes will operate against them just as distance will against us. The future will show whether the new British Dairymen's Association, which was formally instituted at Birmingham three weeks ago, will enable the farmers over the water to drive us out of their markets. We opine that it will not. Nevertheless, it is never well to have only one string to one's bow. The move of our English brethren should teach us to be on the alert for new markets. And if it should also direct our energies more to the manufacture of butter by the factory system, it will benefit us as much as it will them.



MUCH CONSTERNATION is caused in Ireland by the appearance among the cattle of the deadly and intensely contagious disease called "Charbon." It appears to be a blood disease and the effect of it is to thicken and darken the blood. Portions of the flesh of a dead cow were fed to ducks, and the result was their death in less than five minutes. A case is mentioned which occurred four years ago. An Antrim county farmer lost all his cattle. They were not buried deep, and dogs carried the bones over his grass, which he believes was the cause of his cattle becoming infected. Two cows which were in perfect health at eight o'clock at night, were dead at four on the following morning. In twelve days he lost in all, fourteen cattle. His opinion is, that if the disease gets two hours' hold of a cow nothing would save her. The rigorous laws in force in Britain with respect to diseased cattle ought to be sufficient to keep the disease from spreading. If the English authorities were half as snappy about the exportation of cattle as they are (on the pretext of preventing disease) about the importation, no cattle disease would be likely to escape from their country.

AN INTERESTING EXPERIMENT in feeding has been made by a Frenchman. He undertook to find out the relative value for feeding purposes, pound for pound, of light and heavy oats. He was a postal contractor and had some 300 horses under his care. Selecting out of them two teams of twelve each, in all respects alike, and undergoing precisely the same work, one team was fed for six months on the lightest oats that could be procured, and the other, for the same time, on the heaviest obtainable. The difference in the weight of the oats was about thirty-three per cent; that is the same measure that would hold 77 pounds of the lightest oats would contain 117 pounds of the heaviest. The oats were fed to the horses by weight, the same quantity to each. At the end of the experiment, both teams were found to be in the same condition, good working order. The moral deducible is that it will pay best to buy light oats by weight, and heavy oats by bulk.

AT THE ROYAL SHOW at Birmingham, specimens of the new plant for cattle feeding—Caucasian Prickly Comfrey (*Symphylum aspernum*)—in growth attracted great attention. It is expected to take a very prominent place amongst forage plants, and is said to have produced 120 tons per acre, and to be a great preventive of foot-and-mouth disease. Should such prove to be the case, its introduction will be a great boon to the agricultural community. Elsewhere in this issue some information is given as to the properties and mode of cultivation of this plant.

ON THE FIRST PAGE of our last issue the words "Plaster of Paris" were by mistake used instead of simply "plaster." Of course every one knows that it is gypsum, or land plaster in its raw state, that is used in agriculture, and that plaster of Paris is the same article calcined in which state it is used for indoor plastering, moulding, etc.

SINGULAR PROPERTY OF TOMATO LEAVES.—I planted a peach orchard, writes M. Siroy, of the Society of Horticulture, Valparaiso, and the trees grew well and strongly. They had but just commenced to bud when they were invaded by the curculio (*pulyon*), which insects were followed, as frequently happens, by ants. Having cut some tomatoes, the idea occurred to me that, by placing some of the leaves around the trunks and branches of the peach trees, I might preserve them from the rays of the sun, which were very powerful. My surprise was great, upon the following day, to find the trees entirely free from their enemies, not one remaining, except here and there where a curled leaf prevented the tomato from exercising its influence. These leaves I carefully unrolled, placing upon them fresh ones from the tomato vine, with the result of banishing the last insect and enabling the trees to grow with luxuriance. Wishing to carry still further my experiment, I steeped in water some fresh leaves of the tomato, and sprinkled with this infusion other plants, roses and oranges. In two days these were also free from the innumerable insects which covered them, and I felt sure that had I used the same means with my melon patch I should have met with the same result. I therefore deem it a duty I owe to the Society of Horticulture to make known this singular and useful property of the tomato leaves, which I discovered by the merest accident

### Picking and Drying Hops.

At a late meeting of the hop growers at Clinton, N. Y., a committee of seven practical growers was appointed to make reports regarding the best methods of harvesting, curing, and marketing hops. This committee reported to another meeting held recently. G. E. Morrow, of Knoxboro, was the first member heard. An abstract of his interesting and practical paper is as follows: After dwelling upon the importance of great care in harvesting, and upon the desirability of the grower owning a kiln of his own, so that he may be independent, the speaker urged growers to pick their hops well; and to do this it is necessary to treat the pickers with consideration, serving all alike. Not more than one box should ever be put in a sack, and not less than three yards of burlaps should be used in making the sack. Thus scalding of the hops before they reach the kiln will be avoided. Hops should not be permitted to remain in the sack more than three hours after picking, and persons should not be allowed to sit upon them. If it is necessary to store the hops in the sacks for a long time, untie them and let them stand open, thus permitting odours and dampness arising from heat and vermin to escape. The kiln should not be overloaded in drying. If the hops are green or rusty, the fire should be slow at first. The speaker alluded as follows to this important topic: "Commence burning brimstone as soon as the heat strikes the hops; close the draft, but not too tightly, as there is danger of scorching the hops." He had not found it advisable to make a large cowl. He recommended a circular door in the cowl, and a small cord and pulley attached; while bleaching, this door should be closed; when the process of bleaching is ended, raise the door in the cowl, and also the drafts below. In this way the air may pass through the layer of hops, rendering them sweet. "If you have a kiln of hops," he continued, "that is very ripe and red after drying, and if you find that there were not green hops enough among them to steam them through for a good sample, shove the hops to one corner of your dry room; and if there are 30 or 40 boxes in the heap, throw upon them four or five pails of water; mix them thoroughly; spread them on the kiln; start a slow fire; start the brimstone burning as soon as you start your fire; if the stove is not hot enough, place some live coals in the brimstone. If you do this you will have a sample of hops that may go with the first picking, be sure to close the trap-door while bleaching."

The speaker strongly recommended the "late style ventilator." He preferred it to the old fashioned cowl or hood. It consists of a box with a roof, and it is large enough to let the steam escape. The aperture in the ordinary cowl is too large, the draft being too strong, and causing the brimstone to pass through the hops, thus being of little use. The steam should be confined while bleaching, and the hops should be turned before they are husky and crisp on the surface. If there are green hops on the surface when the layer is turned, they will do no harm if brimstone be burned as soon as they are turned. Those already bleached will thus retain their colour. Never mingle hot hops with cold ones in the dry room; a bad flavour will thus be generated. The speaker concluded as follows: "Do not press your hops too soon after drying, as they are then more likely to heat; do not use too large pins in the bales, as they do not add much weight to them, and they add nothing to the quality of the beer. Keep yourselves well posted in regard to the prices of hops, and sell when you get a good price. Sell when buyers are buying; do not wait until they have filled their orders and do not wish to buy."

### Hand-Hoeing Matches in Scotland.

A correspondent writes to a Scottish paper. "Before we were out of our 'teens' we played the part of a successful competitor at more than one hoeing match. That, to be sure, was fourteen or fifteen years ago, but we know that these hoeing competitions are still conducted in the same simple yet effective manner as they were when it was our lot—our pleasure we may say—to take part in them. The procedure is simply this: The hoeing force in a district or parish—at any rate the bulk of it—assembles after six p. m. at the field fixed upon. The turnip drills are numbered, and tickets corresponding to these numbers are drawn from a bonnet by the competitors. Each competitor goes to the drill with the number represented on his or her ticket and hoes (including singling with the hoe) the allotted space, generally at the rate of fully 100 yards an hour. Seldom more than 200 yards are set aside to each hoeer. Three gentlemen (farmers or stewards) act as judges, and in making their awards they are guided—1. By the regularity of the plants left. 2. By the strength of the plants (keeping in view the size of the plants from which the hoers had to select. 3. By the thoroughness with which the weeds are cleared away with the hoe. 4. By the uniformity with which the ridge or drill is preserved. 5. By the manner in which the blades of the selected

plants have been saved. In other words, the object is to have the distance between the plants as uniform as possible; to have powerful plants left as nearly intact in the blades as can be; to have the drill left pretty high, and the weeds thrown into the intervening space so that the drill-harrow or horse hoe will get at them. Prizes are generally given at the rate of one to every three or four competitors. Often money, from 7s 6d downwards, is given as prizes, but sometimes nothing, except the dry order of merit is awarded. The prize money is generally subscribed by farmers and others looking on.

### The Angora Goat.

A correspondent of the California Rural Press who has been observing the Angora Goat in El Dorado County, writes about that domestic animal, and says:

"This animal browses more than the sheep or the cow, and can make its way through the chaparral without losing its fleece, so that many places both higher in the mountains than this and along the foot-hills, in places not suited for other live stock, can be utilized. It is said that there are thousands of acres in our mountain counties that can be occupied by the goat that is fit for nothing else. Here is occupation for idle hands and idle capital. I called upon Mr. Gilmore, Superintendent of the Goat Breeding Association, two miles south of El Dorado, who has under his charge about 2,000 head, full bloods and grades, all told, of the former 150. To say that the sight of this flock, nearly all white in color, and many rich of fleece—the skipping of hundreds of kids, and novelty of the whole, gave me pleasure, is a tame expression—I was a boy again. It is estimated that the number of goats on this coast will reach 200,000. Of this number there are not more than 600 pure breeds. The clip of pure breeds and grades, from fourth cross upward, will reach from four to six pounds, bringing from 85 cents \$1 per pound; lower grades yield from one to three pounds, worth 20 to 40 cents. The whole clip of the coast this season will probably reach 40,000 pounds, produced principally in the counties of Monterey, Santa Cruz, Santa Clara, Mariposa, Calaveras, Amador, El Dorado, and Placer. The Gilmore Association have already shipped this season to the Jamestown manufactory 9,000 pounds, 2,000 pounds of which are from the band here. Many are engaged in the business to some extent in this county. In addition to this flock of 2,000, which is the largest, Mr. Cummings, of Georgetown, has 1,260; Dr. Shaw, Pleasant Valley, 800; Mr. Schleifer, Latrobe, 800; Mr. Clark, Shingle Springs, 600; Mr. Litten, Green Valley, say 250, and other flocks larger and smaller than the last, making in the aggregate for the county about 15,000 head.

### Collie Dog Trials.

The London Standard of June 30 has the following:—"It occurred to the Kennel Club, a body of gentlemen who are interested in the improvement of dogs of all breeds, that the collie trials which had proved so successful in Wales might be carried on a little nearer the metropolis, and they therefore organized a meeting in the Alexandra Park, which commenced yesterday and will be concluded to-day. The mode in which the trials are conducted is as follows:—A flock of Welsh wethers, one hundred in number, have been brought up to the park, and were penned near the grand stand on the race-course. From this flock three animals were taken at hazard and conveyed to the side of the hill on which the palace stands, and set at liberty. On the circular cricket ground, some half mile to the west, a triangular pen of hurdles, with an opening in the base, formed a sort of station, about which are grouped the judges and officials of the show, and from which the shepherd with the dog that was about to be tested took his departure. The man and dog walked together along the race-course until the sheep were sighted, when he gave a sign or a word to his four-footed companion, and the intelligent brute at once started off at a gallop and sought first to drive the sheep down the hill toward his master. When he had succeeded in doing this, the man walked toward the pen, and the dog drove the sheep after him until they were near enough to operate in getting the sheep inside. Twenty minutes was the maximum time allowed, the prizes being won by those who succeeded in penning their sheep in the shortest time, while those which failed to pen them in the allotted time were disqualified. It was not difficult to discover that dogs and sheep were working under great disadvantages, and animals which have no doubt a well-deserved reputation on their own hills, failed to distinguish themselves under totally novel conditions, though enough was demonstrated to make it apparent that these collie trials are likely to become a very interesting annual performance. Though a space of ground was marked off by ropes and stakes, which was respected by the spectators, the sheep felt under no restrictions, and the poor collie, therefore, that had been used to the clear view of a Welsh hillside, with no human being but his master within miles of him, had to dodge his charges among visitors and round plantations, which frequently hid them altogether. The sheep were many of them very wild, and ran like deer, their disinclination to proceed in the direction of the pen



being increased from the main flock being in full view, and thus stimulating the natural ovine tendency to rejoin companions. In several cases, on the dog nearing the three sheep, the mumble and independent wethers scattered and galloped in different directions out of sight, when the colic, after an honest attempt to bring them together, seemed to conclude that it was hopeless to complete the task in twenty minutes, so he philosophically dropped it altogether and trotted back to his master. Some of the triads of wethers behaved in a manner more in accordance with the gregarious traditions of their race, and, when in addition to hanging together, they happened to start in the right direction down hill, the first portion of the dog's work was easily and speedily done. The marvellous sagacity of the breed was seen when the sheep were near the pen and the dog had to overcome their natural disinclination to enter. Not only did the animal in this position obey every sign and word of his master, but he would exercise what might almost be called his own reason and discretion in the mode of carrying out his master's wishes in a fashion that was astonishing. Success, however, depended altogether on the behaviour of the three particular sheep. One famous dog named Handy, which won the champion prize two years running, in Wales, was very unfortunate in this respect. He succeeded in getting them to the pen in splendid style, but nothing could induce the brutes to enter. They broke away a score of times, and, after a display of ability worthy of his high reputation, poor Handy failed to accomplish the task within the twenty minutes. The most successful performance was that by a slut named Maddie, belonging to Mr. John Thomas, of Bala. Favored by tractable wethers, she succeeded in a little over four minutes. A famous dog named Boy did the work in seven and a half minutes. Another, called Laddie, took nine minutes, and two others, Pentre and Tweed, twelve minutes each. There were nineteen entries for the All-Aged Stakes, and these were tested. Mr. Lownd's Laddie perhaps showed the highest training, by the way in which he followed every motion of his shepherd's hand; now circling round, now creeping nearer and nearer to the flock, and then sitting on his haunches until the signal to move again was given. The man who worked the dog had not seen him for twelve months. But the triumph in point of quickness was reserved for Mr. Jones' young dog, Boy, who brought his charge to their pen in seven minutes and a half. Mr. Thomas' Maddie also penned her sheep very well. It is curious that all these were Welsh dogs belonging to Welsh graziers, but then the great home of collics—Scotland—was not represented. The English dogs nearly all managed to let their sheep wander in freedom 'over the hills and far away,' but Mr. J. Gledimny's Tool got his lot together very well, and penned them cleverly.

#### Sand for Building Purposes.

There is a certain test which a child may employ without failure by way of ascertaining whether sand is really good or whether it is second, third or fourth rate. Yet not one person in a thousand has ever heard of the test. Take a handful of sand in one hand, squeeze it into a ball, and if all falls apart as soon as the pressure is removed, it may be counted as good sand. On the contrary, if the mass continues to remain in a roll, it may be of second, third or fourth quality. But one thing will always be found reliable, that good sand, even when wet, will not remain packed in a ball or lump. In order to be well adapted to the making of mortar, concrete, or those kinds of artificial sandstone into which lime enters as a component, sand should be sharp, clean and free from salt. Sharp sand is that which has ragged, angular edges, and has not been water-worn and rounded. Sand of which the particles are rounded never forms a strong mortar, the reason being perfectly obvious. The strength of the mortar depends in a large measure upon the adhesion of the lime to the particles of sand. Now, this adhesion is greater or less, just in proportion as the extent of surface of the particles of sand is increased or diminished; and, since the surface of a round or globular mass is less, in proportion to its contents, than that of any other figure, it follows that just so far as the particles are rounded, just so far will their surface be decreased, the adhesion between them and the lime lessened, and the strength of the mortar diminished. Clean sand is free from particles of dust, clay and similar matters. The reason why sand should be clean is this:—Mortar is in reality a mass of stony fragments, cemented together by lime or other material. The strength of mortar depends not only upon the strength of the cementing material, but on the strength of the materials that are cemented. Clay and ordinary dust and dirt have but little strength, either as a cementing material or a material to be cemented. We speak now of clay in its ordinary condition, mixed with the lime but not combined with it. In some forms, it is true, the materials of which clay is composed will make strong blocks. The hardest gems, next to the diamond, are pure alumina. Emery or corundum, which, from its great hardness, is used for grinding and polishing, is made of the same material. It is also known that when certain kinds of clay are mixed with lime or chalk, carefully burnt and then ground, they form strong and valuable mortars or cements. But the learner must not allow himself to be misled by these facts. Alumina may be strong in some forms and weak in others, just as carbon when in the form of the diamond is the

strongest substance known, while when in the condition of charcoal or lampblack, it is one of the weakest. A mass of charcoal fragments, cemented together would be just as strong as the weak charcoal. A mass of stony fragments would be just as strong as the cement—the weakest link determining the strength of the chain in both cases. There is no use, therefore, in trying to get a strong cement and then employing it to bind together particles which have no strength in themselves.

#### Fish Culture in Canada.

There are now seven public establishments in Canada for the artificial reproduction of fish. The first of these was erected at Newcastle, Ontario, and subsequently three others were established at Gaspe, Restigouche, and Miramichi. Last year three additional fish-breeding houses were built at Sandwich, in the Detroit River; at Tadoussac on the Saguenay river; and at Bedford, on the Sackville river, near the Bedford Basin, a few miles from Halifax. The whole number of young fish distributed last spring from these establishments was 1,700,000. The Newcastle, Ont., establishment did the best work, and sent supplies of young salmon and white-fish to a large number of streams in that section of the country. Mr. Whitcher says that great numbers of salmon, which have been bred at the Newcastle establishment, are now to be found in Lake Ontario, into which they have escaped from the breeding houses. Large schools of them are frequently seen by the fishermen, and considerable numbers are taken in the nets used outside for lake trout. There can be little doubt that in the course of a few years all the Canadian streams emptying into Lake Ontario will be fully stocked with salmon. Operations this year at the Newcastle establishment are to be carried forward on an extensive scale. Last fall one million salmon eggs were laid down, besides three hundred thousand salmon trout and two hundred thousand white-fish, from which at least 80 per cent. of young fish are expected. About 80,000 California salmon eggs are also in process of being hatched at Newcastle. At the Miramichi establishment 1,500,000 salmon eggs were laid down in the fall of 1874, but most of them were lost, leaving only 150,000 healthy fish, which were distributed among the tributaries of the Miramichi. Only 60,000 ova were laid down last fall, so that the operations of the Miramichi establishment this year are likely to yield a very small result. At the Restigouche establishment upwards of 600,000 healthy young salmon were distributed in the various branches of that river last spring, and the overseer, Mr. Mowatt, expects to have 300,000 healthy young salmon this spring. At Gaspe last year 110,000 salmon fry were hatched and placed in the Dartmouth, St. John (Quebec) and Malbaie Rivers. Only 20,000 eggs were laid down at this establishment last fall. It is a matter of regret that the fish-breeding houses on the seaboard are not doing better work.

At Tadoussac, on the Saguenay, 80,000 salmon fry were turned out last spring, and 200,000 salmon eggs were laid down last fall, which bid fair to hatch out with a trifling percentage of loss. At the new establishment at Dartmouth, Nova Scotia, 600,000 salmon eggs were laid down last fall, and are now in a thriving condition. These salmon eggs were obtained from River Philip. The new establishment at Sandwich, on the Detroit river, for the propagation of white-fish, is the most extensive of the kind in the world. When fully completed and furnished, it will admit of the laying down of fifty millions of white-fish eggs, which, supposing the average of fish hatched to be as low as fifty per cent, will yield annually twenty-five millions of white-fish for the restocking of the Great Lakes. This year it is expected that the Sandwich establishment will turn out some twelve millions of white fish, which may be regarded as a splendid beginning.

From the above it will be seen that fish culture is assuming large dimensions in Canada, and is likely in the future to assume still greater proportions. We presume the Fisheries Department will presently see the necessity of erecting a fish-breeding establishment on some of the tributaries of the St. John. The day will, no doubt, come, when hundreds of Canadian streams, now utterly unproductive, will become valuable for their fisheries, and the more fish breeding houses are multiplied, the more rapidly that desirable consummation will be reached. A few salmon breeding houses on the scale of the Sandwich establishment would work a mighty revolution in a few years.—*St. John's Telegraph.*

#### The Value of Grapes as Food.

There are some persons who think grape-raising overdone in Canada because an occasional tremendous yield runs the price down. If a true knowledge of the value of grapes as food could be diffused, the market could not be overstocked. Grapes are entitled to the first rank among fruits. They contain a considerable amount of hydro-carbonaceous matter, together with potassium salts—a combination which does not tend to irritate, but, on the con-

trary, to soothe the stomach, and which is consequently used with advantage even in dyspepsia. According to Dr. Hartsen, of Cannes, in France, who has recently contributed an article on the subject to a foreign medical journal, the organic acids in the grape, especially tartaric acid, deserve more consideration than they have generally received. Their nutritive value has, he thinks, been much underrated. It is known that they are changed to carbonic acid in the blood, and possibly careful research may show that they are convertible into fats. Dr. Hartsen thinks that they should be ranked with the carbohydrates as food. They have been found a valuable fever diet, and the success of the "grape cure" in the Tyrol and other parts of Europe appears to show they are positively beneficial in other diseases.

No doubt the good results of a residence at these establishments are in a measure to be ascribed to the climate and the general hygienic discipline adopted. The advantage does not wholly consist in the fact that so many pounds of grapes are eaten daily, but partly in the fact that other less healthful things are not eaten; and pure air and exercise are also important elements in the curative treatment. But after giving all due weight to these allied influences, we must allow no small fraction of the beneficial result to the grapes.

#### Cutting Flowers.

This may seem a very simple matter, and yet the method adopted for the cutting may seriously affect the growth and blooming of the plant. The usual manner is to cut all flowers with a long stem. Unnatural and almost barbarous as it may seem, the true way (for the greatest part of our flowers) is to remove them without a stem.

Roses of all kinds should be cut with a long stem—the longer the better, provided other buds are not destroyed. The Carnation, and all plants that bear their flowers in clusters, should be removed without stems. The Heliotrope should be allowed a very short stem; and the Verbena should only be cut as far down as the first leaf. A bit of wire or a match stick will serve for a stem, if it is desired to make of these stemless flowers a bouquet. If they are to be placed in shallow dishes—the best way to display them—stems are of no consequence.

The best time for cutting flowers is immediately after sundown, unless to preserve them from a storm, which would otherwise destroy or prevent their being cut in the evening. On cloudy days the time of cutting is a matter of much less difference. The explanation of these rules as to the proper time for cutting is found in the state of the sap at different times of the day and night. From the earliest dawn until sundown the leaves are actively drawing upon the roots, and the sap is flowing freely. After that time the leaves are nearly dormant till morning. The plant is then resting—is asleep. A flower cut in the sunshine will wilt at once, and if not put into water will quickly perish, whereas if cut at sunset it will remain fresh all night. In a cool place it will not appear to change for a long time, even if not put in water; yet in a close, hot room it will fade in an hour.

In this connection, it must be remembered that no rose should be allowed to expand fully before cutting. Cut them all while in bud. This rule may be applied to every flower. It costs the plant more to bring one plant to maturity than to produce a dozen buds. Therefore, cut as soon as in condition, and cut them all. To suffer flowers to fade on a plant and go to seed, is to lose nine-tenths of the whole crop. Freedom and generosity in cutting flowers is the best and truest economy.

Do not collect flowers in large bundles or tie them together, as these processes also hasten decay. Never pull them, but cut them cleanly off with a sharp knife—not with scissors. If the stems are bruised or lacerated, the pores are closed and the sap will not ascend freely.

#### The Way to Drive Horses.

With few exceptions teamsters guide and drive their horses and mules quite too much with the reins. Most teams are so accustomed to be pulled and hauled incessantly by the lines that they do not know how to act when the driver is not tugging away, applying the whip and bawling. Horses should be taught to go where the driver would have them when the reins are slack. If a horse is headstrong and the driver is required to hold him back with a firm hand, it is sometimes a sensible practice to put on a check rein and require the animal to carry his head a little higher than he is accustomed to carry it without a check rein. When a driver is mowing grass with a machine he should hold a steady rein, and avoid the practice of keeping the heads of the animals moving incessantly to the right and left with a constantly vibrating motion. Let the driver keep his eye on the heads and forefeet of the team rather than on the machine. Let the

eye glance only occasionally at the machine, rather than keep looking at the implement, casting a glance now and then at the team. If the team is guided properly, the implement behind the team will move in the proper place. A great many inexperienced drivers will watch the harrow, or mower or reaper, instead of the team, and, before they are aware of it the horses or mules will be two or three feet either to the right or left of the proper place. When harrowing we walk by the side of the driver and instruct him to look forward of the team along the edge of the harrowed ground, then keep the eye on the heads and forward feet of the animal nearest the harrowed ground. Hold the lines steadily but not too firmly. If you desire the team to move either way, pull one rein only a little. Avoid pulling the team so far to the right that you must immediately haul on the left line. When the mowing machine is in use, aim to drive straight, which can be done only by holding a steady line. Teach the team, if possible, to go right with slack lines. Almost any team can readily be taught to travel close to the standing grass without being hauled by the lines to the right or left. When the lines are slack and a team begins to turn only a trifle too much to the right or to the left, pull one rein only a trifle. Let inexperienced drivers be taught that the common practice of pulling and hauling this way and that way on the lines, and then fretting and scolding at the team because they do not move straight forward, will worry and fret a spirited horse more than all the labor he performs.—*N. Y. Herald.*

### Why Seeds Fail.

In the first place, we will examine the causes of failure. If small seeds are planted too deep, they either rot in the damp, cold earth, for the want of the warmth necessary to their germination, or, after germination, perish before the shoots can reach the sun and air; so that which was designed for their support and nourishment proves their grave.

If the soil is a stiff clay, it is often too cold at the time the seeds are planted to effect their germination; but it must be understood that warmth and moisture are necessary to the germination of seeds. Neither of these will do alone. Seeds may be kept in a warm, dry room, in dry sand or earth, and they will not grow. They may be placed in damp earth, and kept in a low temperature, and they will most likely rot, though some seeds will remain dormant a long time under these circumstances. But place them in moist earth, in a warm room, and they will commence growth at once. Another difficulty with heavy soil is that it becomes hard on the surface, and this prevents the young plants from "coming up," or, if during showery weather, they happen to get above the surface, they become locked in and make but little advancement unless the cultivator is careful to keep the crust well broken; and in doing this the young plants are often destroyed. If stiff, the soil where small seeds are sown should be made mellow, particularly on the surface, by the addition of sand and light mould.

If seeds are sown in rough, lumpy ground, a portion will be buried under the clods, and will never grow; and many that start, not finding a fit soil for their roots, will perish. A few may escape these difficulties and flourish.

### A Strange Fight.

The Giant's Causeway in Ireland, a short time ago was the scene of a combat of the most extraordinary nature. Some carrion had been deposited on the rocks near the sea, and a fox, evidently with the intention of making a meal off one or two ravens, which had been attracted to the spot by the putrid meat, curled himself up apparently asleep, close to the carrion. The ravens, however, regarded him with suspicion for some time, and finding that Reynard was not likely to sheer off, and probably unable longer to withstand the effects of what to them was a grateful and seductive aroma, they, by their threatening attitudes, left little doubts in the minds of the numerous spectators that they intended to bring matters to an issue. The ravens eventually advanced, and one of them took his stand at Reynard's head and the other at his tail. The latter led the attack by assailing Reynard's brush, the other immediately following suit by a powerful tap on the head. Reynard feigned indifference to these polite attentions during a few rounds, trusting no doubt that his persecutors would become emboldened and indiscreet, and at the same time, place themselves within his reach. Indiscretion however, is not a prominent characteristic of the *corvus* family, and, after a few more applications alternately on the head and tail, the position became uncomfortable, and the fox began to show fight; but the ravens followed up the assault, first snapping at one and then the other. It is stated that the warfare was carried on for more than two hours in this way, and, on the whole, the balance was against the fox, which was much dragged and weakened, but became more reckless as the fight waxed hotter. At this juncture they had worked or fought up to the edge of the rock on which the carrion had been deposited. The raven at the enemy's tail again tackled him, and after doing so, the one at the head gave

him a fearful pinch, upon which the fox turned upon him in great fury. The one at the tail again performed, and, during the passage of the fox after the other raven, gave him a sound outward thud, accelerating his speed so much that he lost his balance and tumbled headlong into the water, amid the plaudits of the spectators and the exulting croaks of the ravens.

### The Owd Wooden Plough.

We make no apology, says the London (Eng.) Farmer, for printing thus prominently a song which is still popular among the farmers of certain districts in Derbyshire and Staffordshire. It comes to us through a correspondent who has notions very far ahead of the "owd wooden plough." Our correspondent thinks it is quite time that "wooden"-ness should be got out of the heads of all farmers:—

#### Th' Owd Wooden Plough.

Up by th' Blake mere o' Morridge, not a long time ago,  
There lived an old chap w' an old wig o' tow,  
His name wor Tom Morris, and I'll tell ye how  
He made a discourse on an owd wooden plough.

Gee ho Dobbin, gee ho Dobbin,  
Gee ho Dobbin, gee up and gee wo.

Twor the tenth of October, and the oats wor just ripe,  
On the settle he sot, and he smoked his long pipe;  
And he thought a long time about this thing and that,  
And said "Tommy, sit down, and I'll tell the what's what."

Gee ho Dobbin, &c.

"These are terrible times, lad: I pritheo draw nigh,  
And I'll give thee a wrinkle or two ere I die;  
I can't stand it much longer, it shortens my breath,  
These new-fangled notions will soon be my death.

Gee ho Dobbin, &c.

"They're going too fast, lad, I tell thee, a deal:  
There's Lord Talbot, o' Ingestro, and Ralph Snoyd, o' Keele,  
And Sandon, and Buller, and Mainwaring, and Hill—  
Lord! the stuff they've been talking—it makes me quite ill.

Gee ho Dobbin, &c.

"W' their bones and their acids, their drills and gihanner.  
Thy grandfather, Tom, never farmed i' that manner;  
He'd 'st' stared hard enough if he'd heard what they say  
About boiling o' oil cakes and chopping o' hay.

Gee ho Dobbin, &c.

"Then soughings a thing as, in course, they mun alter,  
So the go a mow's depth for to get at th' top water,  
And they scoop out the dirt w' a thing like a spoon,  
And for tiles—they'll be usin' o' baccy-pipes soon.

Gee ho Dobbin, &c.

"Then they prate o' their carrots, and man, dex, and sich;  
(As if grown o' carrots would mak' a man rich)—  
Of boozing o' turnits and cleaning o' yellow s—  
Stuff and nonsense!—and growing of wheat without fallows.

Gee ho Dobbin, &c.

"Why, it makes me to laugh; without fallows indeed—  
I think they mun ha' a soft place in their yed,  
And what dan ye think they've been doing just now?  
Why, they've got up a laugh at an owd wooden plough!

Gee ho Dobbin, &c.

"Aye, an owd wooden plough; and they say, to be sure,  
As the wido awake farmers mun see 'em no more;  
They mun all be of iron, and wood there's no trade for;  
Why, what do fools think as ash trees were made for?

Gee ho Dobbin, &c.

"Talk o' ploughs made o' iron! why th' next thing they'd do,  
As sure as you live, they'll be painting them blue,  
Then they've two tits abreast, as they call a gee ho,  
They may call long enough, but it niver can go.

Gee ho Dobbin, &c.

"No! g'v me a good wooden plough as is strong,  
And a good pair o' big wheels to help it along,  
And four long-tailed tits, a mon, and a lad,  
And a good steady pace, and it shammer be had.

Gee ho Dobbin, &c.

Then Tommy, my lad, never heed what they say,  
But get thee on still i' thy fether's owd way,  
Thou'll bring all their lugs to fine markets I know,  
But stick, while thee lives, to th' owd wooden plough."

Gee ho Dobbin, &c.

### Food Facts.

It has been observed that a small quantity of beef tea, added to other articles of nutrition, augments their power out of all proportion to the additional amount of solid matter.

The saying that an egg is equivalent to a pound of meat is a mistaken notion. It is a question whether, weight for weight, eggs are equal to beefsteak. With many persons, particularly of nervous or bilious temperament, eggs disagree. Almost any one can eat an omelet who would find a pound of meat superfluous, yet the former may contain several eggs.

The nutritive power of milk, and of the preparations from milk, is very much undervalued; since there is nearly as much nourishment in half a pint of milk as there is in a quarter of a pound of meat. Hence, milk might be taken as a sort of representative diet, and as better adapted to sustain the body in health, or to strengthen it in sickness, than any other single article of food.

The almost universal testimony of men and women who have undergone great fatigue, such as riding long journeys without much stopping, or sitting up several nights in succession, is that they could do it best upon an occasional cup of tea—and nothing else. But a little tea or coffee restores quite as much as a great deal; and a great deal of tea, and especially of coffee, impairs the power of digestion.

The question is often asked: At what time in the day should fruit be eaten? In tropical countries, where fruit is the chief article of food, the rule appears to be that the earlier in the day it is taken the better it is, and the later, the worse. In hot weather, many wise people will eat none after noon, alleging that the digestion then declines in power with the decline of the day, and the fruit, instead of digesting, decomposes, owing to the presence of saccharine matter. The objection to fruit and certain kind of vegetables late in the day, be the explanation what it may, is certainly justified by an ample experience, though some persons can eat fruit at all hours without feeling any inconvenience.

It is made a frequent recommendation to persons about to incur great exhaustion, either directly, and with the least trouble of digestion, from the nature of the service, or from their being not in a fit state for it, to eat a piece of bread before they go. If they can take a bit of bread with the cup of hot tea, so much the better, but not instead of it. The fact that there is more nourishment in bread than anything else, has probably induced the mistake. That it is a fatal mistake there is no doubt. It seems, though very little is known on the subject, that what "assimilates" itself with the human body is the best under the above circumstances. Bread requires two or three processes of assimilation before it becomes like the human body.

### Eating Too Much.

"Nobody ever repented of eating too little," was the sage remark of an old gentleman on the verge of ninety, next to whom the writer had the pleasure of sitting at dinner the other night. The host was pressing him to take more, and urging him in the usual phrase. "Why, you have eaten scarcely anything!" Now, it is to be assumed that the old gentleman's words indicated one of the by-ways to good health, along which he had travelled through his long life, and to which he owed his present remarkably hearty condition; so it was suggested to him interrogatively that he had always been a small feeder. "Yes," he answered, "ever since I was two or three and twenty; up to that time I was a weakly young fellow enough, and I used to make the great mistake of trying to eat and drink as much as I could, in the hope of becoming strong. All my friends and the doctors backed me in my error; but fortunately I found it out in time and 'knocked off'—as your modern slang has it—more than half my usual amount of stimulants. I gave up the idea of making myself strong, and merely strove to make myself well, and I was contented with eating just as much as I could digest, and no more. Of course it took a little time and experience to discover the precise limits; I could not adopt the golden rule of always leaving off with an appetite, because I never began with one, but by persistently erring on the right side I got hold of one of the great secrets of life—the secret of knowing when one has enough, and after a year or two I became so much better that I used to find myself ready to eat a meal at any time, and by degrees actually acquired an appetite. Then, once found, I never destroyed it, but always determinately rose with the feeling that I could eat more. Naturally temptation grew stronger, but I was firm. I did not behave ungratefully to my stomach and immediately presume upon its increased powers by overloading it. I did not live to eat, but only eat to live; and behold me! I have no need to be very particular as to what I eat, even at my time of life; I have only to be careful not to eat too much." Here, indeed, is the great secret of a great deal that is amiss with many of us. We are in the habit of eating too much, more than our digestive powers can tackle, and that which is not assimilated more or less poisons. The system becomes overcharged, and gives any latent tendency to disease within us every facility for developing itself. The question is not so much what to eat as what quantity to eat, and nothing but a sharp look-out kept by ourselves can give us the answer.—*Tinsley's Magazine.*

### Resuscitating Persons Apparently Drowned.

1. Lose no time. Carry out these directions on the spot.
2. Remove the froth and mucus from the mouth and nostrils.
3. Hold the body—for a few seconds only—with the head hanging down, so that the water may run out of the lungs and windpipe.
4. Loosen all tight articles of clothing about the neck and chest.
5. See that the tongue is pulled forward if it falls back into the throat. By taking hold of it with a handkerchief it will not slip.
6. If the breathing has ceased, or nearly so, it must be

stimulated by pressure of the chest with the hands, in imitation of the natural breathing; forcibly expelling the air from the lungs; and allowing it to reenter and expand them by the elasticity of the ribs. Remember that this is the most important step of all.

To do it readily, lay the person on his back, with a cushion, pillow or some such substance under his shoulders; then press with the flat of the hands over the lower part of the breast bone and the upper part of the abdomen, keeping up a regular repetition and relaxation of pressure of twenty pounds for a child, while a pressure of thirty pounds may be applied with safety to a grown person.

7. Rub the limbs with the hands or with dry cloths constantly, to aid the circulation and keep the body warm.

8. As soon as the person can swallow, give a tablespoonful of spirits in hot water, or some warm coffee or tea.

9. Work deliberately. Do not give up too quickly. Success has rewarded the efforts of hours.

### Position in Sleeping.

It is better to go to sleep on the right side, for then the stomach is very much in the position of a bottle turned upside down, and the contents are aided in passing out by gravitation. If one goes to sleep on the left side, the operation of emptying the stomach of its contents is more like drawing water from a well. After going to sleep, let the body take its own position. If you sleep on your back, especially soon after a hearty meal, the weight of the digestive organs, and that of the food, resting on the great vein of the body, near the back bone, compresses it, and arrests the flow of the blood more or less. If the arrest is partial, the sleep is disturbed, and there are unpleasant dreams. If the meal has been recent or hearty, the arrest is more decided, and the various sensations, such as falling over a precipice, or the pursuit of a wild beast, or other impending danger, and the desperate effort to get rid of it arouses us; that sends on the stagnating blood, and we wake in a fright, or trembling, or perspiration, or feeling of exhaustion according to the degree of stagnation and the length and strength of the effort made to escape danger. But when we are not able to escape the danger, when we do fall over the precipice, when the tumbling building crushes us, what then? *That is death!* That is the death of those of whom it is said, when found lifeless in their bed in the morning: "They were as well as they ever were the day before," and often it is added, "and ate heartier than common." This last, as a frequent cause of death to those who have gone to bed well, to wake no more, we give merely as a private opinion. The possibility of its truth is enough to deter any rational man from a late and hearty meal. This we do know with certainty, that waking up in the night with painful diarrhea, or cholera, or bilious colic, ending in death in a very short time, is properly traceable to a late large meal. The truly wise will take the safer side. For persons who eat three times a day, it is amply sufficient to make the last meal of cold bread and butter and a cup of some warm drink. No one can starve on it, while a perseverance in the habit soon begets a vigorous appetite for breakfast, so promising of a day of comfort.—*Hull's Journal.*

### Rats Made Useful.

What practical ingenuity is able to accomplish, was recently illustrated by a feat, the account of which we take from the *Popular Science Monthly*. A telegraph inspector in England recently found it necessary to overhaul a cable of wires enclosed in iron tubes. A certain length of the cable had to be taken out, and the men commenced hauling at one end without having taken the precaution to attach to the other a wire by which it might be drawn back into the tube again after inspection and repairs. The question arose how the cable was to be restored to its proper place: and here the ingenuity of the inspector was manifested. He invoked the aid of a rat-catcher, and, provided with a large rat, a ferret, and a ball of string wound on a Morse paper-drum, he repaired to the opening in the tube. The flush-boxes were opened, and the rat, with one end of the string attached to his body, was put into the pipe. He scampered away at a racing pace, dragging the twine with him until he reached the middle of the length of the pipe, and there stopped. The ferret was then put in, and off went the rat again until he sprang clear out of the next flush-box. One length of the cable was thus safe, and the same operation was commenced with the other; but the rat stopped short a few yards in the pipe and boldly awaited the approach of the ferret. A sharp combat here commenced, and it was feared that one or both of the animals would die in the pipe. But after sundry violent jerks had been given to the string, the combatants separated, the ferret returned to his master, and the rat, making for the other extremity of the pipe, carried the string right through, and so relieved the inspector of his anxiety.

### Stock Notes.

CAPT. KING, the well known Kentucky stock auctioneer, is seriously ill.

SHORT-HORNS FOR JAPAN.—Since the export of American stock to Japan commenced, a few years ago, it is computed that 2,000 head of Short horns have been sent from the former to the latter country.

ARRANGEMENTS are being made for a quite extensive sale of Shorthorns, and possibly of other valuable stock, at the Centennial Show Yard, during the exhibition of cattle, about the 1st of October.

ENGLISH SHORT-HORNS FOR CANADA.—We learn that Lord Beattie recently sold from the famous Underley herd five Short horn cows and heifers for export to Canada at high prices. The five consist of three Barringtons, a Kirklevington, and an Acomb.

THE SALE HAS BEEN MADE from the Bow Park Herd to Mr. Richard Wegglesworth, Colchester, Meib., of the Shorthorn bull Duke of Lucknow, 16858, roan, calved April 2nd, 1873, by imp. Knight of St. George, \$172, out of Rose of Lucknow by Knight of St. George, \$172.

MR. A. H. MCCOY, of Gentryville, Ind., is accumulating and breeding a fine herd of pure Berkshire swine, of the Black-hawk and Canada Prince strain. His Prince was bred by John Snell's Sons, of Canada, and his sire was sold last year to Mr. Gentry, of Sedalia, Mo., for \$700.

AT A MEETING of the English Short-horn Society, held at Hanover Square, London, England, on the 4th ult., several new members were elected, amongst whose names we notice those of J. A. Cochrane, Simon Beattie, John R. Craig, Richard Gibson, John Hope, and Wm. Miller, of Canada.

The *North British Agriculturist* says:—The 7th, 18th, and 20th, Bell Duchess of Plumwood, purchased by Mr. Simeon Beattie, at the recent public sale of Mr. Dun, as was believed for exportation to England, have been sold by that gentleman to Albert Crane, Esq., and they will be added to the well known Kansas "Durham Park Herd." Two of the above, it will be remembered, are the get of the 20th Duke of Auldrie.

The *Farmers' Journal* says: B. F. Vanmeter is contemplating a change in the name of his Red Roses, or more properly speaking a discontinuance of the name, since the Rose of Sharons in England are known by that title, and the recent introduction of one of Mr. Vanmeter's Red Roses (Young Marys) into the "Eimhurst" herd of Mr. Fox, necessitated some mode of distinguishing other than that usually presented by the name.

THE FOURTH DUKE OF CLARENCE arrived at Quebec lately in the Circassian, a new purchase for the Bow Park Herd. The Fourth Duke of Clarence (33598) is by Eighteenth Duke of Oxford, from Holker's Grand Duchess of Oxford Fifth, bred by Colonel Gunter, of Wetherby Grange, has been purchased by Mr. William Ashburner, for the Bow Park Company, Canada, for 2,500 guineas; from Mr. Lodge, of Yorkshire. He is a rich roan yearling, and is the highest-priced male animal that has yet crossed the Atlantic.

ABOUT THE MEANEST MAN in existence is the one who will deprive an animal of life for the sake of a grudge against its owner. There is no meaner man than he, however, and his name is Fitzgerald. For the sake of a few dollars he poisoned two noble stallions at the Detroit races to prevent them winning. The horses were George and Gilt Edge, the former valued at \$20,000, the latter at \$10,000. The parties who hired the murderer were a gang of nine well-known "sports," against whom it is believed enough evidence to secure a conviction is forthcoming.

MANY OF OUR READERS will recollect the grand appearance made by the old 17th Duke of Airdrie at the sale in Toronto last December, when he was purchased of Messrs. Craig by Messrs. Ayres and McTintock, of Kentucky. We are sorry to announce the death of this magnificent Duke. He dropped dead in the pasture one day lately, having shown no previous symptoms of sickness. The 17th Duke of Airdrie was ten years old, and up to the day of death had always been a strong, vigorous and healthy animal. He was got by Royal Oxford out of 4th Duchess of Airdrie by Fordham Duke.

SHEEP STATISTICS.—According to the most reliable authority, the present number of sheep in the United States is about 37,000,000, yielding an annual clip of wool of about 150,000,000 pounds. The number of sheep slaughtered for mutton yearly is about 7,000,000. The capital invested in sheep and sheep husbandry in the United States is over \$250,000,000. The annual product of these sheep is about \$90,000,000. This is not a large exhibit for a country of the size and population of the United States. Brazil has, in number, 70,000,000 sheep. The total number of sheep in the British Islands is 34,500,000. England is the greatest sheep-producing country in the world in proportion to its cultivated land. The Spanish proverb, "The hoof of the sheep is gold," is true with the British, for they receive annually from their sheep the sum of \$150,000,000.—A. E. PERKINS

MESSRS. JOHN SNELL'S SONS, Edmonton, Canada, received June 1st, a consignment of Berkshires from Heber Humfrey, of Shrivensham, England, including the famous boar Sir Dorchester Carliff, winner of a silver cup as sweepstakes, and five first prizes at leading shows in England, including the Royal Agricultural Society's Meeting at Cardiff, 1872, and the Bath and West of England Society's Show at Dorchester, the same year. Also a young boar, Lord Swinborough, by Duke of Swinton; and two very choice sows, Duchess of Swinton and Lady Hillside, both of which were in farrow when they came out, and have produced fine litters since—the former having been served by Competition, a son of Hightown and Ulster, the latter by Lineal Baronet, a son of Sir Dorchester Carliff, and Sweet Seventeen's Sister by Longrange.

THE END OF THAT ungainly animal, the Texas steer, is near at hand. Soon his long horns and angular frame will no longer be seen. The Short horn is fast supplanting him. Thousands of bulls of improved blood have been taken not only into Texas, but into Colorado, Nebraska, Kansas, Dakota, and other places where the Texas cow was the only available stock with which to start an improved herd. After the young stock become old enough to breed, the Texan cattle are marketed, and we are now "running the emptyings," so to speak, of the Texans. Even the Indians are improving Cherokee stock in the same manner. In two or three years more the main bulk of the cattle will be Short-horn grades, and a great and steady demand will be made upon Eastern herds for bulls for breeding. Not for fancy stock, but for equally good but less fashionable, pure Short-horns. The present outlook is altogether in favour of stock-raising as the most profitable branch of farming, both in the East and West; and it is certain that there is no other that is less exhaustive to the soil.

### Clydesdales for Canada.

(*North British Agriculturist*)

Yesterday a valuable lot of Clydesdale mares left the Clyde, per the steamship Canadian, for the Canada West Farm Stock Association, Bow Park, Ontario, Canada. Along with the valuable Shorthorns which are intended to improve the immense herd already existing there, it has been thought advisable to raise a stud of powerful work horses. To accomplish this end a few of the best bred and finest looking animals that have appeared in the showyard this season have been bought. In the first place, we notice a brown two-year-old filly bought from Mr. Alexander Buchanan, Garscadden Mains. She is by Crown Prince out of Jean, a mare of great substance, belonging to Mr. Buchanan. The sire of Crown Prince was Lochfergus Champion.

In the showyard the filly had a successful career, winning among other prizes, the first as a yearling at Dumbarton, and third at the Highland Society's show at Glasgow. As a two-year-old she was first at the Glasgow spring show, and second at the Glasgow Farmers' show in the beginning of May. Darling, a three-year-old filly, bought from Mr. James Picken, is also a very fine mare, with remarkable action, and showing power. This spring she was second at Ayr to the now famous Kelso mare, and third at the Glasgow Agricultural Show, beating at both places many of the best mares in Scotland. She was bred by Mr. Galbraith, Croy, Cunningham.

Another three-year-old, Rosy, comes from Mr. Picken also. This is one of the best mares of the lot. By Campsie 3d, out of Nancy, a mare got by Lord Clyde, this animal possesses great substance and power. Although only shown twice at local shows with a successful result, she looks like making a grand show mare.

Another two-year old, bred by Mr. Lawrence Drew, of Merryton, makes the fourth of the lot. This is also a neat, well coupled mare, with good feet and legs, the result of having such a sire as the famous Prince of Wales, whom we saw at Merryton a few days ago as fresh and youthful looking as a three-year-old. This remarkable horse is in splendid condition, being worked several hours daily, and Mr. Drew assures us that he has never served mares as satisfactorily as this season.

The fifth and last of the shipment is a strong-boned, gaunt mare from Campbelltown, who stood first as a yearling and second as a two-year-old at the Campbelltown shows. It is to be hoped that the above horses, as well as others intended to follow, will get safely to their destination, and that their exportation may direct more attention to the breeding of such valuable animals both in Scotland and elsewhere. They were selected and shipped by Mr. John Clay, Junr., Kerchester, Kelso.



## Correspondence.

**INCUBATION.**—Amateur, Montreal.—The heat in your incubator should never exceed 104 degrees, nor should it be allowed to fall below 99 degrees. These are the two extremes. The safe medium is found between them.

**SHEEP-SHEARING MACHINE.**—Quidnunc, Drumbo.—There is such an invention, now claimed to be in successful operation in New York. It is somewhat elaborate, driven by means of an air pump, and costly. It shears a sheep in five minutes.

**CONCRETE.**—Farmer, Winterbourne.—A mixture of sharp sand and pebble, in the proportion of eleven parts to one of hydraulic lime, will make an excellent material for concrete walls. The mortar should contain about one-third its bulk of hydraulic lime.

**RUST.**—W. W., Trowbridge.—You can do little now but let it run its course. As a preventive measure for the future, see that your seed is free from smut or other fungoid spores, and steep it in brine or blue vitriol. Your land should be thoroughly underdrained.

**COOLING THE ROOM.**—Sufferer.—Keep a large shallow basin of cool water in the room, and change its contents once or twice daily. The hot air of the room takes up the water in the form of vapor, and thus a greater coolness is diffused, until air and water have a uniform temperature.

**OATS TO THE ACRE.**—Inquirer, Truro.—The prescribed quantity to the acre is 75 to 100 lbs. broadcast, or 65 to 80 lbs. if drilled. An esteemed correspondent recommended, in our April number, about half these quantities, assuring those who follow the advice that they will profit by it both in quality and quantity.

**R. A. G.**—We decline to do gratuitous advertising for your invention. If the matter were of great public benefit the thing would be different. As it is we do not see that the invention when patented will be of service to anyone but you, and if you wish to make it known our advertising columns are at your service.

**CLOVER IN THE SOIL.**—Reader, Orillia.—Clover is practically a creator of nitrogen in the soil, as it is also a purveyor of potash and phosphoric acid. Experiments made in Germany by competent men show that the clover of a single acre leaves nitrogen enough for 116 bushels of wheat, phosphoric acid enough for 114 bushels, and potash enough for 78 bushels—and all, too, in the very best possible condition.

**INSECTS FOR NAME.**—C. Julian.—The large beetle sent to us is the Water-Beetle or Water-Tiger, *Dytiscus Harvii*. It is aquatic both in the larval and perfect forms. It lives in ponds and slow running waters, and feeds on aquatic plants and aquatic insects found upon them. A similar beetle is found in England. As the *Dytiscus* is not common, and as the specimen enclosed was broken in transit, we should be obliged to our friend if he will send us the next one he catches. The small moths were so broken as to be only recognizable as *Tenebræ*. The specimens sent resembled, as far as we could make out, a moth of that family found near Toronto, and the larvæ of which prey upon the oak.

### Patrons of Husbandry.

The following new Granges have been constituted since our last issue:—

#### Subordinate Granges.

522. WILLOW.—W. H. Kent, Master, Medonte; Wm. Murray, Secretary, Medonte.

523. ROTHSAY.—H. H. Eaton, Master, Truro, N.S.; John S. Miller, Secretary, Truro, N.S.

524. VACHILL.—William Henry, Master, Georgiana; R. A. Riddle, Secretary, Vachell.

525. BEE HIVE.—Robert Murray, Master, Blantyre; Donald Robertson, Secretary, Blantyre.

526. EDEN GROVE.—James McDeath, Master, Eden Grove; M. Atkins, Secretary, Ellangawan.

527. SOMER.—John Cunningham, Master, Wilkesport; Wm. Fader, Secretary, Bradshaw.

528. SUFFROND.—S. S. Martin, Master, Warden; C. B. Martin, Secretary, Warden.

#### Division Grange.

31. YORK.—Charles McGibbon, Master, Douglas, N.B.; J. H. Murch, Secretary, Douglas, N.B.

The executive committee of Dominion Grange will meet in Toronto on Tuesday, September 5.

W. P. PAGE, Secretary.

## Miscellaneous.

**DR. MALHERBE** says that sowing silk is sometimes impregnated with the acetate of lead, and that such silk poisons the mouth if brought into contact with it. Add to this risk the extra dentist's bills, resulting from cracks made in the teeth by the biting of the thread and silk, and women should make a resolve always to use their scissor to sever threads.

**CASES OF SEVERE poisoning** from eating pressed corn beef are reported from New York, Boston and Chicago. The poison is supposed to have germinated because the meat was pressed before it had cooled, after being boiled, so that it was not wholly free from air. Fermentation and decomposition consequently ensued, developing a most dangerous poison.

**HOMING PIGEONS AT SEA.**—A French Steamship Company is about to make some systematic experiments upon the capabilities of homing pigeons at sea. Little is positively known of this, and of course much must depend on whether pigeons fly home entirely by sight, as supposed by Mr. Tegetmeier and others of great experience, or whether there be some peculiar instinct which may at least have a share in the phenomenon. We shall await the results with much interest.

**HOW TO TREAT CROWS.**—It is very gratifying to see that the poor crow which only a few years ago everybody's hand was against, turns out to be one of the most valuable birds for the farmer we have. Their only sin is in eating the newly-planted grains of corn; but this can be wholly obviated by taking half a peck of corn for a field, soaking it well and scattering it over an adjoining field. Crows never eat any hard grain, but will bury it until it becomes soft, as we have often seen them do. But they at all times prefer worms, beetles, &c., when they can be obtained, and devour immense numbers of them.

**THE TOAD,** almost universally despised and upbraided for his ugliness, is yet a useful, good-natured, quiet fellow, who recognizes his friends and those who are kind to him. Like the sparrow, the toad has been considered a nuisance, and in some sections has been exterminated; but the exterminators have been only too glad afterwards to get him back by the expenditure of large sums of money. So useful are toads in gardens that they are sold in France by the dozen, for the purpose of stocking gardens to free them from many injurious insects. The toad lives almost entirely on winged insects, and never does harm to plants.

**HOW TO USE A GRINDSTONE.**—1st. Don't waste the stone by running it in water, nor allow it to stand in water when not in use, as this will cause a soft place. 2nd. Wet the stone by dropping water on it from a pot suspended above the stone, and stop off the water when not in use. 3rd. Don't allow the stone to get out of order, but keep it perfectly round by the use of a piece of gas pipe or a hacker, or use a pair of the double lung stones, which keep each other in order. 4th. Clean off all greasy tools before the sharpening, as grease or oil destroys the grit. 5th. Observe—When you get a stone that suits your purpose, send a sample of the grit to the dealer to select by; half an ounce sample is enough and can be sent in a letter by mail.

**WORKING DOGS.**—A New York paper states that three men and five dogs are employed by C. Moeller, of that city, in his spike manufactory, when business is good. Two dogs and a man are out of work at present owing to dullness of trade. The dog treads in a wheel, which, revolving, blows the forge bellows. While one works, the others rest. Mr. Moeller has carried on his business by aid of canine power over seventeen years. He says, "the dogs do their work well and at small expense; they never go on strike for higher wages, have no labor unions, never get intoxicated and disorderly, never absent themselves from work without good cause, they obey orders without growling, and are very reliable."

**HOW TO DISINFECT CARRIAGES.**—The best method of disinfecting carriages is to burn one ounce of sulphur inside the carriage, the doors and windows being closely shut, and the loose cushions stood on end. The clothes should be disinfected with sulphurous acid; except that, if the sulphur be burnt in an ordinary room, about four ounces of sulphur should be used, and if possible, the clothes should be placed in a chamber of small size, or large box, heated by gas or fire, and exposed to a temperature of from 230° to 250° Fah. as well as to sulphur fumes. Exposure to heat will do, with or without the addition of sulphur. Of course nothing that will bleach must be exposed to sulphurous acid gas, unless the owners are first told that the color of the article will probably be destroyed.

**NEW CURE FOR BOILS.**—Dr. Simon, a physician of Lorraine, gives a new cure for boils, namely, by treating them with camphorated alcohol. As soon as the culminating point of a boil makes its appearance, he puts a little of the liquid in a saucer, and dipping the ends of his little finger in it, rubs the inflamed surface, especially the central part, repeating the operation eight or ten times for about half a minute. He then allows the surface to dry, placing over it a slight coating of camphorated olive oil. He says that four such applications will, in almost all cases, cause boils to dry up and disappear; the operation to be performed morning, noon, and evening. The announcement of so simple a cure for such a painful malady will bear repetition.

**REMEDY FOR POISON.**—If a person swallows any poison whatever, or has fallen into convulsions from having overloaded the stomach, an instantaneous remedy, more efficient and applicable in a larger number of cases than half a dozen medicines we can now think of, is a heaping teaspoonful of common salt, and as much ground mustard, stirred rapidly in a teacup of water, warm or cold, and swallowed instantly. It is scarcely down before it begins to come up, bringing with it the remaining contents of the stomach; and lest there be any remnant of a poison, however small, let the white of an egg, or a teacup of strong coffee, be swallowed as soon as the stomach is quiet; because these very common articles nullify a larger number of virulent poisons than any medicines in the shops.

**GETTING RID OF HAWKS.**—There are several ways to get rid of hawks. One is to shoot them when they come. If you watch, you will find that they come at the same time of day, and you can get a good shot at them. Another way is to set a trap on the top of a pole near where the chickens are. The hawk will sometimes light on the highest object before going down for the chickens, and light in the trap. This is a sure way to catch an owl. Skunks and minks may be caught in traps with a very little trouble. A barrel balanced on the bilge over a pole, about seven inches high, with open end brought down to the ground, and bait put on bottom. The skunk will walk into the open end, and when he gets just past the middle the barrel will right up on the bottom, leaving the skunk a prisoner. This has often been tried successfully.

**HAY-MAKING BY BURIAL.**—At a late meeting of directors of the Highland and Agricultural Society of Scotland, letters were submitted from Mr. Dudgeon, of Cargen, sending sample of hay made on the Hungarian method:—Mr. Dudgeon states that the grass was put into a pit six feet deep, quite wet, on the day it was cut, covered up to a depth of 15 inches with earth. The pit was opened in the beginning of May, after having been enclosed for eleven months. He adds that the process appeared perfectly successful, and though involving a little more expense, it was worthy of consideration, in a wet season, whether it would not be worth while securing at least a part of the crop in this manner. The sample was shown to the directors, and Mr. Mackenzie stated that he had taken some of the hay home, and found that the horses and cattle ate it readily.

**INSTINCT OF SWALLOWS.**—As a farmer in a neighboring town was getting in his hay, he noticed an unusual commotion among the swallows, which had built a long row of nests under the eaves of his barn. They appeared greatly excited, flying rapidly about and filling the air with their cries of distress. As the load of hay upon which he was riding passed into the barn, he saw that a young swallow in a nest directly over the door had caught its neck in a crack between two shingles and was unable to liberate itself. He stopped his team and set the young bird free, restoring it to its nest. Upon his return to the barn with his next load of hay, noticing that the swallows were quiet, he examined the crack, and found that they had filled it completely with mud, so that no matter how enterprising or how foolish the young swallow might be, he could not again endanger his life or the peace of that community by any experiments upon that crack.—*Homeslad.*

**BURGLAR-PROOF DOORS.**—The following is said to be a perfect contrivance for rendering doors burglar-proof. It is simply a little brass wedge, with a small piece of the same metal attached to its sloping side. The wedge has only to be pushed from the inside, between the closed door and the door sill. No other fastening is necessary, as any attempt to open the door only tightens the wedge. An ordinary torpedo may be inserted between the wedge and the piece of metal rivetted upon it. The slightest attempt to force the door will explode the torpedo and create an alarm. This style of wedge may be made of hard wood, with a little piece of tin rivetted on, under which to place the torpedo. In this case the tin should begin low down at the sharp end of the wedge, to protect it. It is sometimes a good plan to have a hole bored in the wedge so that it may be temporarily secured to the floor (with a nail or pocket gimlet) about three inches in front of the door. In this way any attempt to open the door is sure to meet with failure and detection the same instant.

**VEGETABLE COLORS AND LIGHT.**—The influence of darkness on the colors of fruits and flowers is sometimes remarkable, and different from supposed results. It was observed many years ago that some apples grown in Northern Ohio were coloured with a higher red than the same sorts grown in the southern parts of the State, under longer summers and a more nearly perpendicular sun. The effect of darkness on the color of summer pears has been observed by fruit growers—specimens which are nearly ripened on the sunny side of the tree assuming a much more brilliant red if placed in a dark drawer a week or ten days before softening, than if left exposed to light. Some curious facts have been lately brought out by Prof. Sachs, of Würzburg, relative to a similar influence on flowers. Bulbs grown and bearing flowers in a dark room, presented their natural hues; nasturtium had more yellow flowers in the dark; wall flowers had brighter blossoms; other plants had paler flowers; the effects were diverse with different plants. Such experiments would be interesting to repeat.



**POTATO-BUG ENEMIES.**—Prof. Riley exhibited a specimen of the Colorado Potato-beetle (*Doryphora 10-lineata*) that was so completely covered with a mite parasite belonging to the *Gamasida*, and apparently the *Gamasus coleophorae*, that the point of a needle could not be placed on any part of the beetle's body without touching one of the parasites. He estimated that there were over eight hundred of the mites, and they had killed their victim. Aside from the toad and other reptiles, the crow, rose-breasted grosbeak, and domestic fowls among birds which prey on the potato pest, he had, in his reports, figured or described no less than 23 insect enemies that attack and kill it. Only one of these is a true parasite, and the mite exhibited made the second, or just two dozen insect enemies in all.—*Proceedings of the St. Louis Academy of Science, June 12.*

**HANDY HELPS.**—There are some things which a farmer wants but once a year, and there are others which he always should have ready. No tool comes oftener into play than a hammer, for example. Every new or old wooden tool should be oiled. Have a barrel or keg or can of crude petroleum always ready in your shop. Keep everything well anointed. The crude oil goes right into the pores, and makes any wood durable as cedar. Keep it constantly on hand. Again, save every piece of rope, cord, and leather strap. They will be useful for repairing. The next time you go to a hardware store, get fifty cents or a dollar's worth of copper wire and copper straps. Copper wire is a great deal better than iron wire, because it is so much more flexible, like cord, and copper straps are capital for repairing any fracture in woodwork, it may be so easily wrapped around, or nailed on with small nails. Then again, always have a pound or two of wrought or annealed nails of different sizes, that will clinch readily when you use them. (You will remember that in driving these or any other nails into hard wood, they will go in more easily by first touching the points with a little grease, but do not let the grease get on the face of the hammer.)

**FARM PRIVIES.**—We all know how difficult it is to manage privies in cities, as well as at the hotels as those connected with private residences. But there should be no difficulty in the country where there is generally plenty of land. Privies are very easy to manage there, but how seldom do we find them so. Generally speaking a country privy is the most offensive thing about the premises, worse even than a filthy hog-pen, and more deleterious to health. Yet there is nothing more simple to arrange properly, that is to make it free from all unpleasant odor. Always place the building as far away from the house as it can conveniently be done. Let it be of frame and where the ground will not admit of its being lower in the rear, it should be elevated about two steps. Underneath the seats place a tight box of sufficient size to receive the droppings. This box should be movable on smooth skids, so that when the box is full it can be easily drawn out, emptied and returned again, but before being used it should be sprinkled with dry earth, which is the best, as being a great deodorizer, and after each time the privy is used a small shovelful of soil should be thrown in from a box or vessel placed in the privy. This will destroy nearly every trace of offensiveness—he easily kept clean, and all apprehension of fevers be allayed, provided the sinks and drains from the dwelling are kept in the same condition, and the hog-pens are carefully attended to and far enough from the house.

**REPAIRING LEAKY CELLAR WALLS.**—The repairing of leaky cellar walls should never be delayed, since the crevices are continually widened by the water soaking through. Cement, tar, and water-glass are the best materials for the purpose, but the last two can only be used at a time when the cellar is dry, as in winter, perhaps even in September, or after drying and airing it in winter by artificial means. When nearly dry, the leaky portions of the wall can readily be recognized, and should be marked with charcoal. Holes and cracks should first be filled with hydraulic cement. The marked places, when dry, should be coated three to four times with a solution of 1 volume of commercial water-glass in 2 of water, and finally, after becoming perfectly dry, with a solution of 1 volume of water-glass in 1/2 a volume of water. Instead of the solutions of water-glass, tar, kept quite liquid by heating, may be laid on a number of times. If cement is to be employed, the marked portions of the wall should be cut out wedge-shaped and carefully filled with a cement, rather thickly made up with 1/2 sand. If the cellar cannot be dried, the most places should be cut out somewhat deeper (4 to 6 inches), and filled with cement, by placing a tube of any material, about as thick as a finger, in the middle, and packing the cement in tightly around it, and, if necessary, holding it in place with a board until it hardens, while the water escapes through the tube without exerting any pressure upon it. After twenty to thirty days the opening may be plugged up.

**A GORILLA IN LIVERPOOL.**—The British and African Steamship Company's steamer *Loanda* entered the Mersey from Africa on Tuesday. Amongst the passengers were a party of Continental gentlemen, who had been on a tour of exploration in Africa, and who returned in the *Loanda*. They were fortunate enough to obtain, while in the interior, a baby gorilla, which they brought with them. Mr. Cross, the naturalist in Oldhall Street, who met the vessel on its arrival to take possession of a number of African birds and curiosities which had been consigned to him, at once noticed the gorilla, and did not hesitate to offer a cheque for

£500 for it, but its possessors, assessing it at a much higher value, declined the offer, which was subsequently repeated, but without success. The travellers, having landed, drove with the gorilla to one of the principal hotels, from which they start for Berlin. The presence of the gorilla was kept intentionally secret, but in the course of the day a number of gentlemen, who had heard of the interesting specimen, visited the hotel, and had their curiosity rewarded by a careful examination of the "baby." The gorilla had the run of two rooms occupied by the travellers, and its harmless antics were highly entertaining to visitors. Although already armed with formidable teeth, it did not attempt to make any savage use of them, though an occasional playful grip on the leg of a visitor gave a realistic idea of what the power of its jaws would be if it lived to grow much bigger. Its present height is about three feet, and it readily embraces in its man-like arms any one who will allow it to do so, climbing the knees like a child about three years of age, and being fond of similar attention. It is treated by its possessors in all respects like a child, and with anyone who, like Mr. Cross, showed a familiarity in handling it, the gorilla was perfectly "at home."

**DISINFECTANTS.**—The best known disinfectants are chlorido of lime, Condy's fluid, chlorido of zinc, carbolic acid, camphor, carburate of camphor, bisulphate of soda, green copperas, Labarraque's solution of chlorido of soda, salicylic acid. When doctors disagree, who shall decide? Either of the above are efficacious, and objectionable to some of the medical profession. But what chemical substances are truly disinfectant? According to the eminent chemists, Dumas, Chevreuil and Tasse, certain chemical substances are serviceable in neutralizing unpleasant odors, while other chemicals are required in order to arrest the fermentation or decomposition of the decaying substances which produce the epidemic, influenza, and bad odors. For example, while chlorine, chlorido of lime, zinc, and nitrous fumes are well known neutralizers of the odors of sulphureted, carbureted, phosphoreted, hydrogen or ammonia, they have no power to arrest the decomposition whereby these odors are produced. This, moreover, is accomplished readily by carbolic acid, phenyl creosote, and especially carbolate of camphor, which act like tannin on all albuminous substances and prevent further decomposition. But carbolate of camphor has a double action. While it tans dead muscle upon contact, it kills every living spore it touches, and thus, what is now believed to be the active principle of all contagious diseases is rapidly attacked and destroyed, and is therefore admitted to be the great scavenging principle of nature—a most powerful cleansing, neutralizing remedy. The combination and preparation, in a suitable fluid form, of the properties of carbolate of camphor, afford the means of bringing to bear, at any particular time and place, this most remarkable and effective agent in arresting and preventing contagious diseases. From dead bodies all chance of infection will be prevented and all effluvia destroyed by wrapping them in sheets saturated with a solution of carbolate of camphor.

**Books and Catalogues Received.**

**THE FARMER'S VETERINARY ADVISER.**—Professor Law of Ithaca, N. Y., has just published a much needed book, the "Farmer's Veterinary Adviser," which is now before us. It is an excellent work, tersely but plainly written, and treats upon almost every ailment of domestic animals in a manner that can be understood by any farmer of ordinary education. Prof. Law is one of the most thorough of veterinary scientists of the day, and we are glad that he, so well qualified, should have undertaken the task of instructing farmers upon some points that it is necessary for them to know. Many a valuable animal is sacrificed and many a slight and arrestable illness becomes dangerous and chronic because in its first stages the farmer does not know how to treat it and the aid of a qualified veterinarian is not at once attainable. For these reasons no farmer's stock in trade is complete without a work on veterinary surgery, and we know of no work that fills the bill so well as this one of Prof. Law. Its price is \$3.00, and it is published by the author.

LIFE is the vibration received by all animated beings from the Creator's breath—a taper whose luminous or flickering light may be extinguished by a gentle wind or firmly brave the fiercest blast.

Life is caloric, electricity and phosphorus acting upon a mass of bones and softer solids, diffusing warmth, motion and animation, activity of muscle, of nerve and of intellect.

As caloric, electricity and phosphorus are induced and supplied by Fellows' Compound Syrup of Hypophosphites, it only requires the administration of this successful invention to fortify the feeble, give sprightliness of motion to the torpid, and bring about a condition which not only secures tenaciousness of life BUT MAKES LIFE REALLY ENJOYABLE.

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