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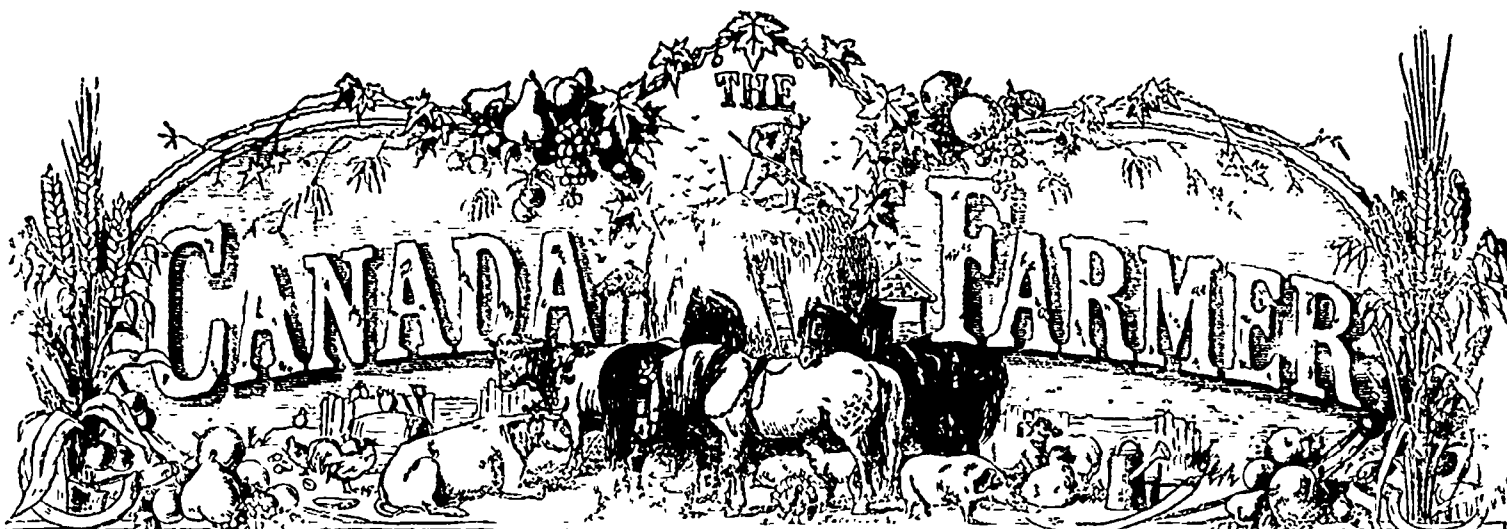
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## The Field.

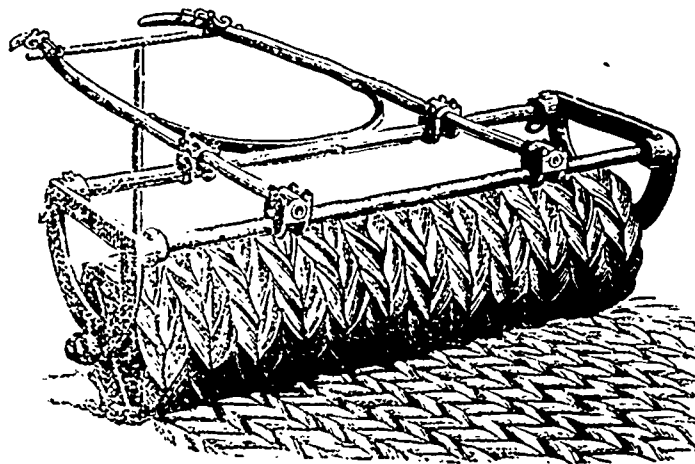
### New Agricultural Implements.

We observe advertised in our recent British files, some novelties in the way of farming implements, a few of which we purpose to illustrate and briefly notice. It is impossible to over estimate the importance of the farmer being possessed of suitable implements. By their employment, the cultivation of the soil is more efficiently performed; and other things being equal—a much larger return is secured. We have repeatedly and the pleasing duty of recording in our columns, the gradual improvement and development of agricultural machinery in this Province. We trust the good work will jog merrily along, and that manufacturers as well as purchasers, will have reason to be satisfied. There are several useful ideas embodied in the implements noticed in this article, of which we venture to hope some of our manufacturers will hasten to avail themselves.

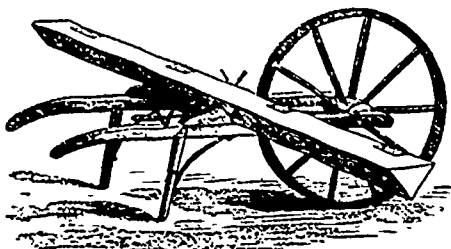
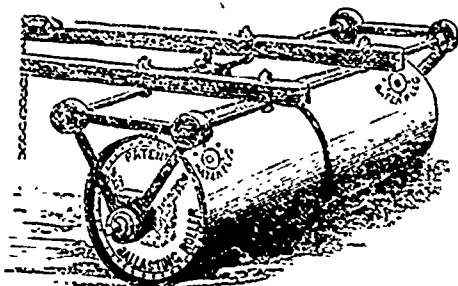
The first illustration represents what is termed "Spencer's Excelsior Roll and Clod Crusher." The advantages possessed by this implement appear to be—equalization of pressure, as shown by the imprint on the wood cut. The discs work independently and will thus consolidate the soil to the root of the plant more equally than any Roll we remember to have seen. The maker claims that "the wire-worm and grub are effectually destroyed; the clods thoroughly pulverized; the indentation of the discs approach nearer to the trampling of sheep than any other, and the objection to the row of clover coming immediately on the row of wheat is obviated." The maker does not state the selling price of the implement. Our next cut shows the roller to which was awarded the First Prize at the Newcastle Exhibition of the Royal English Society. As will be observed it is a cast-iron implement and embodies the novel idea of being constructed on the water ballasting principle. It is, as will be noticed, composed of two hollow cylinders which can be emptied or filled with water at pleasure by means of the two water plugs, indicated in the cut. The weight of the roller can, therefore, be conveniently regulated to suit the condition

of the soil, crop, &c. Amies, Barford & Co., of Peterborough, are the manufacturers of this implement.

Our last woodcut exhibits a "Grass and Clover Drill," with nothing particularly novel in its construction. It is light, strong, and cheap, and performs its work admirably. The drill is twelve feet long, and has twenty-one brushes and regulating coppers. It has double gear for varying the quantities of seed sown, and an arrangement for carrying the box diagonally on the harrow when not in use. This



useful implement has already been awarded six first prizes at first class British Exhibitions. Its inventor is Mr. T. Fry, of Bristol, and its price is about fifteen dollars.



### Familiar Talks on Agricultural Principles.

#### EXHAUSTION OF THE SOIL.

EVERY one at all versed in practical farming knows quite well that there are soils once rich and productive that have undergone a change for the worse, and have become exhausted. They will not yield as they once did. People are accustomed to speak of such land as "worn out," "skinned," "hungry," and so

forth. These and other current allusions to exhausted soils, imply what is after all but little understood, namely, that they have been impoverished by bad farming. There is no subject connected with agricultural practice, on which people more need enlightenment than this. Not only is light needed in reference to it, but sharp reproof and censure deserve to be dealt out in many quarters, and in short every practicable means employed to put a stop to a system which has only to be pursued long enough to turn the most fertile soil, ever tilled by man into a barren wilderness. It is passing strange that men with heads on their shoulders can go on, year after year, tilling land that is all the time growing poorer under their usage of it, while they are asleep as to the cause of the change that is going on before their eyes, or, perhaps, using their brains about it only to wonder what can be the matter with soil that once yielded so rich a return for the toil spent upon it. If they would only reflect that every crop grown in a field takes a certain quantity of plant material out of that field, and that unless what is thus taken out be put back in some way, the field must necessarily be injured; they would adopt a wiser course than that of extracting from the soil, by successive croppings, its original store of fertility. In previous "Talks" we have explained what plant food consists of, and where it comes from. Now nearly all the substances in the soil, which renders it productive, pass from the soil into the plants which are grown in it. Ten out of twelve of the inorganic elements of the soil thus go out of it into cultivated crops. This has been made so plain and convincing by the researches of chemistry that there cannot be a shadow of doubt about it. Johnston

gives the following estimate of the quantity of matter taken from an acre by an ordinary English four-course rotation. He supposes that the crop of turnips may amount to 25 tons, that of barley to 38 bushels, that of clover and grass to 2 tons per acre, and that of wheat to 25 bushels.

For English crops, these are moderate figures, and a moment's reflection will show that large crops would cause a much heavier drain upon the productive resources of the soil. The reader will do well to bestow more than a passing glance on the subjoined table

	Turnip		Barley		Clover	Ive	Wheat		Total
	Roots	Grain	Grain	Straw			Grain	Straw	
Potash	115.5	7.6	4.5	45.0	25.5	7.3	0.5	239.6	
Soda	64.3	7.8	11.1	12.0	9.0	3.2	0.9	96.0	
Lime	4.8	5.1	12.9	63.0	16.5	1.3	7.2	149.0	
Magnesia	1.5	7.6	1.8	7.5	2.0	1.3	1.0	32.9	
Alumina	2.2	0.5	3.4	0.3	0.8	0.4	2.7	10.3	
Phosphoric Acid	5.6	2.0	60.0	5.0	62.0	6.0	66.0	269.2	
Theriacal Acid	4.0	1.2	2.8	10.0	8.0	0.8	1.0	72.8	
Hydrochloric Acid	2.4	4.2	3.7	1.0	9.6	0.5	5.0	51.5	
Total	110	0.4	1.5	8.0	11	0.2	0.9	670.0	

A common four year's rotation of oats, turnips, or other green crops, wheat and hay would give pretty nearly the same results. Professor Dawson, to whose useful little work on "Scientific Agriculture," we have had occasion more than once to allude in the course of these "Talks," makes a number of suggestive remarks on the above table, and we cannot do better than give the substance of some of them. He says: "The table shows a loss by cropping in four years, of rather less than half a ton of mineral matter from an acre; and if we enquire as to the nature of this loss, we find that it might be repaired if we except the silica, which, being abundant in nearly all soils, may be left out of the account, by the following quantities of mineral manures.

- 325 lbs. Dry Pearl Ash.
- 333 " Carbonate of Soda.
- 43 " Common Salt.
- 30 " Gypsum.
- 150 " Quick Lime.
- 200 " Epsom Salts.
- 83 " Alum.
- 210 " Bone Dust.

These substances would be required to replace those taken away, provided that a part of the crops or the manure derived therefrom should be returned to the soil." He goes on to say: "I will be observed that the green cropping of the rotation carries off the greater part of the mineral substances, and consequently that grain crops are not the most exhausting to the soil. Practically, however, the difference between a rotation such as this, and no rotation, includes the supposition that manures are introduced with the green crops, whereas where there is no rotation, grain crops are often cultivated for a succession of years without manure." Again: "It is apparent that the exhaustion falls most heavily on some of the substances least abundant in the soil. We cannot exhaust any ordinary soil of silica, alumina, or oxide of iron; nor can a soil naturally calcareous be exhausted of its lime, but there are a few soils that can bear several crops without manure and not suffer an appreciable exhaustion of their available phosphates and alkalies. This gives to these substances a very great importance as mineral manures."

How plain it is that if we sell off crops or any thing that is made from crops, as beef, pork, butter, cheese, the soil must become poorer, unless we add fertilizers to make up for what is taken away. When a farmer sells any product, he sells a part of his farm, and if he keeps on doing this without putting back in just proportion to what he removes, he sells his farm by inches, disposes of it piecemeal. A pound of butter does not sensibly diminish the quantity of butter-making material in a meadow of meadow land, but in fifty or hundred years, enough will be taken away to deprive that meadow of what is essential to the production of butter, so that it will be incapable of yielding it. Successive mowing of meadow-land without manuring it have, in many instances, so utterly im-

poverished the land, that it refuses to yield hay any longer. Who does not know that this is the case with many soils once renewed for wheat growing?

Such then is the evil and the cause of it. The remedy is to be found in liberal manuring and judicious rotations. By keeping a proper proportion of stock, the farmer may sell off considerable produce, and yet not injure his land. Nature is bountiful, and as we have seen supplies from the atmosphere a considerable per centage of plant-food. Certain crops that feed largely on the air should alternate with those that draw their nutriment mainly from the soil, and if the cultivator sells only his grain and animal produce, keeping for the sustenance of the land the straw, hay, roots, &c., his land will not suffer. The manure that passes from the soil into the plant, passes from the plant into the animal, and from the animal back into the soil. Thus we return to the land what was taken from it, and so maintain its fertility.

### The Action of the Air upon Soils.

We are so much accustomed to consider the improvements of soils by working, such as are brought about by mechanical agencies—stirring and the like—that we are apt to forget that this mechanical movement of the soil is more a means than an end, that the object, in fact, to be obtained is more of a chemical than a mechanical one. This correct view of the case is exceedingly well put in a paper in the *Mark Lane Express*, which we here extract.

"As practical evidence to show that it is not mechanical development that is required on most soils, it is only necessary to say it soil be ploughed in the wet it will 'bake' in the sun, and if it be harrowed when wet it will 'cap' as it dries. This is because its cohesive qualities are more or less developed by mechanical action, and chemical action is suspended or excluded during the time of, and afterwards, by the puddling when wet. This is why clay land, when cut into strips late in the autumn, remains so through the winter, and breaks up rough in the spring, after an ordinary season of frost. Such land so left had far better have remained untouched till it would have crumbled up, after drying in the spring. Frost itself has generally a very false estimate put on its action; little or nothing is done directly by freezing in restoring soils. The only action that here takes place is, the water that is held in the soil is turned to ice, and as water swells during the process of freezing, the combined parts of a clod or lump of soil that were divided by the ice forming, remain separated when the ice melts. If soil which had been frozen were to be stirred before the water which was ice during the frost had been dried out, it would be far more adhesive than before it had been frozen at all, and thus the advantage of frost in pulverizing land would be turned to an evil instead of good account. This is why soil is so much more sticky after a frost than after a heavy rain. Even the gentle mechanical action induced by frost, from the swelling ice pressing atoms of soil or rock apart, increases its adhesiveness immediately after a thaw; and it is only after the subsequent chemical action (oxidation) has taken place, by air following in the crevices as the water that formed the ice escapes, that the soil becomes 'mellow' or 'powdery,' or broken into fine detached particles or granules." Another element of this process is comprised in the dissolution of the crude roots of the last crop. When a stubble field is first broken up, the soil will be yellow or brown, or of a similar colour to its subsoil; but after it and the roots it contains have been broken up by frost, or by low fermentation from drying and wetting, and a few days have elapsed for the ever-ready chemical action in question to take place, then it becomes many shades darker in colour. This is because the vegetable substances, as roots of plants, contained in its surface soil, have been converted into crude carbonates, or have undergone a portion of the oxidation, by exposure to the free oxygen of the air, which constitutes one or more of the degrees of the process of forming carbonic acid, the soluble carbonate that may be taken up with water by plants. It is when these roots are in an insoluble or partially oxidized state, like the substance of a rotten heap of straw manure, that they cause the soil to be of this darker colour. For when they have been perfectly oxidized or converted into carbonic acid, they then, being in this gaseous form, unite with the inorganic constituents of the soil, and become carbonates of some kind, as carbonate of alumina, carbonates of potash, soda, lime, or whatever may be the leading character of the earth present for which carbonic acid has an affinity. On the completion of this transformation, the soil will have lost some of its previous dark colour, as vegetable organs, when resolved into their original gas (carbonic acid), become again, like the atmosphere, co-

lourless. Under judicious treatment, however, of fairly sound soil, this important gas, so transformed and fixed, is not dissipated and scattered to the winds by further aeration and exposition to the sun's rays; but it is held in chemical union by the inorganic substances of the soil, as the carbon of chalk (carbonate of lime) or as the carbon of peat (vegetable carbon) is. It is thus held till plants, by exercising the beautiful power they have, exude an acid and alkali that will again liberate it by making it soluble, or in a fitting form to supply them with the food their nature needs. This is one of the most beautiful faculties of vegetable physiology and economy.

"A cut mangold, from the way it turns black through the air coming in contact with its juices and organs, is an intelligible illustration of the above way in which the minute roots of plants become oxidized, and the soil holding them darkened in colour in consequence. Straw, again, turns black soon after being converted into a condition to ferment, which is the same process going on in a more rapid way, the which rapidity is indicated by the heat produced. Annual heat is produced by precisely the same process—the union of the oxygen of the air inhaled with the carbon contained in the blood circulating through the lungs breathing.

"By thus tracing the process of fermentation and transformation of vegetable substances from crude carbonates to carbonic acid, we can understand how it is that soils become more and more friable, and therefore more and more easily worked, as they undergo a course of judicious tillage and cropping through several years. And we may further understand why tenacious clay, sand, and gravel are poor, for just in proportion to the amount of carbonates that have been deposited and transformed in clay will it be friable and productive of the crops for which it is suitable, and just in proportion to the capacity, natural or artificial, of sand or gravel to hold in their more porous conformation the same kind of deposit, will they with due moisture be productive of the plants for which they are suitable. This is a part of our subject worthy of the consideration required for its full realization."

### On the Action of Salt on Peruvian Guano.

Dr. Voelcker, in a recent article in the *Royal Agricultural Society's Journal*, has the following:

A distinct proof is here given that common salt has the power of liberating ammonia from soils that have been highly manured with London dung, Peruvian guano, and other ammoniacal manures, which in sandy soils especially exist in feeble combinations, that readily undergo decomposition when brought in contact with a solution of salt. In the case before us, a portion of chloride of sodium acted upon these feeble ammonia combinations, producing on the one hand soda, which became fixed in the soil, and on the other, chloride of ammonia, which passed into solution.

This analytical result throws light on the function of salt in agriculture. It is well known that salt is most beneficially applied to light land after a good dressing with farmyard manure, alone or in conjunction with Peruvian guano, and that its application under these circumstances is particularly useful to wheat and grain crops in general. Practical experiments on a large scale have shown, indeed, that by salt alone a large increase of grain was produced on land in good heart—that is, that had been previously well manured. In this case the application of salt evidently has the effect of liberating ammonia, and rendering it available for the immediate use of our cereal crops, which we know from experience are much benefited by it. On land out of condition, salt must not be expected to produce such a favourable effect, and as this manure no doubt is sometimes put upon land exhausted by previous cropping, in which, therefore, it does not find ammoniacal compounds upon which it can act, one reason becomes evident why salt is inefficacious as a manure in some cases, whilst in others its beneficial effects are unmistakable. Peruvian guano and salt is a favourite dressing with many farmers, and justly so. It has been supposed by agricultural writers that the benefits resulting from this mixture are due to the property of salt to fix ammonia; I have seen it, however, elsewhere, that good Peruvian guano does not contain any appreciable quantity of free ammonia, and, moreover, that salt does not fix ammonia. Whilst theory has erred in ascribing to salt a power which it does not possess, the practice of mixing guano with salt is one which can be confidently recommended. So far from fixing ammonia, salt rather tends to liberate and disseminate through the soil the ammonia contained in the Peruvian guano applied to the land, which then becomes fixed by the soil."

## Flax Culture.

Sir,—As spring seeding will commence in a few days it becomes the duty of every farmer to consider the nature of the crops suitable to the character of his soil, and best adapted to meet the commercial demands of the country. Since last spring our commercial interests have undergone a great change. The abrogation of the Reciprocity Treaty has materially changed our commercial relations with the neighbouring Republic. We can no longer, with justice to ourselves, remain dependant upon a foreign nation for articles, which home skill and capital can manufacture equally well. The growing wants of our home population must be met by the produce of our own soil, and the skill of our own artisans. Barley, which last year formed the staple agricultural production of Western Canada, will, when subjected to a high impost, command a much less figure than last year when an open port was ready to receive it on the other side of the lines. In view of these facts, every farmer should direct his attention to the cultivation of a crop which will command a home market—to something that will tend to lessen our importations, and find a manufacturer and consumer within the Province.

The experience of the last five years has proved sorrowfully to many, conclusively to all, that we are not to be relied upon as a certain or remunerative crop. The failure of the wheat crop has shown the folly of pursuing the cultivation of a single kind of crop, and relying upon it as the staple agricultural production of a country. Had Canadian agriculturists taken note of this fact five years ago, our country would not have witnessed the disastrous results which the failure of our staple crops has entailed upon the community.

Among the various crops of which the failure of the wheat crop has necessitated a trial, Flax occupies the most prominent place.

The objection which many advance against the cultivation of Flax, is the labour and expense that attend its pulling. Now this objection is more than met by the advantage that accrues to the farmer, in being enabled to sell the roots along with the fibre, and as more or less earth necessarily attaches thereto, they tell materially in the weight of the crop. The variety of uses to which the fibre of flax may be employed as a substitute for cotton, is opening its introduction into nearly every department of textile manufactures in Britain and the United States. The fibre can be converted into a hundred different kinds of goods in common demand in the every day business of life articles on which Canada has been paying a duty of twenty per cent. Until lately nearly all the flax produced in America was raised simply for the seed, and in that respect was considered profitable—how much more so will it become when the fibre from an acre of land is worth double as much as the seed.

The rebellion in the South having severely affected the produce of cotton, the process of cottonizing the fibre of flax is beginning to engage the attention of artisans, so that Canadian producers need not entertain fears of overstocking the market of the world. Mr. Donaldson recently said:—"A two-fold benefit will arise from the production of this new class of goods. First it will take the place of cotton-bating, which like all articles of that class is at war prices. Secondly, the farmer will be relieved of the most objectionable part of the labour which attends flax,—that of pulling as it can be cottonized when taken from the field in any shape without regard to its being made into sheaves."

The cultivation of flax has led to the erection of mills in several counties of Western Canada, for the manufacture of the fibre into articles for home use. Messrs. W. A. & D. A. Milne, of Scarborough, have, at considerable expense, erected a flax mill in this neighbourhood, which will be ready to commence operations in a few days. Their mills will employ the latest and best style of machinery for the manufacture of flax, which can be procured on this continent, and now they are ready to pay the highest cash price for any amount of flax straw that may be delivered at their mills. The inducements which they hold out to flax growers are of a superior description. They offer seed, free of expense, to all who may choose to sow it; the only equivalent asked is an equal amount of seed, returnable next fall. They also agree to purchase the crop as it comes from the field, so that farmers can avoid all trouble of thrashing, rotting, &c. These are advantages which should

not be overlooked. Parties in this neighbourhood, who have raised flax for the last two years, have received the results of their past crops with entire satisfaction, and are preparing to go largely into its cultivation this year. Considering our present mercantile position, it becomes the duty of every man, who has a piece of ground suitable, to sow some flax. He would, by so doing, not only adopt the best crop to bring remuneration to himself, but also give encouragement to those who by a large investment of capital are endeavouring to create home manufactures, by which Canada can only become an active and independent nation.

FARMER.  
Scarboro, April 19th, 1866.

## Seed Should be Sown on a Level Surface.

This should be done for various reasons. The principal is, the simultaneous germination and equal growth of the grain: it should all mature at one time. This would prevent the early-matured from becoming over-ripe, and dropping on the ground—thus losing part of the crop. This we see in most cases: there is an almost universal neglect here. That seed which is buried deeply, will require more time to make its appearance—and it will not be sufficiently ripened at the time of harvesting: while that under the most favourable circumstances will ripen, not only in advance of the most tardy, but the bulk of the crop. The early-matured and the late, will therefore be lost to a greater or less extent. We see this more particularly in oats. A few heads comparatively—and those the largest and finest—ripen first, and before the crop is fit to cut. These fine heads are generally lost. Now, were the whole crop like these early heads, it would be greatly improved, and a good one indeed. A level surface, and a uniform good chance to all, will do this, especially if the seed is uniform in its quality and time of ripening.

Our great difficulty is, we do not harrow enough before we sow. Not only should the ground (for small grains) be thoroughly harrowed before sowing, but rolled. This will make a floor, a uniform surface. Then good pump seed, if possible of uniform ripening, is to be sown, and sown evenly, when there is little or no wind. The soil being thus prepared, being made mellow and level, a fine-toothed harrow should be passed over it, just sufficiently to cover the seed; then roll again. The grain will all be ripe at one time—and there will be a level surface to reap it—no shelling, no loss; it will all be perfect.—*Colman's Rural World.*

## Leached and Unleached Ashes.

We have been repeatedly met with the assertion, from time to time, that unleached ashes were more valuable as a manure than leached ashes. Thinking that some reason might be given for an opinion so widely at variance with what had seemed to us as the true theory, we have been led, of late, to examine the whole subject a little more critically. The generally received impression among farmers has been, that the most important element in ashes was the potash, while they have overlooked the fact that the siliceous sand in plants was quite necessary to the growth of plants as the potash. The stalks of wheat, corn, hops and other plants, require siliceous in their composition. They will not grow without it and produce fruit. But here comes a difficulty. Siliceous, or sand, will not dissolve in pure water, as we all know, but how, then, does it become food for plants? If siliceous is mixed with potash, we can melt it in a furnace and form glass. If it is mixed with potash and held in water or steam, it will dissolve a portion of it. So when ashes are leached, a portion of the siliceous is rendered soluble by the potash, and thus the siliceous, potash, lime and other elements are already in a state of solution, and ready to be used as food for plants. But unleached ashes are not in that condition, their elements are, as it were, separated from each other, and their action in the soils is slow at first, but will undoubtedly last longer than leached ashes. Acting on this principle, we have thought that experiments should be instituted by saturating unleached ashes with water, two or three weeks before using them, making use of just water enough so as not to have it run off in the form of lye. We cannot but think that they would prove a most powerful manure, and we recommend a trial of unleached ashes by our farmers in the manner we here suggest, with the expectation that they will report for our columns the results.—*Maine Farmer.*

## Stock Department.

### Rinderpest in Scotland.

Public attention has, for the last month or two, been directed to the remarkable cases of Rinderpest said to have affected many of the herds of cattle in Kincardineshire, and the wonderful recoveries made; and being desirous of ascertaining the correctness of these reports, I resolved to make personal examination. I was the more induced to do this, as these cases and cures were certified by the district inspector, whom I knew to be a respectable practitioner, and, among others, by Mr. Taylor of Cushnie, and Mr. Alexander of Halkerton, two of the leading and most intelligent farmers in the country. I would premise that the plague has, in general, been carried from south-west to north-east, the prevailing winds (which are presumed to carry the infection) having blown in that direction. Influenced by the belief of this theory, the farmers in that county expected the plague to visit their cattle from Forfarshire in the west, where it raged; and they were not long kept in suspense, for many undoubted cases of a virulent nature did occur in the course of a short time. The question arises, Were the cattle in every farm standing where the epidemic made its appearance cases of plague? This formed the subject of my inquiry. The first place I visited was Fasque. I was previously informed that Sir Thomas Gladstone's cattle had been ill for some weeks, but that they had been cured by the Worms treatment, as announced by Sir Thomas in the *Times* and other newspapers. I was disappointed, however, to find that such was not the case, as out of a herd of twenty-one very fine cows, fifteen had within the last few days died, and I could see that more must die. Mr. Murray, the intelligent land-steward, conducted me over the premises, and described to me the circumstances connected with the disease and treatment. No particular precautionary measures had been taken, but on the very first symptoms of the disease appearing, the usual remedies—assafoetida, &c.—were applied. These, after a few days, seemed to have the desired effect of arresting the complaint; and Sir Thomas, no doubt unaware of its insidious nature and frequent liability to a relapse, and being anxious to lose no time in giving others the benefit of his experience, prematurely announced his success. Better fortune attended his young stock. This consisted of one and two-year-old stots and queys, which were housed in sheds some 200 or 300 yards distant from the cows. Mr. Murray informed me that they had mostly all been ill, but very slightly so, except one which had died. He said that a few of them had shewn some of the symptoms, but he was not prepared to attribute their recovery to any particular source. I was afterwards kindly conducted over eight or nine farms, where the cattle were said to be affected with Rinderpest. With one exception, besides the above, although some of the cattle at each place were undoubtedly ailing, the leading symptoms of that disease were certainly wanting. I was told that very few, if any, in the respective herds escaped illness where any were seized. The question naturally arises, If these be not mild cases of Rinderpest, what are they? It was not murrain, for there were no vesicles in the palate, nor excoriated mouths; and while undoubted plague existed all around, no other epidemic was known. The symptoms indicated, moreover, were nearly allied to those observed in the early stage of Rinderpest, but they stopped short of the profuse discharge at the nose, the cough, the heaving of the flanks, and the characteristic grunt of the terrible pest. Before stigmatizing the representations of those who honestly believe the authority of the inspector and their own observation of the existence of the true disease among their stock, we must remember that it does not assume its virulent form on every subject of its attack, where death among others on the spot may be doing its work extensively. In the course of my experience, over a wide district where Rinderpest prevailed, I was always meeting with some such very mild cases in the midst of those of a virulent and fatal character that, had I met with them in less suspicious circumstances, I should not have considered it plague. If this can be said of one or more cases under such danger, why may not a whole stock be attacked with impunity? Considering the nature of this terrible disease, I am, of course, doubtful of this, and yet we have analogous cases in the human subject in fever, where nearly a whole family may be carried off, while those in the next house, under the same complaint, may suffer hardly a day's sickness. But the diagnosis is not the only point to be looked at in these cases. The parties interested affirm that the virulence of the disease has been warded off by special dietary and other treatment previous and subsequent to the attacks. The former consisted principally in the free use of salt, along with their ordinary

food, which they think had a purifying tendency on the system. They state that they were able to discover the approach of the plague by a peculiar redness in the gum round the teeth, and one or two other symptoms, when the animal was immediately physicked, and deprived of straw, hay, and uncooked food, and had gruel and boiled mashies. By these means the intestinal canal was cleared of all bulky substances, hard of digestion, and requiring rumination, when the ruminating process was suspended. The principal seat of disease was thus relieved of all encumbrance and work at a time when disease destroyed the natural functions; and by the application of a little stimulating and tonic medicine, the disease was arrested before it assumed its more violent forms, and nature, the great renovator, was left almost unmolested to accomplish its restorative work. This is the theory advanced by these parties, and it must be admitted that it is as tenable, at all events, as any which has been advanced by the profession. While they may have maintained their point too dogmatically, involving misapprehension in the first instance, and consequent error in the second, they have shown so much energy and shrewdness in outwitting to ward off and combat a great public calamity, that they certainly deserve other treatment than the sarcasm and ridicule so wantonly heaped upon them, as if they had advocated "salt and sawdust" as their exclusive *remedium*. My purpose is neither to defend nor criminate them, but to state the facts as I found them. There are hard-headed, resolute fellows among them, who can maintain, unassisted, their own cause—only I would caution them against being too sanguine, for I have my doubts of the soundness and strength of the pathological position they have assumed.—*A Member of the Board of Examiners of the Royal Veterinary College, London.*—*In the Farmer.*

**Large Early Lambs.**

To the Editor of THE CANADA FARMER :

Sir,—I have recently noticed in the Agricultural journals,—your own, I believe among the number,—some communications respecting early lambs of extraordinary size.

As emulation in such matters is useful and therefore laudable, I consider it right to mention what success we have had this spring, on this farm. During a long experience which I have had in the old country as well as in Canada, I do not remember to have seen finer specimens of lambs than what we are now raising here. I omitted, unfortunately to weigh them at the time of birth, but when I afterwards did so, two of these lambs—then five days and eleven days old respectively, weighed *thirty eight pounds and a half*. One of them, the oldest, was a twin, the other a "single" lamb. I did not try any more, but most of the others seemed to be about the same size and weight, or nearly so.

I honestly believe that none of your correspondents upon this subject, can beat this. Mr. Chapman's flock of sheep are all of the Leicester breed. The ram, "Billy Barlow," is a prize animal, three years old this month, and is remarkable for size and beauty.

I am, Sir, yours respectfully,

THOMAS SHARP,

Manager.

Belmore Grange, Lake Memphremagog,  
April 20, 1866.

**A PROLIFIC EWE.**—The *Galt Reporter* claims that Dumfries township is ahead in the matter of sheep raising, and mentions that a Leicester ewe belonging to Mr. John Davidson, near that place, gave birth recently to five lambs. Two of the lambs were born alive, and three dead. Such a circumstance as this, says the *Reporter*, has not occurred before in this neighborhood in the memory of our oldest farmer, and we believe only once in Scotland—and then all the lambs were dead.

**SCRATCHES ON HORSES.**—A correspondent gives the following recipe for scratches on horses, which he has tried on many horses for several years, and never failed in an immediate cure:—"Take a shovel full of hot ashes (wood ashes) and throw them under the fetlock and above the hoof the part always first affected. If the horse be badly off with them, raise the foot and pour them on, dropping the foot directly. In two hours the horse will move with ease to himself, however stiff he may have been. The disease is immediately cured by the application. The cracks in the skin require a few days to heal.—*American Farmer.*

**The Dairy.**

**Dairy Farming—Its Profits—The Yield in Butter, Cheese, Milk, and Money, per Cow.**

The following report of H. Brown's Cheese Factory, Columbus, Chenango County, N. Y., is very instructive, and is worthy of the study of all farmers. It should be preserved for future reference. It states:—

We commenced making cheese the 10th day of April, 1865. The average number of cows was about 500. The Factory closed the 24th day of November. The whole number lbs. of milk was 1,732,150, from which 179,206 lbs. of cured cheese was manufactured, taking 9 lbs. 66-100ths for one of cured cheese.

The whole amount of money received for cheese delivered on the railroad was \$28,611.50, being about 16 cents per lb. The expense of manufacturing was \$1 per hundred lbs. The expenses for boxes, bandage, rennets, salt, &c., was seventy-three cents and four mills per 100 lbs.

We will now give the amount of milk received each month, and the amount of cheese made from it:

Month.	Lbs. Milk	Lbs. Cheese	Lbs. Milk to 1 of Cheese.
April .....	98,306	10,011	9 lbs. 7-10
May .....	280,923	28,636	9 lbs. 8-10
June .....	337,335	31,390	9 lbs. 8-10
July .....	316,617	31,752	9 lbs. 9-10
Aug. to Sept. 16 .....	375,683	38,129	9 lbs. 8-10
Sept. 16 to Oct. 1st. ....	112,422	12,679	8 lbs. 8-10
Oct., skimmed. ....	153,393	17,665	8 lbs. 6-10
Nov., do. ....	57,411	5,914	9 lbs. 7-10
<b>Total am't</b>	<b>1,732,150</b>	<b>179,206</b>	<b>9 lbs. 66-100</b>

It has become a question of great interest to the farmer whether the product of the dairy after the 1st of October be made into cheese, butter, or cheese and butter both. We submit to the public the following figures, showing the amount realized by my patrons for the month, the cream being taken from the night's milk previous to delivery at the Factory:

Whole number lbs. of milk was 153,393, from which was manufactured 17,665 lbs. of cheese, and about 2,600 lbs. of butter. This cheese sold at 15 cents per lb. at

Sherburne .....	\$3,179 70
Butter sold at 15 cents.....	1,210 50

**Total amount** \$1,390 20  
Being \$2 90 for each hundred pounds of milk, or 15-7 mills per quart.

We will now proceed to give a statement of the gross receipts realized by some of the principal dairies delivering milk at my Factory:

Edwin Cady, from 21 cows, delivered 92,415 lbs. of milk, from which was manufactured 9,566 lbs. cheese.	
Cheese sold for .....	\$1,530 56
600 lbs. butter at 45 cents .....	370 00
Deacon skins and rennets.....	26 25
<b>Total.....</b>	<b>\$1,826 81</b>

Being nearly \$87 per cow. Mr. Cady milked but 20 cows after the 1st of September, one being turned for beef.

Orson Lottridge, from 16 cows, delivered 73,377 lbs. of milk, from which was manufactured 7,595 lbs. cheese.

Amount received for cheese .....	\$1,215 20
125 lbs. butter, made in spring, at 20c .....	25 00
129½ lbs., in the month of Oct., at 46c .....	59 57
170½ lbs., in Nov. and Dec., at 45c .....	76 72
Deacon skins and rennets.....	22 25
Sold 300 qts. milk, at 4c. per quart....	12 00

**Total amount.....** \$1,410 74  
Being \$88.17 per cow. Three of these cows were two year old heifers.

L. Beebe & Brother, from 12 cows, delivered 55,938 lbs. of milk, from which was manufactured 5,790 lbs. of cheese.

Received for cheese .....	\$926 40
40 lbs. butter, in spring, at 20c.....	8 00
In Oct., 111 lbs. at 46c.....	62 44
Nov. and Dec., 147 lbs., at 45c.....	66 15
Deacon skins and rennets .....	15 00

**Total amount.....** \$1,067 99  
Being \$89.99 per cow.

Lyman Hardy, from one cow, delivered 5,412 lbs. milk, from which was made 563½ lbs. cheese. The milk of this cow was retained at home each Sunday through the season—this addition to the butter made after the 1st of Oct.—making 87 lbs.

Received for cheese.....	\$30 08
87 lbs. of butter, at 45c.....	39 15
Deacon skin and rennet....	1 25

**Total amount.....** \$130 48

We challenge Chenango County to beat this. In order to show the benefit of manufacturing both butter and cheese in October, we will give the receipts of O. Lottridge and L. Beebe & Brother's dairies, the butter being correctly weighed as fast as made:

O. Lottridge—	
Lbs. of milk .....	7,696
Lbs. of cheese.....	886
Lbs. of butter.....	129½
Receipts on cheese.....	\$159 48
Receipts on butter.....	69 67

**Total amount.....** \$219 05  
Being \$11.60 per cow for the month.

L. Beebe & Brother—	
Lbs. milk .....	749
Lbs. cheese .....	731
3 cured for cheese.....	\$131 58
Received for butter.....	62 44

**Total amount.....** \$184 02  
Being \$15 33 per cow, for that month.

25—A striped hoof, or any other colour except dark, is mentioned by Mr. N. Mattison, in the *Rural American*, as an infallible mark of a good cow.

**SALT FOR COWS.**—A correspondent of *The Rural New Yorker* gives his cows all the salt they will eat three times a week during the summer season. He says the amount of milk returned by cows, on his soil, is from a quarter to a third more than when salted but once a week.

**NEW YORK MILKMEN.**—Mr. Wise, of Virginia, in a late speech, is reported to have said respecting that state, "She has an iron chain of mountains running through her centre, which God has placed there to milk the clouds, and be the source of her silver rivers." The *Rochester American* remarks:—"The figure is borrowed from the New York milkmen, who milk the clouds as much as they do their cows, and draw from the former the most palatable and healthful portion of the compound fluid."

**AFFECTIONS OF THE UDDER.**—For garget and other diseases to which the udder of cows are liable, a writer in the *County Gentleman* states his experience as follows:—"It is easier to prevent than to cure; and that for cows, nitrate of potash, (saltpetre) judiciously used, is a good preventive against affections of the udder, also of milk fever—this, however, is probably too high keeping, which no remedy can effectually counteract. Cows should be generously fed, but not extravagantly, with grain or meal, as, I think, some are."

**THE MILCH COW.**—So far from trying to see how little food we can subsist a milch cow on, the object should be to see how much we can make her eat. The cow should be regarded as a machine for the manufacture of milk. Feed, therefore, so as to sharpen the appetite and induce the animal to eat freely. If you have a long row to feed, put a small forkful before the first and so on to each as you go along. By the time you get to the end, the first may have eaten all up clean, and be waiting for more. Begin the same way and go round again and again if necessary. Put a large feeding before the cow at once, and it would not be eaten with half the relish, and some of it might be left.—*Mass. Ploughman.*

**STYLE OF CHEESE FOR THE PRESENT YEAR.**—Many of our factories and family dairies continue to make a large sized cheese. They have the old hoops on hand, and cannot see the reason why large cheese should not be as saleable and command as high price in the markets as formerly. There are some advantages in making large cheeses. They take less bandage, require less labour in handling while curing, and the expense of boxing is less than when they are made smaller. To these may be added, less waste in shrinkage. All these points are well understood by cheese makers, and they therefore make an effort to retain the old styles. Unfortunately the market steps in and reject the old styles, giving preference to the smaller size. The time has been when large cheeses would outsell the smaller, but it was not because of the size, but for the simple reason that the quality was generally better. When quality was alike, the smaller cheeses have always been worth the most money. The reasons are obvious. The small cheeses are more easily handled; there is less loss in case of breakage or accident; there is less waste in cutting, and they are more saleable to persons purchasing for family use.—*Country Gentleman.*



## Canadian Natural History.

### The Wild Cat.

(*Felis catus ferus*.)

At the time when America was discovered, this now widely spread species of the Felidae was not found. Our domestic cats, as well as these in a wild state that are occasionally found in the woods, are the descendants of those imported by Europeans.

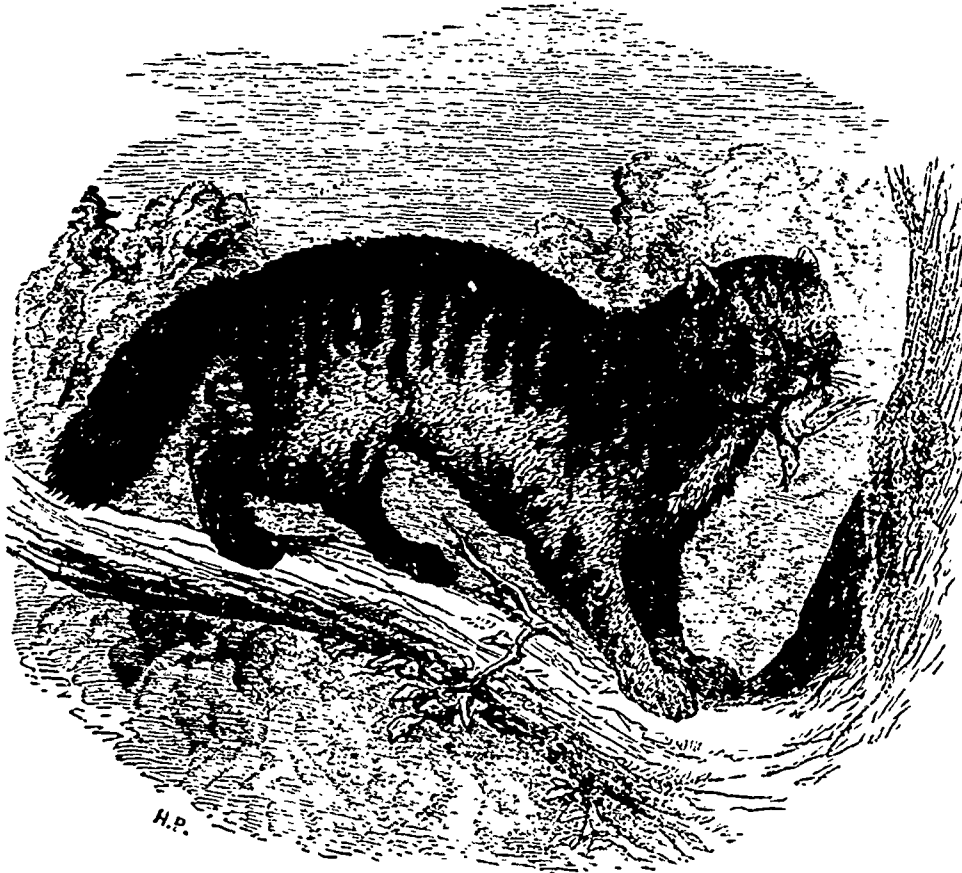
A question here arises as to whether the Wild Cat proper be the original progenitor of our domestic Cat. Some authorities hold that the former is a distinct species, because "its tail is shorter and more bushy than that of the domestic animal." This opinion does not seem sound, for it must be remembered that still greater differences obtain in dogs, which are generally admitted to be of the same race. On the other hand, if the only distinction between the wild and the tame cat is due to the change from savage to domestic life, and vice versa, it must be of very long standing; for it has been satisfactorily proved that the difference in respect to the shape and length of their tails, remains in full force even after the domestic animal has taken to a wild life for many years. "It is proved," says the Rev. J. G. Wood, "that even if several domestic Cats have escaped into the woods, and were led a sylvan life, their long tapering tails have been transmitted to their posterity through many successive generations, in spite of their wild and marauding habits."—The question, however, remains in a most doubtful condition, and is likely to remain so, for almost insurmountable difficulties encounter the attempt to adduce proof to bear on the point.

The Wild Cat, as it exists at present, is larger and more robust than the tame breed. The head has rather a triangular shape, and possesses withal a most savage aspect, especially when the animal is irritated. The fur is long, soft, and thick. The back, limbs, and sides are gray, being darker on the back, and paler below. A blackish longitudinal stripe runs along the middle of the back, and numerous paler curved ones down the sides. It has been remarked in the case of other animals—the ox and dog for example—that the wild breeds are nearly all of the same hue, while the domesticated varieties are of various colours, and of mingled shades. It need scarcely be said that the same remark applies in an eminent degree to the distinctions in colour which are observable between the wild and the domestic Cat.

The anatomical structure of the animal under consideration is indicative of great strength and activity. "The jaws are very powerful, bearing teeth shaped like wedges. The structure of the joint admits of no lateral motion. The whole force of the various muscles surrounding the jaws are therefore exerted in a perpendicular or cutting direction." The tongue, too, is peculiarly formed. Its surface is covered with numerous horny papilla or spikes, which assist the

animal in tearing its food. These, as we are all aware, may be felt, in a small degree, on the tongue of the domestic Cat. "The tongue is, therefore, rather an organ for removing muscular fibres from bones, and for retaining flesh in the mouth, than an organ of taste." It is a very shy animal, chiefly nocturnal in its habits. It lurks in woods and thickets, and preys upon rabbits, squirrels, and birds of various kinds. The animal was common in England some few centuries ago, and at that period was numbered among the beasts of the chase. Notwithstanding that it was an absolute pest to the industrious farmer, it was protected by the wealthy few who "suffered no scath" by its nightly raids. "Even its fur," we are informed, "was made a subject of legal enactment, being permitted to some orders of the people, and forbidden to others."

THE BROWN LYNX, (*Lynx rufus*, Guldénstæd) is sometimes denominated the American Wild Cat. It somewhat resembles the CANADA LYNX, already described, but it is a much smaller animal. The tail is about the same length as the head, with its ex-



tremity on the upper surface black, tipped with more or less white; there is a whitish spot on the hinder part of the ear, bordered with black. The soles of the feet are naked, and the ears are not tufted as in the Canada Lynx.

### Characters of Birds.

Birds form the best characterised, most distinct, and natural class in the whole animal kingdom, perhaps even in organic nature. They present a constancy in their mode of generation and in their tegumentary covering, which is not met with in any other of the vertebrate classes. No species of bird ever deviates, like the whale among mammals, the serpents among reptiles, and the eels among fishes, from the tetrapodous type characterizing the vertebrate division of animals.

The anterior extremities are constructed according to that plan which best adapts them for the actions of flight; and although, in some few instances, the development of the wings proceeds not so far as to enable them to act upon the surrounding atmosphere

with sufficient power to overcome the counteracting force of gravity; yet in these cases they assist, by analogous motions, the posterior extremities; either, as in the ostrich, by beating the air while the body is carried swiftly forward by the action of the powerful legs; or, as in the penguin, by striking the water after the manner of fins, and by the resistance of the denser medium carrying the body through the water in a manner analogous to that by which the birds of flight are borne through the air. In a few exceptions as the cassowary and apteryx, the wings are outwardly represented by a few quills or a small claw. In no instance do the anterior extremities take any share in stationary support or in prehension.

Birds are therefore biped, and the operations of taking the food, cleansing the plumage, &c., are almost exclusively performed by means of the mouth, which consists of two lipless and toothless jaws, sheathed with horn. To facilitate the prehensile and other actions thus transferred to the head, the neck is elongated, and the body generally inclined forward and downward from the hip-joints. The thighs are

accordingly extended forward at an acute angle from the pelvis toward the centre of the trunk, and the toes are lengthened and spread out to form an adequate base of support. The actions of perching, walking, hopping, running, scratching, burrowing, wading, and swimming, require for their perfect performance different modifications of the posterior extremities. The mandibles, again, present as many varieties of form, each corresponding to the nature of the food, and in some degree indicative of the organization necessary for its due assimilation. Ornithologists have, therefore, founded their divisions of the class chiefly on the modifications of the bill and feet. Since, however, birds in general are associated together by characters so peculiar, definite, and unvarying, it becomes in consequence more difficult to separate them into subordinate groups, and these are necessarily more arbitrary and artificial than

are those of the other vertebrate classes.

A binary division of the class may be founded on the condition of the newly-hatched young, which in some orders are able to run about and provide food for themselves the moment they quit the shell (*Aves præcoces*;) while in others the young are excluded feeble, naked, blind, and dependent on their parents for support (*Aves altrices*.)—From the *Anatomy of Vertebrates* by Professor Owen.

POWERS OF A BIRD'S SOLE.—When we hear the song of the soaring lark we may be sure that the entire atmosphere between us and the bird is filled with pulses or undulations, or waves, as they are often called, produced by the little songster's organ of voice. This organ is a vibrating instrument, resembling in principle the reed of a clarionette. Let us suppose that we hear the song of a lark, elevated to the height of five hundred feet in the air.—Before this is possible, the bird must have agitated a sphere of air one thousand feet in diameter—that is to say, it must have communicated to seventeen thousand eight hundred and eighty-eight tons of air, a motion sufficiently intense to be appreciated by our organ of hearing.—Tindall's *Glaciers of the Alps*.

## Veterinary Department.

### Pleuro-Pneumonia.

PLEURO-pneumonia has unquestionably been occasionally mistaken for *Rinderpest*, and the animals affected slaughtered in consequence. A writer of much practical experience as a grazer has given the following statement relative to the mode of treatment which he has followed for some years with much success:—

"I find an article on pleuro-pneumonia in the *Times* of September 26, in which is the following most extraordinary advice:—'Destroy all cattle undoubtedly diseased.' The *Times* is looked up to as high authority, and this advice may do much mischief, as I have reason to believe that there is no difficulty in curing pleuro-pneumonia. Some years ago I lost a great many; but as the course of treatment which I now pursue seems perfectly to succeed in every case, as I never now lose a beast, you may think it worth while to insert it.

"1st. It is of the utmost importance to observe the *early stage*: even 24 hours give the disease so much start of the remedies.

"2nd. The symptoms are very varied. I have had bad cases with cough—without any grunt; the beast has fed; the coat did not stare; but I never had a case without the beast showing a dull, heavy look about the eyes (which a person accustomed to it would at once notice), and an increased pulse.

"I therefore class the symptoms:—*Always*—Increased pulse; heavy look; hot feel in skin. *Usually*, but not *always*—Dull; not feeding well; some cough; grunt (often none); draw in lung on putting your ear to side of beast, staring coat (sometimes); not chewing cud (not always). Strange to say, some which have turned out the most difficult cases to cure had the fewest symptoms. I have had light cases with every symptom combined.

"*Remedies*—An aperient dose, viz:—Epsom salts, 1 lb.; raw linseed oil, 1 pint; powdered ginger, 2 oz. (let this be fresh ground); cream of tartar, 1 oz., nitre, 1 oz., in a pint or two of thin gruel. If gruel not to be had, same quantity of water as warm as milk from the cow. Take care to give dose before bleeding, or you may open the cut again.

"Bleed to faintness. I do not say how much blood. Some will give more, some less, but I bleed to faintness; and bear in mind that it is the rapid flow, quite as much as the quantity taken, which relieves the lungs. You may dribble off the blood from a small cut, and weaken the beast without relieving it.

"Put the beast in a cool, dry, airy house; litter dry, but so dirty that it will not be tempted to eat. This is of importance, for there should be *absolute* starvation. (Dry hog mould is the best litter you can use, if you have it.) A pail of clean, fresh water left in corner of stable, and renewed as wanted.

"Two drachms of tartar emetic, four drachms of nitre—mix for a dose; to be given morning and evening until pulse is lowered, and is calm, soft, and even. I cannot say how many doses will effect this. Sometimes two doses will be sufficient; I have had to give in some cases as many as six or eight doses—i.e., for three or four days—but very seldom.

"A drench, three times a day, of linseed meal gruel or tea—i.e., the linseed meal in lukewarm water. The beast, after the first, generally drinks this; if not, drench it; but positively nothing to eat of any sort or kind—hay, roots, grass, anything. This is a *sine qua non*. The linseed gruel keeps the bowels regular.

"When the fever is quite gone, comes the time of danger from imprudence. When the fever is gone the animal becomes very hungry; the man is delighted to see it eat; it does eat; he gives it plenty; the fever returns; the beast has not the strength to bear the remedies as at first, and it dies through carelessness.

"When the fever is quite gone, and the beast appears cheerful and hungry, give (if in winter) a few, very few, clean slices of turnips or mangold wurtzel, three or four times a day (continuing the linseed gruel). The second day a little more turnips and two or three pounds of sweet hay, gradually increasing food; feeling the pulse two or three times a day, to see that food has not raised it. If all goes right, the fifth or sixth day the beast may have its food. In summer, substitute mown grass in lieu of the roots, but observing the same care.

"When the beast begins to recover, it may be turned out for an hour or two in the fine part of the day; but not where it can eat. Avoid cold or wet, or very hot sun. Care must be taken when the animal first goes out, as I have seen it stagger with weakness when it first went out.

"I continually meet with fresh cases in cattle bought in, but I never lose one, and they thrive well after being cured, and are as healthy and well as any of the herd.

"Whitewash house, buckets, &c., and burn litter  
"The above treatment supposes a beast of average size, say 5 cwt. to 6 cwt.—*The Farmer* (Scottish.)

## Poultry Yard.

### Egg-Ology.

Do those who buy eggs by the dozen ever think of the difference in value between large and small eggs? There is not only a difference in the weight, but the large eggs are actually the most valuable where albumen is an object, as they contain nearly double the proportionate quantity. There is often a very large difference in the size of eggs of the same bird. Examine the two sizes; you will find the yolk of the small one nearly or quite as large as that of the big one; you will also find the weight of the shell of the small one quite as much, sometimes more, than the large one. For incubation, the small eggs of the same hen appear to be nearly as valuable as the large ones. The reason of this is, that those eggs which have the largest yolk produce the largest chickens. This may be seen by examining the eggs of all the Shanghai breed. The yolk of eggs of that breed of fowl is very much larger in proportion than the eggs of the game and bantam breeds. It is stated that eggs of fowls which have no male in the flock are less valuable than those which have been fecundated—that is, that they possess a smaller proportion of nutritive qualities. One reason why the eggs of wild birds are so highly esteemed is owing to the flavour acquired from the food consumed. Another is, the proportion of yellow in wild birds' eggs is considerably larger than in those of domesticated ones, and this adds to the proportionate nutritive quality, yet for many kinds of compound cooking they would be less valuable, though in the preparation of some sauces where the yellow portion of the egg only is used, and where high colour and high flavour are both esteemed, two wild bird eggs are considered equal to three domestic ones. The flavour of an egg acquired by food nearly or quite all resides in the yolk. It is very strongly affected when hens are fed on putrid meat, fish, or onions. It is highly recommended by skillful raisers of chickens to give barley to hens which are to produce eggs for incubation, because it adds much to the bulk of the yolk. Rye, on the other hand, increases the albumen. Those who desire to keep eggs in a fresh condition should understand that the great secret of doing so is to exclude the air from the interior portion. An egg-shell is not naturally air-tight. This is proved by the fact that the contents generally dry up, and the space which they occupied becomes filled with air. The diminution of weight is very rapid during incubation. In one experiment eggs which weighed 24 oz each were kept two years exposed to the air, and were then found to weigh but little over one 1 oz. There is no scientific fact to prove that long eggs produce more males than females, or that the reverse is the case with round eggs. On the contrary, experiments by the Society of Acclimatization of France have proved that males and females come in equal proportion from long or round eggs.—*New York Tribune*.

Provide meat, lime, gravel, sand, and a warm, sunny place for hens, as well as plenty of feed.

**POULTRY MANAGEMENT.**—A correspondent furnishes the *Rural New Yorker* this interesting item:—The greatest number of eggs laid in one day by my thirty-two hens, during the month of February, was twenty-seven; and the average cost of the food of the hens was seven cents. A hen with the best care, will not commence laying until she has entirely recovered from the effects of moulting, which is not often until February; while pullets begin when they are seven or eight months old; consequently the earlier in the spring you can get chickens, the earlier next fall you will have eggs. My brother's chickens, hatched in February, made their nests in October, and his March pullets furnished him two or three dozen eggs weekly in the middle of the next winter. Never keep a hen after she begins to moult unless she has some peculiarly good qualities.

## The Apiary.

### "Miller Traps, Comb Guides, and Condensers."

To the Editor of THE CANADA FARMER:

SIR,—In THE CANADA FARMER for March 15th, there appears a reply by A. N. Henry, of Oshawa, to my article written under the above caption. In that reply, Mr. H. contends for the utility of these "fixings," to which he claims to have given "considerable study," and which he has introduced into what he is pleased to call the "People's Hive."

Believing that no bee-keeper would be led to purchase a hive containing such useless "trappings" from any arguments advanced by Mr. H. in their favour, I should have let the communication pass unnoticed, had he not represented me as saying what I did not say, and stating that which was untrue. Mr. H.'s first quotation from my article is evidently garbled, as he makes me say, "these and all other like 'fixings' are worse than useless." I said, "worse than useless in the hands of bee-keepers generally." This Mr. H. did not attempt to disprove, but remarked, "We will lay this statement by the side of similar ones which we often hear in reference to moveable frames, &c., by those who have never tested their utility." I would inform Mr. H., that having tested the utility of these "fixings," I speak from knowledge when I pronounce them useless in the hands of bee-keepers generally. Mr. H. next inquires, "If the millers are so unceremoniously ejected by the bees upon their entrance into a hive, how is it that they manage to dispossess about ten per cent. of the bees in the country?" If Mr. H. had given more study to the nature and habits of the bee and the bee-moth, he could not only have answered that question, but would have seen that, with all his miller traps, ten per cent. of the bees would still be dispossessed if common hives were used. It is not necessary that the miller should enter the hive in order to infest a stock with her progeny, for dropping her eggs upon the lighting board, they stick to the legs of the bees, and are carried into the very midst of the combs, where they are speedily hatched, and commence their work of destruction if not ejected by the bees. Of what use would Mr. H.'s miller trap be in such instances? Of none whatever. If, however, properly constructed, moveable comb hives are used, and the apiarian will not depend upon "traps," he need not lose one stock in one hundred by the millers. Mr. H. next asks the question, "How is it that during last summer I did not find a single grub in the combs of my apiary? I give my 'trap' the credit." I reply: either the bees had unceremoniously ejected them, or in his anxiety to give his trap the credit he overlooked them; for in two hives into which I introduced his "trap" to test it, I found equally as many grubs as I did in my other hives having no traps. The many openings in the combs of these hives made by the bees in order to dislodge the grubs remain as proof, and can be seen by Mr. H. or any other person. Furthermore, I propose this coming season to give Mr. H. \$10 for every stock of bees, I examine, in his hives in which I do not find grubs in the combs, or the evidences of their having been there. That grubs may be found in my hives I have never been so foolish as to deny; but the ease with which they can be removed by the bee-keeper, if the bees do not do it, is a guarantee of their excellence. Mr. H. again remarks: "The sum of Mr. T.'s argument is, that 'not a bee-keeper in fifty or a hundred' would pass around once a week or a fortnight and destroy the worms." He adds: "The objection is certainly very flimsy, and would apply with tenfold force to moveable frames." But it is not so "flimsy" as Mr. H. would have it appear, and cannot apply to moveable frames; for though they be not removed at all, there can be no harm arise from their uses. Not so with miller traps. If they be not removed

and the combs destroyed as often as once a week, they actually prove a curse to a hive. Says Mr. Langstroth, "All such contrivances, instead of helping the careless keeper, will but give him greater facility for injuring his bees." Mr. H. also very confidently asserts that "the statements in regard to the invention, disuse, revival, &c. of the wire-cloth bottom are untrue." Having in my possession a pamphlet published by the inventor of the "wire-cloth bottom," in which he gives a full description thereof, I take from the title-page the following as proof of the truthfulness of what I stated. "PATENTED BY ALMOND BENNETT, MAY 17, 1858. HAMILTON, C. W." Mr. Bennett sold through Canada hives and rights to the amount of three thousand dollars, and as there are not probably over one dozen of the hives now in use, I feel justified in saying that it fell into "disrepute;" and as Mr. H. has introduced it into his hive, and both "talks and writes about it," I tell you "untruth" about it when I say it has been revived. If I mistake not, Mr. John Robinson, Divisional Engineer of the G. T. R. R., has one of the wire cloth bottoms now in use in the Bennett hive. Mr. H. would have it appear that Quimby is in favor of "miller-traps," because he advises the laying of refuse comb near the entrance to induce the miller to deposit her eggs there." Again, he says, "Put some pieces of comb under the swarms; the moth will be deceived and lay her eggs there, when the worms are easily destroyed." But this is not attaching a miller trap to a hive. The bee-keeper who would take the trouble to save refuse comb and lay it near the hive, would be the one out of fifty that would attend to it; hence it would be all right and in perfect harmony with what I have written. But what says Quimby of a "moth-proof hive?" "A hive that is proof against the moth is yet to be constructed. We frequently hear of them, but when they come to be tested, somehow the worms get where the bees are." Probably Mr. Quimby has not heard of the "People's Hive." What says Harrison? "There being no such thing as a moth-proof hive in existence, nor any prospect of such a discovery ever being made, we are compelled to be content with that that makes the nearest approach to it, viz, one that gives the bee-keepers easy access to the worms." Bee Culture p. 115. Says Metcalf, "There is no moth-proof hive and cannot be." Says Miner, "When a perpetual motion, the philosopher's stone, and a north-west passage to the Pacific are discovered, you may believe such a thing as a hive, proof against the moth possible—not before." But then they had not heard of the "People's Hive."

The sum of Mr. Henry's arguments for comb guides consists of quotations from the sayings of two individuals, who probably have never used a properly constructed moveable comb hive. His "considerable study" should have enabled him to have said something original in their favour, but I presume his short (one season) experience forbade it. He seems desirous, however, by his remarks, to impress upon the public mind that I have taken "the position that in my hive, bees will "without exception" build straight comb. By reference however to my articles published in the FARMER, it will be seen that I have never taken such a position. Yet J. H. Thomas and Bros. have offered to guarantee that not over one swarm in twenty-five will build crooked in my hives. What I mean by building crooked, is building across from one frame to another so that the frames cannot be removed. I will say still more; if the bee-keeper will but take half the trouble that he would require to take, if using comb guides, he need never have a swarm build across the frames. Of what real use then are "comb guides," even in the hands of those who would use them? Of no use whatever. When comb guides are used it is absolutely necessary to remove them frequently or the bees will so fasten them in that they can hardly be removed without injury to the combs. In fact I have seen them so fastened in that it was impossible to remove them. Now, nothing can be more self-evident than this, if bees, in a properly constructed hive will build combs straight enough for all practical purposes, without "comb guides" all such additions adding as they do to the complication and expense of a hive, must be worse than useless. I am quite certain that any bee-keeper visiting my apiary, will be convinced that "comb guides" are things to "talk about" but not to use.

The remarks of Mr. H. concerning "condensers" are laughable indeed. Mr. H. would think the occupants of a sleeping apartment or bedroom *non compos mentis*, who would provide it with a condenser instead of ventilating it, yet would not think that person *compos mentis* who would ventilate a bee hive,—the sleeping apartment of his bees—instead of providing it with a "condenser." Between the sleeping apartment of persons and the sleeping apartment of bees he can "trace no analogy." The small amount of "exhalation" arising from the occupants of a sleeping apartment, he would by no means condense, but

allow it to be carried off by proper ventilation but the "exhaling mass" arising from the occupants of a bee-hive, which mass occupies "about one-sixth of the space," (close calculation) he would by no means allow to escape but condense it in the top of the hive over the sleepers! Philosophical indeed! Mr. H. has "condensers" for bee-hives for sale, but none for bedrooms. Then, again, only think of a bee-keeper going round with a teaspoon to catch the "exhaling mass" as it drops from his hives "after a cold snap!" It needs not a "Mr. T. to ring the death knell" of any such contrivance, for the intelligent bee-keepers of Canada will never suffer it to live outside of the apiary of Mr. H. Talk of the "exhaling mass occupying one-sixth of the space" in a properly ventilated hive! I venture to say that from the time my bees were hatched last fall until they were taken out this spring, that Mr. H. could not have found one drop of moisture in the hives. The bees were all dry and comfortable as in any well ventilated apartment. In concluding, Mr. H. makes the very fair admission that he is experimenting, which is the most important truth his article contains.

The remarks made by Mr. H. concerning my "celebrated wedge shape top piece" of comb frames, relate to a side issue, which this is not the place to discuss. I am, however, quite at a loss to understand how Mr. H. is prepared to prove "that it was in use before I ever conceived the idea of getting up a hive," as such an idea was conceived many years before I ever saw Mr. H. or he saw me. And if I have not the sole right to it, how is it that Mr. H. so readily abandoned it when informed that he must not introduce it into his hive.

J. H. THOMAS.

Brooklin, April 9th.

BEES STORING HONEY.—R. F. Henry, Fond du Lac, Wis., says that his bees never failed to store honey in boxes when kept in hives one foot square. He thinks the trouble generally arises from having hives too large.

FEEDING BEES IN WINTER.—The following passage from *Galignani* will interest those of our readers who keep bees:—"M. Masso, an Italian agriculturist, has discovered an excellent way of feeding bees in winter. These insects, it seems are exceedingly fond of rape oilcake, a fact that M. Masso discovered, on finding several sacks, in which he kept some, pierced with holes by the bees in order to get at the contents. He then put some on plates near the hives, and found the bees regularly busy making their bails of provisions and stowing them away; and they went on so until the flowers re-appeared in spring. M. Masso observed that his swarms were never in a more prosperous condition than after having been fed for some time in this way."

## Entomology.

### Egg Parasites of the Tent Caterpillar.

In our last issue, we referred to a letter handed us by Professor Buckland, respecting the eggs of the well known Tent caterpillar. The writer stated that with the aid of a glass he had observed "the interior surface" of a nest of these eggs "teem with life foreign to the nest, so small as to require several seconds of active locomotion to cross the surface of one of the eggs."

An article by Dr. Packard, in the November No. of the *Practical Entomologist*, throws some light upon this interesting subject. He states that he "detected on the inner side of a bunch of these eggs, a minute Ichneumon fly, or *Platygaster*," which he put away for future examination. He afterwards discovered that "several more of the parasites had appeared, and that nearly all the eggs were tenanted by these minute flies either in a chrysalis or perfect state, showing how much is done by these invaluable, as they are infinitesimal, friends of the farmer, in staying the undue increase of noxious insects."

"This minute insect—he adds—is only four one-hundredths of an inch in length." "Late in June, in New England, just as the moth has finished laying her eggs, numbers of our friendly flies appear and bore through the egg-shell of the moth to deposit within, a tiny egg. The egg hatches, and the microscopic grub ensconces itself in a less vital part of the growing tent-caterpillar, in the fatty matter on the back of the

worm, and gradually exhausts the life of the caterpillar, so that it dies before being large enough to hatch. Upon opening the egg in the fall of the year, instead of the young caterpillar just ready to eat its way through the egg-shell, we find an insect friend with its head in the largest end of the shell, which faces outward, and in the autumn a few hatch out. But it is probable that a larger number are born in the early summer."

The minute organisms which our correspondent observed in the eggs he was inspecting, were in all probability specimens of this parasite in an early stage of their growth. Should he detect any more, we should be glad of specimens for examination, the eggs of the nests that we have found on our own apple-trees, being apparently unattended by this tiny parasite.

It has long been known that a very similar ichneumon pierces the eggs of the canker-worm moth, (*Anisopteryx vermata*, Peck). Sometimes every egg out of a cluster of about a hundred will be found to be thus punctured, and each of them will produce a friendly Ichneumon instead of a pestilent caterpillar. Thus wonderful are the provisions of Nature for keeping within due bounds all the members of her kingdom! Her laws, assuredly, would be all-sufficient for the purpose, were it not that man, having his own ends in view, breaks through her established rules, and creates anarchy and confusion where all before had been harmony and order.

### The Trichina Disease.

*Trichina Spiralis* is a name which has recently appeared so frequently in newspaper paragraphs, in connection with the description of a very painful and, in many cases, fatal disease, that it has occurred to me that a short account of the natural history of the animal might not be without its interest and practical value at the present time.

The *Trichina Spiralis* is one of those animals known as entozoa—parasites that live in the bodies of higher animals, occupying them as human beings occupy a continent or territory. Entozoa are, however, migratory in their habits, and pass from one animal to another in order to complete the cycle of their existence. This migration is, in fact, a necessary condition of their development, for, if confined to the body of a single animal, they die without reproducing their kind. The group is very numerous, the animals constituting many distinct families, differing much in their external form and development.

The life history of many of these entozoa is involved in much obscurity, but that of *Trichina spiralis* is well known. The animal was first discovered in its undeveloped, or what is usually termed its larval state, existing in the muscle (or flesh) of many animals, more particularly the human and the porcine animal, or, in plainer terms, in man and the pig, who have the mutual honor of affording "happy hunting grounds" to this most delicate monster.

The accompanying engraving, carefully drawn on a magnified scale of 200 diameters, by my friend Mr. Draper, shows the condition of the trichina as existing in the flesh of the pig, and may also be taken as an equally correct representation of the parasites as they sometimes occur in almost countless thousands in the flesh of man. They appear as small worms, spirally coiled up in globular cysts, which, however, are so small as only to appear minute specks to the naked eye. In this condition the animal has a proper digestive apparatus, and obviously feeds on sustenance derived from the body of its "host." If a portion of pig's flesh infested with these spirally-coiled trichinae be eaten by man, the animals are not destroyed, but immediately pass into a higher stage of development in their new abode, and become mature or perfect animals in two days; on the sixth day these mature trichinae lay eggs, which hatch speedily, and give rise to young embryos, that immediately bore their way through the walls of the intestines, and all other softer tissues in the way, until at last they reach the muscles, where they coil up into the spiral form, from whence they have derived the name of *T. spiralis*, and in fourteen days acquire their full larval size. If the muscles become infested with great numbers of these parasites, an almost complete disorganization of the tissue, and a consequent inability to move the part, result from their presence. The migration of the trichinae through the body of man from diseased pork that has been eaten is often



fatal; the boring of the animals through the intestines gives rise to great pain and irritation; peritonitis not unfrequently ensues, followed by paralysis, great prostration of all the powers of life, and eventually by death.

This formidable disease unfortunately is at the present time very prevalent in Germany, where large numbers of persons have perished from the habit of eating badly cooked pork. In meat which is what is termed underdone, the larvae of the trichina and other entozoa still remain alive and uninjured; those which swallowed attain their full development in the human frame, and produce the serious and even fatal consequences I have described.



*Trichina spiralis* in Pork, magnified about 200 diameters (After an original drawing by Mr. Dwyer.)

Let it not be imagined that pork is the only meat that it is essential to eat properly cooked; persons devouring the flesh of oxen or calves in a rhabdascid or cooked state, are liable to the attacks of a very formidable tapeworm which exists in the larval state in the flesh of those animals. Sheep contain other larvae, different species being found in the flesh of all animals used for human food.

Before concluding this short account of the trichina, I cannot refrain from pointing out the sources from whence our information respecting these animals, is derived. Many of our best naturalists have devoted themselves to a life-long study of these parasites. In our own country the most enthusiastic helminthologist is Dr. Spencer Cobbold, to whose magnificent work on Entozoa, the most elaborate and beautifully illustrated volume on the subject in the English language, I am indebted for much of the information on which the above account of the trichina is founded. The great body of the public knows but little of the patience, industry and zeal with which true followers of science conduct their investigations. They think nothing of sacrificing their money, health, and not unfrequently life itself, in order to ascertain truth, to enlarge man's dominion over nature, and to benefit their fellows by the extension of human knowledge. The history of the various migrations of these destructive entozoa can only be ascertained by accurate experiment, and devoted helminthologists have not hesitated to perform these on themselves. In order to ascertain whether the rot and lung diseases in sheep rendered the flesh dangerous to human life if eaten, Dr. Cobbold states:—

"To bring this matter to a practical test on my own person, I recently eat the heart of a hogget, which died from extensive parasitic disease of the pulmonary organs. The lungs were completely choked, other parts of the body being also extensively invaded. A person who assisted me in dissecting this sheep, declared he would not eat any part of it though he were offered £50 reward; nevertheless I determined to run the risk, and suffered no inconvenience whatever. From a like motive Dr. Moller purposely swallowed a number of the great measles found in the sheep, in order to ascertain if he could rear its appropriate dog-tapeworm in his own body. He did not succeed in giving himself the parasitic disease simply because the tapeworm species in question (*Tœnia marginata*) is not a proper inhabitant of the human territory."

The Victoria Cross decorates the breast of many a noble man who, in the heat and excitement of battle, when almost every one is brave, has risked his life for the deliverance of a comrade. But the pale student, whose only impulse is the desire to extend the boundaries of knowledge, and so benefit his fellow-men, may peril his life again and again, and reap no reward save the intense pleasure which always accompanies the discovery of new truths. Science, like virtue, is, indeed, her own exceeding great reward. —W. B. TEGENTMEIER, in *London Field*.



## A Fortnight in Western Canada.

To the Editor of THE CANADA FARMER:

Sir.—Having recently spent a fortnight in the extreme Western section of the Province, I send you a few remarks relative to my intercourse with several Agricultural Societies, for publication in your useful and widely circulated journal.

April 4th.—I lectured this evening in the Middlesex Academy, at Komoka, ten miles west of London. It being the Easter holidays, the audience was small, but an interesting conversation arising out of some points of the address, was engaged in by several persons, and the suggestion of stated meetings for the discussion of agricultural subjects for local and practical purposes met with hearty approval. Mr. Moffat has recently commenced a very important and laudable enterprise in this village, by which a sound and liberal education may be obtained, at a comparatively small cost. The locality is dry and healthy, of easy access by rail, and having a farm attached to the establishment, the chief necessaries of life are produced on the spot. Mr. Moffat was erecting a small gasometer in his establishment on a new and economical principle, recently patented. The distillation of pine knots and roots, &c., produces a very bright gas, and the products that remain, turpentine, lamp-black, &c., are sufficient to meet all the expenses, leaving, therefore, the light free of cost. If further experiment should confirm this statement, the discovery will prove invaluable and of unlimited application.

The next evening I lectured in the Temperance Hall, at Dufferin, in the northern part of the township of Lobo. The room was well filled, and considerable interest excited, and it was not till a late hour that the proceedings were brought to a close. Flax culture and Dairy products were the chief subjects of attention, and there is a good prospect of a Cheese factory being commenced in the neighborhood during the approaching season. Much of the soil in this section appears to be of excellent quality, well adapted to grazing and to agricultural purposes generally.

April 7th.—I had the pleasure of meeting a number of the members of the Agricultural Society of Kent this afternoon, in the Town Hall of Chatham. The subject of draining occupied considerable attention after the lecture, and I found that this indispensable means of improvement is making more or less progress in many parts of this county. The dairy question was favorably received, as was also that of flax, and it is probable that a small scutching mill will shortly be erected here. The soil is admirably adapted to the growth of flax, and pasture. Chatham has now become an important and flourishing town, doing a large business in a quiet manner.

April 10th.—I reached Amherstburgh this afternoon, after a pleasant trip down the river from Detroit, in the steamer *Pearl*. In the evening a number of persons assembled in a large room in the town, and after the lecture, a very agreeable hour was spent in the mutual interchange of thought on several leading agricultural topics in their local and practical applications.

Next day I went by stage to Windsor, a distance of eighteen miles, and had a good opportunity of seeing the country. The season is considered late, little or no seeding having been accomplished. Along the river, however, the French were busy in preparing their gardens and sowing their crops. Women and children are employed in these operations. The soil is peculiarly adapted to the growth of radishes, and other garden crops, which find a ready and remunerative sale in the neighbouring city of Detroit. In the evening we had a small meeting in Windsor, where I had the pleasure of meeting with a few intelligent friends of agriculture, belonging to the County Society, who manifest, notwithstanding much surrounding apathy, a laudable interest in promoting the good

and important cause. Next day I went over the old established nursery of Mr. J. Dougall, which is not now quite so extensive as formerly, a portion having been devoted to building sites of late. The soil is a good calcareous clay, admirably adapted to nursery purposes, producing strong and healthy trees. Immense quantities of fruit trees, shrubs, &c. have been distributed from this well-known establishment over Canada and the neighbouring States. I was particularly struck while travelling along the Detroit and St. Clair rivers, to observe so large a number of young fruit orchards, apparently in a very thriving condition. Indeed throughout this Western country increasing attention is evidently being paid to the raising of fruit. Hop culture I also learnt has of late attracted some attention in the county of Essex, whose soil and climate seem particularly suitable. Notwithstanding the insect blight that so severely devastated the Hop plantations of Central and Eastern Canada and the State of New York, last season, the growers of this Western section wholly escaped the evil, and gathered a heavy crop of superior quality. The price being high, from 30 to 40 cents a pound, afforded the growers a large profit. Portions of Kent and Essex possess the richest soil adapted to the raising of Hops, Indian corn, &c., with a local climate equally well suited. Farmers would do well to keep prominently in view the special conditions of the soil and climate of their different localities, in determining the course of cultivation that will be the most suitable and profitable for them to pursue.

April 13th.—I attended this afternoon, in the Town Hall of Sarnia, a small meeting of the County of Lambton Agricultural Society. After the address, several of the usual subjects came up in conversation. The introduction of flax into farm rotation was favorably received, and it was thought farmers would readily give flax a fair trial as soon as a market for the produce could be obtained within a reasonable distance. Many parts of the county of Lambton were considered to be favorable for dairy purposes, and the co-operative system applied to their manufacture was regarded as a desirable acquisition. The want of good spring water was considered, however, to be a serious, if not fatal objection to the successful working of cheese factories in this vicinity. Along the river abundance of excellent water, in the driest seasons, can be readily obtained; but in many places more inland, this essential element would be wanting. Sarnia has much improved of late years, it possesses great railway facilities, and its business is considerable in extent, with a certainty of progressive increase.

I look back upon this town with feelings of satisfaction and pleasure. It is now near a dozen years since that I visited this section of the country. Since then great improvements have certainly been made. Much yet remains to be done. Drainage is the great work that must be accomplished ere this naturally rich section of country can have its great agricultural capabilities fully developed. An outfall in some places will be difficult to obtain, and requires the hearty co-operation of many proprietors of land. The improvement of nature's drainage, by removing all obstructions from creeks and water courses, and cutting open ditches through the lower and wetter portions of the land would soon relieve large areas of stagnant and injurious water, and ultimately prepare for more refined and elaborate systems of underdraining. I observed land in several parts of the counties of Kent, Essex, and Lambton, that, for natural fertility, can scarcely be surpassed in any part of the world. This fine section of country offers a promising field to the exercise of skill and capital, and old country settlers, possessing these requisites, would do well to direct their earnest attention in this direction.

I regret to add that during this long journey, including a hundred miles in the State of Michigan, the winter wheat, as a whole, presented a discouraging appearance. In the absence of sufficient snow, with occasional severe frosts, the plants have greatly suffered, but not, perhaps, extensively killed. Genial weather, however, for the future will, no doubt, soon improve the appearance of things, and the result may prove much better than present indications would seem to justify. Yours respectfully,

GEO. BUCKLAND.

University College, April 23, 1866.

CORCH-GRASS RAKE.—"C.P." of Kingston, writes as follows: "P.M. of New Carlisle, wants to know the best rake to collect couch. Cartwright's Chain Harrow is the best implement ever invented for that purpose; it rubs out the dirt, and deposits the couch in small heaps, so that it can be collected and burnt. After forty years practical experience as a farmer, I never found any implement equal to Coleman's Cultivator, and Cartwright's Chain Harrow, to eradicate couch. The Cultivator brings the couch to the surface the Harrow collects it into heaps."

## Fat Hogs for Summer Curing.

To the Editor of THE CANADA FARMER.

SIR,—We take this early opportunity of reminding our farmers that there is certain to be a brisk and large demand for fat hogs the coming summer at high prices. The best guarantee for this is furnished by the fact that the English market was so scantily supplied during the past winter season with hog products from America.

I copy the following from the *Montreal Trade Review*:—"We have been favoured with a perusal of letters to a producer and commission house of this city from their Liverpool correspondents, ordering a large amount of cut meat, butter, cheese, &c. They have now on hand orders of about 25,000 or 30,000 per week for butter and cheese, and an order from a single house for 500 tons of bacon. They have also applications from various firms in England, which, if they could be filled, would amount to about 20 tons per week of summer or ice-cured bacon. Some bacon, packed by themselves, has already been sold in the English market, and the price realized was 2 to 3 per cent. over that which could be obtained for United States bacon. The extra price, they are informed, can always be obtained, provided the quantity be uniformly good. This is a point of great importance, and great care should be taken by packers here in putting up meats for the English market, in order to secure as merchantable an article as possible. The extent of British importation of bacon alone secures an outlet for all Canada can possibly have to sell for years to come."

The Hamilton packers have made full and complete arrangements for the summer business, large quantities of ice having been secured for that purpose, and all that will be needed for extensive operations will be a good supply of hogs of the right sort.

SAML. NASH, Hamilton.  
J. T. DAVIES, Do.

## County Norfolk Agricultural Society

To the Editor of the THE CANADA FARMER.

SIR,—The County of Norfolk Agricultural Society, after several unsuccessful appeals to the liberality of the County Council, have at length determined upon doing what they should have done long since, that is, set their own shoulders to the wheel; and they have now purchased ten acres of land contiguous to the County Town for a Show ground. The land cost \$137 50 per acre, and is beautifully situated, and admirably adapted for the purpose intended. The contract for enclosing has been given out, and will soon be commenced. My object in writing you at present, is for the purpose of obtaining, if possible, sound suggestions as to the style and kind of buildings we should erect. Perhaps some of your readers may be able to give us a good plan, for which we will be most grateful. An effort is to be made soon, in our various townships, to obtain the consent of the County Council to assist the society by a grant in aid of their funds, and we hope that during the next Session of Parliament, a Bill will be passed authorizing these societies to purchase and hold lands—at present the conveyance of the land we have purchased, is made to Trustees.

Yours, &c.,  
NORFOLK.

Simcoe, 19th April, 1866.

**THE CHINCH BUG.**—On this subject "A correspondent" writes from Bondhead as follows:—"Having seen in the CANADA FARMER for April 2nd, a theory advanced by Dr. H. Sherman as to the propagation of the chinch bug, namely, that the larva is deposited in the grain of the wheat, and that consequently whenever infected grain is sown, there is a probability that there will be a visitation of the bug. I send you the result of some inquiries which I made whilst travelling in the State of Missouri last fall:

I was informed by persons in different parts of the State that the cultivation of spring wheat had been in a great measure abandoned, as whenever it was sown there was certain to be a visitation of the bug, which not only destroyed the crop, but also cut off all other grain crops in the neighbourhood, Indian corn included, and that when no spring wheat was sown, there was no chinch bug, which, I think, is a strong corroborative proof of the correctness of the Dr.'s theory. With regard to the propositions advanced as to the prevention of the bug, I think the

steeping of the seed grain in some poisonous solution to kill the larva the most feasible for this country, should there be any danger of a visitation of the bug. The other plan of not sowing infected grain may suit well enough for the Western farmer, to whom the raising of spring wheat is of comparative, less importance than to the Canadian farmer.

A solution of white arsenic or blue vitriol (sulphate of copper,) would, I think, answer the purpose. Both these substances are, I believe, sometimes used for the prevention of smut in fall wheat."

"ACTS APOSTOLICUS PEYDON."—"A Subscriber" writes:—"In the last number of your excellent periodical, I observe the following paragraph: A farmer bearing the name 'Acts Apostles Peydon' recently died in Kent, England." This, though funny, is an absolute fact—when the baby was brought up to be christened, the parson said, "Name this child;" "Acts," said the father. "What?" said the priest, "You see your reverence," replied the parent, "we have called our four sons, 'Matthew,' 'Mark,' 'Luke,' and 'John,' and as we wished to compliment the Apostles a bit, we thought we would call this one 'Acts.'" So the little dab of mortality was named as above."

**CHEESE FACTORY AND TILLAGE IN GRIMSBY.**—"A Ridge Farmer" writes:—"The erection of a Cheese Factory in this place, which is in course of construction, will completely change the mode of managing farms in the neighbourhood, and be more profitable to the farmer. Seed down your land and procure cows, is now the rule. The custom here of growing grain exclusively, almost renders some such course necessary. Most farmers cannot or do not make manure enough to do five acres properly; yet regardless of the poverty of the soil, and enemies to the crops, they continue to grow on a farm of one hundred acres, from fifty to seventy-five of grain. The result at harvest is but little over half what it should be,

To accomplish this amount of work, extra teams are required, which must be kept as long as the whole year to do a few weeks work of seeding, which must be done in a hurry. Men are hired for six or eight months just to secure them for the harvest, when now by the use of labour-saving implements, a man and boy can harvest a large crop of hay. By stocking the farm with cows, and supplying the factory with the milk, much labour will be saved both on the farm and in the kitchen. The land will greatly improve by laying to grass, many enemies to the present crop may disappear, the hurry and confusion of seed, time and harvest be avoided, and the work more evenly apportioned throughout the year. In my opinion it is a safer, easier, and faster way of making money."

## The Canada Farmer.

TORONTO, UPPER CANADA, MAY 1, 1866

### Precautions against Destructive Insects.

Now that spring is fairly upon us, and everyone is as busy as possible in his farm, or in his garden, a few hints may not be amiss, with regard to some precautions that may readily be taken against some of our common insect pests. For not only has man set to work to make the best possible use of the fleeting summer months, but the whole world of nature is rousing itself up for the same purpose. Each and every individual has his own allotted sphere of duty, his own proper avocation; and this is true as well of the tiniest insect as of the laborious beast of burden, or even man himself, with all his high intellectual powers, and his proud dominion over the natural world. While we cannot wonder, then, that each destructive insect forthwith begins its proper work of devastation, in accordance with the law of its nature and instincts, the duty remains the same to us of providing against its ravages, and defending our property against its attacks.

Let us, accordingly, consider briefly how this may be done most simply and easily, at this particular stage of the season's work. To begin with the farm, and with the farmer's most important product—WHEAT.

Of all insects, those that attack the wheat crops in this country are the most widely known, and the

most justly dreaded. The bare mention of their names is generally almost enough to make the farmer shudder, and fill him with trepidation as to the fate of his tender fields of grain. For all of those insect foes, the best and surest remedy, and, at the same time, the most profitable one in other respects, is a good and proper system of intelligent farming. This we have always contended to be the grand panacea—if there be such a thing,—for all ordinary agricultural disorders. A suitable so for the grain, a liberal application of manure, drag ploughing, a judicious rotation of crops, and the best seed that can be got, will do more to prevent the attacks of the Hessian fly and other insects than anything else in the world. And this stands to reason. For let a farmer have a field hardly injured by the fly or midge this year, and let him give it a shallow ploughing in the autumn, and put in a similar crop to what he had before, without adding to the soil a sufficiency of manure to supply the materials that his grain has taken out of it,—what better method could he possibly adopt to have it almost utterly destroyed the following year, and to give his insect enemies all the assistance in his power? He first of all covers up the pupa of the insect in the fall with a few inches of earth, just what it wants for protection against the winter's cold, while not enough to prevent its being early reached by the warmth of spring; then he takes care to grow a good supply of food for it as soon as it emerges from the ground, of the only kind, indeed, of which it is able to eat; and, to crown all, he raises a weak and sickly crop which has not strength of straw, or rapidity of growth sufficient to resist the attacks made upon it. A good farmer, on the other hand, while he properly tills and enriches his soil, buries so deeply down in the fall the pupa of his insect enemies, that they do not obtain the heat of the sun sufficiently early in the spring to do any damage, and if a few do emerge at all from the ground it is only to find that they must go somewhere else for their proper food, as the fields from which they derived their sustenance the previous year now bear something which it is utterly out of their power to consume.

Where spring wheat is sown, the best additional precaution that can be taken against insect foes, is to use a variety that can be soon late enough to escape the Hessian fly, and the midge further on in the season. The only variety we know of that is considered capable of accomplishing these ends is the "Five Wheat." Many of our farmer friends have used this kind with almost complete immunity from the insects that have so much troubled their neighbours.

With regard to field crops, such as barley, oats, &c., but very few of their insect enemies have come under our notice, nor have they even in this country become sufficiently numerous to cause much destruction. The pea-weevil sometimes inflicts a good deal of damage; an account of the precautions to be employed against it will be found in our issue of March 10th; page 87. The depredation of our turnip fields can hardly be guarded against until they begin to make their appearance on the leaves or at the roots. One, however, the earliest of them, is the tiny flea beetle which begins its attack almost as soon as the plant appears above the ground, and very soon completely riddles its leaves. The surest remedy against this destroyer is, to be very careful in sowing good clean seed. Its ordinary food is mustard or charlock, and other crucifers; these come up very early in the spring, and at once become tenanted by colonies of flea-beetles, which desert them for the more useful turnip plants, as soon as their leaves are large enough to supply them with food.

Such are some of the farmer's commonest pests, we hope and trust that he may not have occasion to become very familiarly acquainted with them this year. Should any of them, however, make their appearance, we beg that our readers will furnish us with specimens, and we shall do all in our power to supply as much information respecting them as we can derive from the investigations of ourselves and others. We must defer to another number any consideration of insects injurious to gardens and orchards, of which, unfortunately, there are only too plentiful a crop.

**NEW MUSIC.**—We have received from the Messrs. Nordheimer of this city copies of two pieces of music recently published by them: "The Old Piney Woods," a universal favourite, and "Truth in Absence," one of a selection of five "gems of English song."

## Examination of Pupils attending the Upper Canada Veterinary School.

The final examination for the granting of diplomas to the pupils attending this school, was held on Tuesday the 26th of March last, within the Agricultural Hall, corner of Yonge and Queen Streets, Toronto. Three students presented themselves for the certificate of the Board, having attended the prescribed number of sessions entitling them to an examination for a diploma. We have already stated in a former number of our Journal, that before a student is eligible for examination he must, at least have attended the Veterinary School for three winter sessions, and at the same time must satisfy the teachers thereof, that he has seen a certain amount of practice with a qualified veterinary surgeon. The session commences in the middle of January, and for professional students, extends to the end of March. In addition to this course, Mr. Smith has a class for dissection and anatomical demonstrations, commencing the 1st of November and lasting for one month.

The examinations were conducted verbally similar to the examinations at the London and Edinburgh Veterinary Colleges, and the subjects on which they were examined were as follows: The anatomy and physiology of the horse and other domestic animals; the diseases of the horse; chemistry and veterinary materia medica. The three gentlemen who went up for examination, and were successful in obtaining the certificate of the Board of Agriculture declaring them qualified to practice the veterinary arts in Canada, were Robert Robinson, Tillamore, county of Peel; William Elliot, Sandhill, county of Peel; and George Kempbell, Vaughan, county of York.

The Board of examiners consisted of Mr. Merrick and Mr. Walters, veterinary surgeons Royal Artillery; Mr. Hume, veterinary surgeon, Hamilton, and Dr. Lizar, Toronto; together with the teachers of the school, viz., Mr. A. Smith, V. S., lecturer on anatomy and diseases of the horse; Mr. D. M. McEhern, V. S., lecturer on materia medica; Dr. Bovell, and Professor Buckland, of University College. At the close of the examinations Mr. Merrick congratulated the several candidates on the successful manner in which they comported themselves during a very stringent examination; and the answers elicited shewed a great amount of careful study; alike creditable to the pupils and to the teachers of the school.

We are glad to think that the efforts of the Board of Agriculture to establish a Veterinary School in Upper Canada has been so far appreciated; and that three more practitioners have been added to the profession in this country. Although the school may be said to be in its infancy, eight pupils have attended the classes this winter, with the view of ultimately following out the profession. A number of agricultural students during the past four winters have regularly attended the various classes, and have also been the means of disseminating some useful knowledge regarding the management of our farm animals in health; and also their treatment when labouring under disease. The value of stock in Canada is yearly increasing, and the want of competent veterinary assistance is now more felt than it was ten or fifteen years ago, when both cattle and horses were only worth about one-third of their present value. We are confident that hundreds of animals die annually from the want of proper treatment when attacked with disease, or from too much treatment. Animals which are suffering are often subjected to the most barbarous treatment, by the host of pretended horse doctors who swarm our country towns and villages, nostrum after nostrum being administered with the view of curing, and which in too many cases but aggravates the complaint.

It is more difficult in many cases to detect disease in the lower animals than it is in man; because, in man the physician is materially assisted by questioning his patient. In the dumb animals, the veterinary practitioners can only judge of the state of their health by a physical examination—therefore the greater need of a proper system of training.

We trust that the laudable efforts of the members of the Board in furthering this profession, will meet with the encouragement which they deserve; and that many of our young farmers will embrace the opportunity of acquiring a knowledge of the anatomy and diseases of farm animals, in connection with the study of agriculture.

## The Trichine Disease on this Continent.

It appears that the statements copied into the various newspapers, concerning the spread and fatal results of the mysterious pork disease in Germany, and its reported appearance in this country, have created quite a panic in some quarters, especially in and about the city of Chicago—renowned for its immense trade in hogs. In order to allay popular fears that might be injurious to their business, the pork-men of the city just named, procured not long since the appointment of a Committee of the "Chicago Academy of Sciences" to investigate and report upon the matter. These gentlemen have fulfilled their task, and we briefly condense the information and opinions furnished by them. They state that the existence of the *trichine spiralis* has long been known in scientific circles. At maturity it is about one-twentieth of an inch in length, of slender make, and of a cork-screw shape.

It is to be found in the muscles of hogs, human beings, and cats. It may be introduced into the systems of some other animals, but cannot be produced in cold-blooded animals. It is conjectured that it gets into the systems of men and cats, because men and cats eat pork, but science has not discovered where the hogs get it. When present in the human body in sufficient numbers, *trichina* becomes a very dangerous and sometimes fatal inflammation. Under some circumstances it produces diarrhoea, and in others paralysis, and in others death.

The committee discovered the *trichina* in twenty-eight hogs out of 1,394, or in about one in fifty. This is a far different result from that obtained in Europe, where but one hog in ten thousand was found to be affected. Of the Chicago hogs in which *trichina* were found, but few had more than ten thousand worms each, while in the majority of cases, but a few hundred were found in a single hog. Having candidly stated a fact which seems to tell so hardly against western pork, having estimated that a man eating an ordinary meal of the worst pork examined would eat a million of the little spirals, the committee proceeds to argue down the panic—the object for which they were really employed. They point out, in the first place, that hogs may be kept free from the parasite by attention to their food. If they are confined to vegetable diet they will be safe from the *trichina*, as no vegetable has ever been found to contain the pest. More important still, the infected pork may be rendered harmless by thorough cooking. The difficulty in Germany was that the poorer classes sometimes ate raw pork, or pork that was nearly so. But, if the pork is heated to 160 Fahrenheit, the *trichinae* will be killed. In the same way, salting and smoking will "do" for the pest. Dessication is an equally certain cure, though mere pickling has little effect. Having shown that pork may be rendered harmless by thorough cooking, smoking, or drying, the committee comes to the conclusion "that few persons will refuse pork as food, if it suits their purpose to use it."

We imagine however, that few persons will be inclined to run the risk of using meat infested with these parasites. Boiled green peas with incipient maggots in them, are not at all dangerous diet, but one hardly cares to eat diminutive worms however thoroughly cooked. *Trichinae* properly boiled or well fried, may be harmless if not delicious food, but most people would prefer their pork in a state of freedom from them. Raw food in general is unwholesome, raw spirals it would seem are deadly, but epicures will see nothing tempting about them even when boiled or baked to death. The Chicago investigation has not yielded very satisfactory results, and will do but little to allay popular fear.

A similar investigation should be made in Canada, and indeed wherever pork is largely used as an article of general diet. Now that suspicion and alarm are excited, only a thorough sifting of the matter will do. Moreover, the importance of the subject in its connection with public health, demands careful enquiry with the facts.

## Strike in Kent, England.

It appears that the agricultural labourers of Kent have combined to demand an advance of wages. Workmen in other trades now and then unite in this way, and strike for better wages, but it is a new thing for farm hands to do this. If a movement of this kind goes on, it is not easy to see what will be the end of it. Agricultural labourers are a poorly paid class of people. There are still many counties in England in which the average pay of an able-bodied hand is only 9s sterling a week. How they live is a mystery. At the same time, with rents at the present standard, farmers find it enough to give. As it is, many are throwing up their holdings because they cannot pay the high rents and advancing wages. In various ways, including the vinderpest, British agriculturists are suffering severely just now. *The Mark Lane Express* says the farmers can meet the demand for higher wages by employing fewer hands. But this implies either the tillage of less land or the employment of steam power on a wider scale. The demand for labour is said to be brisk, and it is thought the farmers must yield, if they are pressed. While rents are felt to be high enough for the tenants, the landlords declare that no investment pays so badly as land. If the men cannot get better wages, they will be disposed to emigrate to more inviting regions. Indeed it is wonderful that more do not crowd to this country. The sacrifice of 9s a week is no great risk, and there are few who would not be certain of doing far better than that. Some of the English papers predict quite a revolution in British agriculture. They say these strikes will spread in rural districts, and unless a team can be made to take the place of hand-labour to a considerable extent, much valuable land must go untilled.

## Natural Deposits of Potash in Germany.

Potash, next to phosphoric acid, constitutes the most important mineral constituent of the ashes of plants, in which it exists in large quantities, and it facilitates the assimilation of a variety of other mineral matters, which are thereby enabled to enter into the organism of plants.

Hitherto the main supply of potash has been derived from the ashes of trees grown in the extensive forests of Prussia and North America. This crude carbonate of potash is commonly called vegetable alkali, a designation implying that it enters largely into the composition of vegetable substances generally. Within the last three or four years new sources of potash have been found in Germany, in an extensive salt mine explored about 1851. Other mines have also been found to contain a variety of the crude salts of potash in Prussia, where these valuable deposits are assuming much importance.

Professor Voelcker visited the salt mines of Stassfurt last year, and has given an interesting account of them in the last part of the *Royal Agricultural Journal*. The salt there, as in so many places, occurs in the new red sandstone formation. Alluvial deposits, followed by red marls and variegated clays, occupy the first hundred feet from the surface; these are succeeded by a series of beds of anhydrite and gypsum. Descending further saliferous marl and clay, strongly impregnated with salt, extending to a great depth, are met with. These are the potash deposits, from which, at present, a very large quantity of potash is manufactured, both for agricultural purposes and for the gunpowder manufactories. At first these crude skim salts did not seem to possess any agricultural value, but Dr. Frank, an eminent German chemist, about four years ago, succeeded by a peculiar process of crystallization in producing muriate of potash containing from twenty to upwards of eighty per cent. of pure chloride of potassium.

"What we require," observes Dr. Voelcker,—"is an extensive series of experiments with those potash salts on the crops most likely to be benefited

by them.—grown upon soils which do not, like clay, contain, as a rule, a good deal of potash. I would suggest, for practical experiment, the following crops—turnips and cweedes, and then potatoes and clover. I would especially recommend potash-salts for light, sandy soils. Those soils are generally deficient in potash; and I am not at all sure that a good deal of the disease in turnips and root crops generally, is not due, in a manner at least, to the almost exclusive use of super-phosphate of lime as a manure on light land. The disease in turnips is far less conspicuous in light land when only half a dressing of super-phosphate is used, and half a dressing of common farm-yard manure. In farm-yard dung, and in liquid manure, we have a considerable quantity of potash; and in light soils I believe potash must be supplied in one way or other. It is on soils of that character that clover frequently fails. I am not prepared to say that clover sickness is in every instance caused by the absence of potash; but certain it is that potash must be present in the soil, or the crop will not grow luxuriantly. Potatoes likewise require a considerable addition of potash on sandy soils. There is a greater chance of potash being removed under the cultivation of potatoes than when grain crops are grown."

It is probable that a strict and persevering examination of the saliferous strata in England and other places in Europe, and likewise in America, may lead to the discovery of the crude salts of potash in abundance, and thus open up a new source of commercial and agricultural wealth.

### The Cattle Plague.

From late English papers we learn the pleasing intelligence that the dreadful cattle plague is lessening its ravages, and that a hope is now entertained of its early cessation. The latest returns show a very considerable decrease in the numbers attacked, they are as follows:—

Week ending March 10	6,518
" " " 17	6,261
" " " 21	4,701

a decrease of upwards of 1,500 in one week. This favourable turn in the disease we may believe to have been caused, in a great measure, by the very stringent laws lately enacted respecting the transportation of animals, and the immediate slaughter of all infected. Some idea of the fearful extent to which the plague has raged may be formed from the following results of reported cases, from the commencement of the disease up to March 24th:—

Attacked.....	209,022
Killed.....	41,395
Died.....	121,369
Recovered.....	29,256
Unaccounted for.....	11,062

"Dairy Requisites."—We would direct attention to an advertisement with the above heading in which Mr. Lewis F. Bungay, of Norwichville, offers to supply private dairies and cheese factories with all the articles needed by them, made after the styles most approved by the dairymen of Herkimer and Oneida counties, New York. Having seen some of Mr. B's vats, &c., in use at the factories of Messrs. Smith and Farrington of Norwich, we can confidently recommend his work.

PREVENTION OF THE CATTLE PLAGUE.—A stringent Bill has been introduced into the New York Legislature by the Hon. Ezra Cornell, for the summary suppression of the Rinderpest, should it make its appearance on board any vessel in the port of New York, or in any of the herds of the State. The "stamping out" process, proved by bitter experience in Britain to be the only effectual course of action, is that required by Mr. Cornell's Bill; and Commissioners are appointed by it, whose special business it will be to carry out the statute, should it become law.

MANURE FOR FLAX CROP.—The Flax plant is not more severe on the soil than any other farm crops; but of course the plants extract a certain proportion of inorganic substances from the soil during the period of their growth. Professor Hodges who has devoted much attention to the subject, has suggested the following compound as representing the inorganic constituents extracted from the soil by the plant:—

For one statute acre.		s.	d.
Muriate of potash, 30lb.	.....	2	6
Chloride of sodium, 20 lb	.....	0	3
Burned gypsum, powdered, 34 lb.	.....	0	6
Bone dust, 34 lb.	.....	3	3
Sulphate of magnesia, 56 lb	.....	4	0

10 6

These ingredients must be well mixed, and the compound is sown broadcast over the field, and harrowed in previous to sowing the flaxseed.

## Agricultural Intelligence.

### Meeting of the Board of Agriculture.

A MEETING of the Board took place on Tuesday, 17th inst. at 2 p.m. The following members were present, viz.: Hon. D. Christie; Wm. Ferguson, M.P.P.; R. L. Denison; Hon. Asa Burnham; Hon. G. Alexander; P. W. Stone; Professor Buckland; N. J. McGillivray—President of the Agricultural Association. Dr Beatty—President of the Board of Arts.

The Secretary submitted a communication from the Bureau of Agriculture, Ottawa, stating that the following gentlemen had been elected members of the Board for the ensuing term, viz.:—Messrs. P. W. Stone, R. L. Denison, J. C. Rykert.

It was then moved by Mr. Denison, seconded by Mr. Ferguson, that the Hon. Mr. Christie be re-elected President for the ensuing year—Carried.

Moved by Mr. Ferguson, seconded by Mr. Alexander, that Hon. Mr. Burnham be Vice-President—Carried.

A number of other communications and reports were then submitted and disposed of, amongst which were the following:—

From Mr. Bently, Sec. Mt. Forest Ag. Soc., stating that that village had been attached to the county of Wellington, for municipal purposes, although situated chiefly in the county of Grey; that the Branch Ag. Society organized there had been in the habit heretofore of reporting to the County Society of Grey, and desiring to be advised what course to take in the premises. The Secretary was instructed to state, as the opinion of the Board, that Mount Forest could not legally organize a Society, there being already Societies in each of the townships of Arthur and Wellington: but that there might be a Society organized in the townships of Normanby and Egremond, which could report to the Co. Grey Society.

From Mr. Taché, Bureau of Agriculture, on the projected Paris exhibition of 1867—Fyled.

From D. R. Dickson, Esq., Sec. East Brant Ag. Soc., desiring to be informed whether a Branch Society could be legally formed for East Brantford Tp., in connection with the East Riding Society, part of Brantford Tp. being in the East Riding and part in the West Riding. The Secretary was instructed to reply that in the opinion of the Board the organization would be legal.

Report of Committee on the Paris Exhibition of 1867, and the Veterinary School, recommending the form of diploma for passed students of the latter, &c.—Report Adopted.

From Mr. Taché, Bureau of Agriculture, acknowledging receipt of communications from the Board in reference to taking steps to prevent the introduction of the cattle plague from Europe, and stating that Government had taken action in the matter—Fyled.

From Mr. Adam Harkness, Sec. Matilda Tp. Ag. Soc., in reference to certain alleged irregular practices, on the part of the Mountain Tp. Society, by which an undue proportion of the public grant had been obtained by the latter—Secretary instructed to write to the Society on the subject.

From the Secretary, a synopsis of orders for Riga flaxseed, and communications on the subject.—Fyled.

From the Bureau of Agriculture, placing the imported Riga flaxseed at the disposal of the Board, with instructions to sell it at \$1 per bushel, cash—Fyled.

From the Committee on the Herd Book, report, stating that tenders for printing the same had been obtained, and the contract let to Messrs. W. C. Chewett & Co., Toronto—Report adopted.

From Mr. Chas. McIntosh, owner of the ground lot on which the Agricultural Hall, containing the offices of the Board, is built, tendering a title deed of the property in accordance with the original agreement—Tender accepted.

The prize list for the Provincial Exhibition for the current year was then taken into consideration.

Moved by Mr. Denison, seconded by Mr. Alexander, that the Exhibition be held on the week commencing Monday Sept. 24th next, at Toronto—Carried.

The rules and regulations were then considered and revised, several changes being made.

The prizes to be offered in the various classes were then considered, and adjusted to a considerable extent. On motion it was resolved, that the Prince of Wales' annual prize be given for the best agricultural stallion. A committee was then appointed to finish the revision of the list.

A communication was received from the corporation of the city, submitting the name of certain gentlemen to compose the local committee for the Provincial Exhibition. On motion the list of nominations was approved and confirmed.

On motion of Professor Buckland a vote of thanks was passed to Mr. McEachran, V. S., late of Woodstock, on the occasion of his removal to Montreal, for his valuable services in connection with the Veterinary School at Toronto during the past three sessions. The Board then adjourned.

### Stock Items.

We learn that Mr. Simon Beattie, of Markham, has recently sold to the Richmond County Agricultural Society, C. E., his thorough-bred blood stallion, "Star Davis, Junior." He is a fine large horse, of good colour, great bone and muscle, and is just such an animal as a county society should possess. From his high breeding, good form, and fine moving action, farmers cannot fail to obtain a useful class of horses from him. This is the second importation this society has made from Mr. Miller and Mr. Beattie.

Mr. George Miller, Markham, has sold some fine Leicester and Cotswold sheep to Judge N. L. Chaffee, Ohio; R. A. Alexander, Esq., Mr. Shropshire, and Mr. Clay, Kentucky. Some of these fine animals have already distinguished themselves at our last Provincial Fair, in London, and at Montreal, as well as at the State Fairs of Pennsylvania, Ohio, and Kentucky. Mr. Geo. Miller is fairly entitled to the first place among the importers and breeders of long-woolled sheep in this Province.

Mr. Simon Beattie, during a recent trip through Ohio and Kentucky, purchased a bull and three heifers from Mr. Clay, of the latter State. The four animals are all red, and are, we understand, deep in the Duchess blood. We hail with pleasure the arrival of these animals among us. Nothing will more improve the breed of our cattle, and increase the profits of our farmers, than the use of pure bred sires.

The New York State Show has been appointed to be held at Saratoga Springs on 11th to 13th Sept. next.

Donald Campbell, of Sydenham, county of Grey, was so severely injured last week by the falling of a tree that he died soon after.

Lands which have been long in culture will be benefited by the application of phosphate of lime, and it is unimportant whether the deficiency be supplied in the form of bone-dust, guano, native phosphate of lime, or marl—the land needs lime also.

CATTLE DISEASE IN THE STATES.—The *Globe* of the 18th ult. publishes the following:—

WASHINGTON, April 17.—The Secretary of the Treasury has addressed the following letter to the Collector of Customs:—Treasury, Department, Washington, April 17, 1866.—Sir: I have received, through the State Department, a despatch, stating that a cattle disease along the line of the Panama Railroad has made its appearance, and a considerable number are dying daily. The writer does not seem to regard the disease as the Rinderpest, but I deem it important that great care should be used in regard to all entries of hides from the vicinities named. You will admit none without being fully satisfied that they are free from disease. (Signed,) E. H. ROLLINS, Commissioner."



## The Household.

### Homedale Farm.

#### GARDEN WORK.

The kitchen garden having been duly prepared as to soil, and the fence finished, the work of laying it out, planting and sowing it, according to the plan given in our issue of March 1st demanded attention. Charles and George soon came to regard this portion of the domain as their particular department, while the girls in like manner took to the flower garden. In laying out the kitchen garden, the first thing undertaken was making the walks. A steady horse with a light plough was used to strike a furrow on each side of the intended path, and the soil being light and mellow, it was comparatively easy to round up the walks with a rake. Thus shaped, high in the centre, and sloping on each side, they would throw off the rain and be much drier than if made flat. Lettuce, radishes, mustard, cress and the like were sown in the part devoted to early crops, a place being left next the hot bed in which to prick out plants, needing to be transplanted more than once before being set out finally in the garden-beds. Peas, carrots, onions, parsnips, and beets were among the first things sown in the open ground. These were drilled in by Master Charles with a hand-drill, something like a small wheel-barrow. At first he thought this nearly as good as play, but soon found that like all kinds of work, it required attention, and called for patience and perseverance. It was not easy to go straight with it. To do this he was obliged to move very cautiously. If he let his thoughts wander away from what he was doing, he made crooked rows with the drill. Getting tired of such close and careful work, he began to think the plants would grow just as well in crooked rows as in straight ones, and asked his father if they would not. Mr. Perley replied, "There are at least three good reasons why plants ought to be straight in the rows. The first is that the rows are none too wide to give the necessary air and sunshine to the plants. If the rows are crooked some of the plants will be improperly crowded, and will not grow to their full size. A second reason is that by and bye when we want to weed the plants we shall find it much easier and pleasanter to do so, if they are straight in the row. If we get a hand cultivator, for which I have written, and which will save a large amount of time, it will be impossible to work it without injury to the plants unless the rows are straight. A third reason is that straight rows look the neatest, and we should always try to do our work so that it will look well." On hearing these reasons, Charles felt that he must not relax his endeavours to keep the drill from swaying about and making zig-zag lines. Another difficulty that somewhat bothered him was regulating the depth of the seeds. Unless he was exceedingly careful the machine would sometimes bury the seeds too far below the surface, and at other times, drop it on the top of the ground, and leave it without any covering of soil. Practice, however, makes perfect, and by resolutely determining to do his best, Charles was soon able to drill very well, though there was more work and less play about the operation than he at first imagined. The rhubarb roots were planted about four feet apart, large holes being made for them into which plenty of well rotted manure was put. The boys wondered at the quantity of manure bestowed on the rhubarb, but their papa told them it was a sort of epicure among plants, and craved a large amount of rich food. He also took occasion to tell them that while high living was apt in the long run to give human beings the gout and other diseases, rhubarb thrived well and was perfectly healthy on such fare. The raspberries were set in rows four feet apart, and one foot apart in the rows. Care was taken in planting them, to have one or more eyes, at the base of the old canes. Making the asparagus bed was quite a piece of work. First the

ground was trenched very deeply, and even more manure put in than had been given to the rhubarb roots. Plenty of salt too was mixed with the soil, also broken bones, and the whole mingled so as to make a loose, deep, rich bed. Then trenches three feet apart and twelve inches deep were dug, and the plants carefully set with their crowns two inches below the surface, and the smaller roots well spread out. As fast as they were set, they were covered so as to prevent their getting dry. Care was also taken to prevent their being bruised. All this was watched with much curiosity by Charles and George, and they were of course inquisitive as to why an asparagus bed must have so much trouble taken with it. Mr. Perley patiently answered their questions and explained why asparagus needed all the care and manuring he was giving it. He told them that like rhubarb it was a gross feeder, that it belonged to a family of sea plants accustomed to salt water, and that it was particularly necessary to provide a good supply of food for this plant in making the bed at first, because it could not be dug up afterwards, and could only be enriched by means of top-dressing and liquid manure. Next to the asparagus came the strawberries. Planting these greatly interested the boys, partly because they knew the fruit to be very delicious, and partly because there was a prospect of getting it so soon. They had a good talk with their papa about strawberry growing. Some people," said Mr. Perley, "object to fruit planting because it takes so very long to get a return. Here is a choice fruit, as easy grown as cabbages, which with a little care will yield in a very few weeks, for a well-planted strawberry-bed will produce a not-to-be-despised crop of berries the first season. If those who have land would only inform themselves about fruit, they would grow more of it. One reason why strawberries are not more cultivated, is that many persons are not aware of the nature of the plant and the difference there is in the sorts that are grown. Some good strawberries require to be fertilized with other kinds or they will not bear fruit. Other kinds are very poor and worthless. Some people try the imperfect or the worthless kinds, and then give up strawberry growing, thinking it not worth while. My word for it, no one who gets a dozen plants of Wilson's Albany Seedling, and cultivates them well until they bear a full crop will ever think lightly of strawberry culture." Mr. Perley did not, however, confine himself to this one kind. He planted the Large Early Scarlet for early berries, and the Viscountess Hericart and Triomphe de Gand,—kinds he had known as prize-takers at the Hamilton Horticultural Shows. He knew them to be most luscious berries, though not so sure and prolific bearers as Wilson's Albany.

(To be continued.)

**A NEW THEORY OF DIETETICS.**—Dr. Erasmus Wilson, quite celebrated in England, has been lecturing very extensively, and finally published several lectures, to prove that the great body of the young English gentry are annually starved into imbecility and death by the insufficient quality of their food. Breakfasts of tea and toast he does not approve of; and for growing youth, instead of meat once a day at dinner, he thinks three times a day would be none too much. Instead of a diet two thirds vegetable to one-third of animal food, he would have it two thirds animal to one-third vegetable.

He speaks of this chiefly as a means of preventing disease. The most vital organs, apart from the digestive tube, are, he says, the brain, the lungs, and the heart. If these are not supplied with a sufficiency of wholesome nutriment, there are always elements of disease enough lurking round to attack and destroy them. We all know, for instance, that the best safeguard against most fevers and all miasmatic diseases, is a vigorous state of health; and in a southern climate, to go out of doors before taking breakfast is therefore justly considered dangerous. In like manner, in the north, where disease of the lungs prevail, cod liver oil, the richest cream, and indeed a generous diet, is generally the best medicine. Nor is there any doubt but that the healthy action of the brain and heart depend on plenty of good nutriment.—*Boston Journal.*

## British Cleanings.

**ACCLIMATIZATION OF THE REINDEER IN SWITZERLAND.**—A British cotemporary states that "The inhabitants of several cantons of Switzerland are now occupied with the idea of acclimatizing the reindeer. For that purpose they have already procured several pairs from Norway. A society has been formed to promote the object."

**A BUSHEL OF WHEAT.**—An English writer says:—"If we buy a bushel of wheat at Brigend, we get 68 pounds; at Darlington, 78½; at Worcester, 62; at Monmouth, 80; at Shrewsbury, 75; at Wolverhampton, 72; at Manchester, 60 or 70, according whether we are dealing in English or American wheat; at Newcastle, 63; at Caermarthen, 61."

**POTATO SPIRIT.** Says a British exchange "For some years there has been a regular sale to England of this spirit from Berlin factories, used for the adulteration of wine and brandy in bond; and it is stated that if spirits of wine were admitted into England under less disadvantageous circumstances, the sale would be considerably larger. Large quantities are sent to Hamburg, Lubeck, Denmark, Switzerland, and Bavaria."

**CATTLE SLAUGHTERED IN LIVERPOOL.**—We find the following paragraph in a recent issue of *The Farmer*. "As an illustration of the extent to which the cattle plague and the consequent restrictions have affected the dead meat trade of Liverpool, we give the following statistics of the Liverpool Abattoir, Brownlow Hill. In 1865 the average number of cattle slaughtered at this abattoir was 255, while during the week ending the 3rd inst. the number was 2,177 and for the week ending the 10th inst. 2,503.

**STEAM CULTIVATING COMPANIES.**—The *Hereford Times* states that a meeting of the Herefordshire Steam Cultivator Co., was held on the 1st ult. at Hereford:—"A dividend of 5 per cent. for the six months was declared, and a good balance carried forward as a reserve fund, amounting together to more than 20 per cent. per annum. The report speaks hopefully of the undertaking. The steam cultivating machinery possessed by the company, consists of two pairs of Howard's new self-propelling engines on the transverse boiler principle, of which the report speaks in the highest terms. The engines during the winter appear to be profitably occupied in working a draining plough on meadow land."

**WHOLESALE SHEEP POISONING.**—We learn from *The Farmer* (Scottish) that "A diabolical piece of business has transpired in the neighborhood of Helensburgh, Dumfriesshire, within the last fourteen days, resulting in the loss of about £300 worth of sheep and lambs. The unfortunate house, Mr. Reid—a well-known and enterprising sheep and cattle breeder, presently tenant of Drumfork farm, in the parish of Cardross—has lost sheep and lambs valued at about the above sum by means, it is alleged, of the wilful administration of arsenic poison. Mr. Reid, who has a stock of between 2,000 and 3,000 head of sheep, discovered, about twelve days ago, unaccountable symptoms of distress and disease amongst a number of his flock, and shortly thereafter many of them died. The internal portions of two of the dead animals were sent to Professor Penny, of Glasgow, for analysis, and we believe that the report of that gentleman goes to show that they have died from the effects of arsenic. The criminal authorities of the county are engaged in investigating the matter."

**REMARKABLE TREES.**—A recent issue of *The Farmer* contains the following:—"During one of the late violent gales, a spruce fir tree, worthy of note, was blown down in the garden of Duncrub, belonging to the Right Hon. Lord Rollo. The tree was fully 80 feet in height, the circumference at the root was 18 feet, and 10 feet about half height. It has been ascertained that the tree was planted in 1706 to commemorate the Union between England and Scotland, and on that account was much valued by the family at Duncrub. During the last fifteen years it exhibited symptoms of rapid decay, having assumed a withered appearance, and lost many of its branches. The duration of the spruce in its native European forests has been computed at from 100 to 150 years, so that this specimen being 160 years old when it fell, had reached the utmost age allotted to its race. The noble proprietor, we are informed, has reserved some of the soundest timber to be made into furniture. Mr. Dav. Moir, the gardener at Duncrub, also writes us:—"The *Abies Douglasii*, in the flower garden here, is a model specimen of its kind, measuring 2½ feet in girth, and, judging from its appearance, I should think it about 60 feet in height; and there is a remarkably large poplar in the ground which is 19½ feet in girth at its base."

**Horticulture.**

**Floral Novelties.**

We cull from Mr. J. A. Simmers' "Cultivators' Guide"—already noticed in a former issue—illustrations of two remarkably pretty floral novelties, which grace its pages.

The first cut represents a new and particularly pretty variety of the Chinese Primrose. In the learned language of the professional florist it is known as *Primula Sinensis Macrophylla*. This plant, we are informed, possesses "long, massive foliage and beautiful large flowers of great substance, beautiful form, finely fringed, of a rich purplish-carmine, with pentagonal, large, yellow eye, surrounded by a brown zone." If the plant bears out the flattering description just quoted, it cannot fail to be an attractive and desirable acquisition to the circle of our floral beauties.

Our next illustration represents a gem indeed! The beauty of its habit, and the luxuriant mass of its rich flowers, must render it an invaluable addition to the parterre. It belongs to the Zinnia tribe, and like the flower just described, it rejoices in quite an over-powering extent of name, to wit: *Sanvitalia procumbens flora pleno*. Mr. Simmers says respecting this fine flower: "As with *Zinnia elegans* this double-flowered variety is far larger in flower than the single-flowered species, and being double to the centre the black disk of the single-flowered species is lost and the colour is a uniform bright golden-yellow. Rather more robust in growth, the habit is otherwise perfectly the same as that of the old species. The mass of large flowers stand so

closely together that a bed of it is, by the brilliancy of colour, a conspicuous object at a great distance." The natural size of the blossom of this flower is shown by the single blooms on the left of the engraving.

**The Grape Rot.**

In the course of a discussion on this subject at the recent Annual meeting of the Illinois Horticultural Society, Dr. Schröder made some remarks, and suggested what he believed to be an effectual remedy.

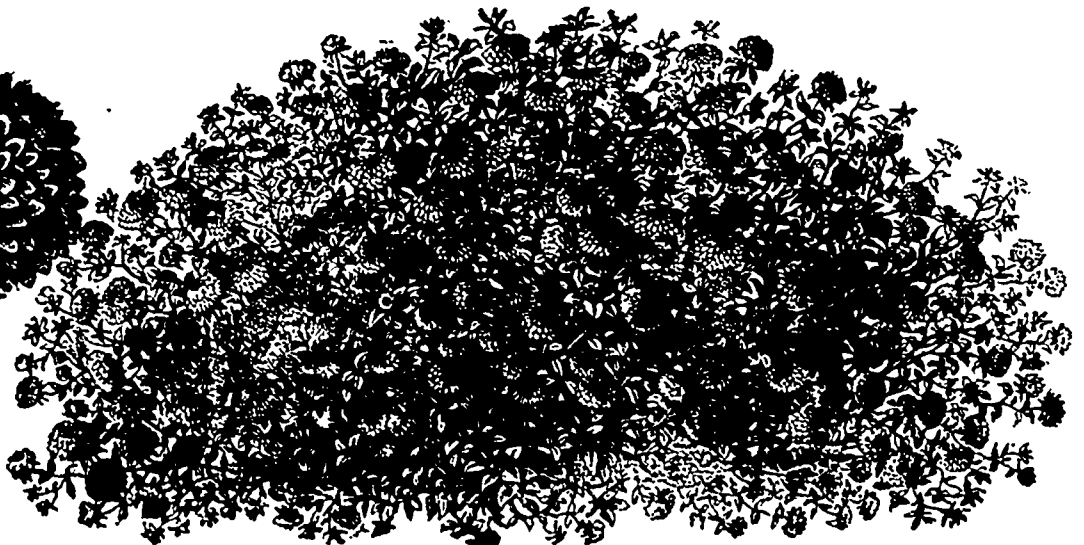
The grape rot is a pest, and so great has been the destruction to the grape crop particularly in old vine-

they could make more money working on the farm at \$1 50 per day than they could with some of their old vineyards. I asked them how their land was prepared; how they planted their vines; what kind of trimming they did. I inquired into the manner of cultivation and I found that they could not do anything better than had been done, and still it will not pay in the case of old vines. Every remedy is tried and with but little success. One says he has tried sulphur with great success. But even if true, that sulphur is an antidote for rot, it is a slow process with hand bellows to sulphur the vines. If this course is to be adopted some other machine must be used to blow the sulphur in. We find that almost every American grape will rot; the Delaware will rot; the Concord will rot; and almost every other kind of grape will rot after a few years—one or two years of perhaps successful bearing.

Now, how can we overcome this rot? I have a letter from a friend in Ohio, saying the rot there, was as bad as could be. They all came to the conclusion that they could raise a tolerable crop the first and second year, but after that, they could not. Here lies the secret—*Keep your vineyards young*. I was led to this secret by observing that on my layers—there was no rot, although they lay on the ground, or are close down to the ground. I renewed my vineyards. By layering I made new vines and destroyed the old ones, and I had no rot. Mr. Phoenix, did you ever see better Catawbas than I raised in this way?

Mr. Phoenix—They were very good.

Dr. Schröder—They were the best Catawbas I ever saw,—bunches weighing two pounds. Did not Mr. Phoenix have good Catawbas? Yes, and wherever we find a young vineyard, there we will find grapes; hence I say, *keep your vineyards young*, and you can do it, I will tell you how. Say your vines are from



yards from this source that many grape growers have threatened to cut down their vineyards, and plant apple trees. I was in Missouri this spring and talked with the grape growers there. They told me that

years old; now take one arm of the vine and lay it down; let six or eight eyes come out. That vine will bear the first year providing it is a bearing vine. In the fall, cut loose from the original vine, and you have new vines. If you want other vines, lay down another cane; let it take root, cut loose from the parent vine, and throw that old vine away, thus you have young vines and plenty of grapes.

Now, I have these for my reasons. The best roots of the vine are near the surface of the ground, from two to four inches below the soil, and these are the small roots; those large roots striking deep down in the ground, take away much of the moisture, and are thus injurious to the vine. They take too much water; therefore I say keep your vines young, and you will never be troubled with rot of any kind. Grapes do not rot in the first and second years of their bearing. At this time they are most perfect. At first the Delaware did not rot, but this year rotted all over the Union. I do not see why we may not raise grapes if we will adopt this course. I speak from experience. I have tried it, and I shall always pursue this course and thus expect always to escape the grape rot.

## Grape Culture and Wine-making.

To the Editor of THE CANADA FARMER:

SIR,—In THE CANADA FARMER of the 15th of last month, in the very valuable paper by Mr. Decourtenay, there is one error, namely, where he states that no wine of any value is "made to the south of the forty-fifth (45°) degree of north latitude." I should be very sorry to say anything to withdraw attention from the important instructions given by Mr. Decourtenay, or lessen the value of the information contained in the various papers he has published on the subject of grape culture; and for which the whole country is indebted to him, but when so much stress is laid on climate, and latitude as a guide to climate, it is necessary to be correct as to facts. Now, I believe it is a fact, that all the stronger and richer wines are grown in the more southern portions of the vine latitudes. Perhaps the strongest of all European wines is sherry, deriving its name from the district of Xeres, in the south of Spain, the outlet of which is Cadiz, in latitude 36 deg. 32 min., or nearly 9 degrees south of the 45th line. The next in strength and richness is Madeira, and the town of PUNCHALL is in 32 deg. 36 min., or 4 degrees still farther south. Port wine, though less in strength than either of the above-named wines is equal in strength I believe, if not superior to the best northern wines. This comes from the north part of Portugal, of which Oporto, whence the name, is the outlet, in latitude 41 deg. 9 min. All the best Italian wines are south of 41 deg., and some of these, though scarcely known beyond their own localities, are very rich and strong. Some of the Sicilian wines are equally so, although produced between the 37th and 38th degrees of latitude.

On the other hand, all the wines of France, which may be classed as belonging to the northern division (with the exception of Fronsac, esteemed among the best in France, and probably the strongest and richest, in latitude 43 deg. 45 min.) however fine some may be in flavour, are inferior in body to the more southern ones. The Rhine wines are chiefly grown between 46 deg. and 49 deg., but none of them can be considered as strong wines. The best Hungarian and Transylvanian, among which is the celebrated Tokay, are produced in about the same latitude. Some of these, I have heard, surpass the Rhenish wines, but can scarcely be said to equal in value the more southern ones. Again, in the southern hemisphere, though the Cape wines are generally very inferior, there is one of great excellence—the "Constantia"—equalling the Frontignac sweet wine, and far surpassing the Tokay. The vineyard is situated on the lower slopes of the Table Mountain, in latitude 33 deg. 38 min., S. The wine is very rich and strong, and of a finer flavor than sweet wines usually possess. There is something very peculiar in this vineyard, which may give some valuable hints both as to soil and culture. The vineyard is small—I think under 22 acres—but it is the only spot on which the grape will yield a good wine. It is situated, as I mentioned above, on the lower slopes of the Table Mountain, and about 200 feet above the level of the sea. Adjoining, immediately below it, and extending to the flat, sandy plains, the soil is said to be too rich; it produces grapes of magnificent size and flavor for eating, but the wine is poor and watery, with the earthy flavour peculiar to all the Cape

wines, Constantia excepted), while adjoining the Constantia vineyard, on the upper side, the soil is said to be too poor, the wine being as nearly as possible similar to that of the lower vineyards, and possessing all their faults. Nor has cultivation had any material effect in improving the wines, either above or below, though every effort was made.

I believe that soil has as much to do in producing a good wine as anything, and that a knowledge of its geological structure is a matter of great importance, both as to determining the kind of grape and its best culture.

Yours, &c.,

E. G. O'BRIEN.

## Culture of the Vine and Manufacture of Wine.

BY J. M. DECOURTENAY.

(Continued from page 94.)

5th Water and sugar alone may be supplied artificially, but the other and more important ingredients can never be furnished in any other manner than by the grape itself. These ingredients contained in the grape, and of so much value, are, in part, free acids, and partly acids combined with earths and alkalies, forming bitter as well as neutral salts. Only free acids and bitter salts can be detected by the taste, and proved in their total quantity in the wine. The acid parts, present in proper proportions, besides deciding the value and palatable taste of the wine, determine the existence of many different combinations, and by these the formation of the "aroma" or "bouquet" of the wine, and, for this reason, Southern wines deficient in acids are without bouquet, and therefore comparatively of little value except for the production of spirits; and it should be understood that all wines of value must contain at least four per thousand of free acids, and not more than six, and all musts containing more than six per thousand of free acids are considered as not having sufficient water in proportion to their acids; and those containing less than four per thousand as incapable of making wine—that is of producing wine ether, for which alcohol is indeed but a poor substitute.

Some centuries ago, an excess of acids was removed by the addition of potash, or some other alkali, which was really an adulteration of the wine. However, the reduction of acids by the addition of water, and afterwards supplying the additional saccharine matter required, by a proper proportion of honey, was largely practiced by the Romans, whose celebrated "Falernian" was in that manner produced; and in France, it has been shown by long experience that an addition of water and saccharine matter has been the means of producing, in favourable seasons, as good wine as can be obtained in the same situation under the most favourable circumstances.

Whilst upon the question of acids, I must remark that acetic acid is never contained in the grape, and therefore not in the must. It is, in substance, only oxidized alcohol, and therefore can only be formed after this spirit has been previously produced by fermentation.

All combinations of acids with a "basis" are called salts, which really do not at all belong to wine, of which they are by no means a necessary ingredient. On the contrary, salts of grapes produced from soils abounding in nitrates of potash, lime, magnesia, and ammoniacal salts, are injurious to the wines, unless the larger part of such salts are excluded by increasing the alcoholic contents of such wines by the addition, if required, of a sugar per centage, rendering it equal at least to thirty per cent. The gummy or starchy parts, and the gelatine acid, are fortunately removed, partly by fermentation and partly by insoluble combinations with alkaline earths and superfluous potassi, and although found in the grape, do not belong to the wine. The colours of red wines are altogether influenced and effected by the quantity and quality of free acids that have the effect (well known to chemists) of changing blue or reddish blue into red.

6th. Next to the free soils and organic salts, saccharine matter and water are the most important constituent parts of the grape; and two pounds of saccharine matter will transform itself into one pound of alcohol, which at the same time, and during the period of wild fermentation, mingling with the acids, creates "wine ether," that most penetrating substance in which also the bouquet is contained.

Where (as in the South), little acid is produced, no "Bouquet" can be found, and only "Liqueur Wines" are produced—strong or sweet in proportion to the quantity of water contained in the must. The more water (of course within the proportion,) the stronger, for sugar ceases to generate alcohol when the liquid, saturated with both ingredients, ceases to ferment. In the extreme North, where the must contains less than 17 per cent. of sugar, it cannot furnish 7 per cent. of alcohol, which is requisite (even with the addition of tannin) for the preservation of wine. Less than that amount will "oxidize" with facility, and the wine will sour, not from an excess of original acids, but from the transformation of the alcohol, by oxidation, into acetic acid, which as I said before did not exist in the must. It must also be remarked that very excellent wines, verging on the alcoholic limit (from 7 to 8 per cent., or even more,) often oxidize from want of care—from sea voyages—rapid changes of temperature and other causes—and will generate acetic acid at the expense of their alcohol.

In order to explain more distinctly the difference that may exist between the musts obtained from the same vintage and vineyard, I copy a report of a Burgundy must of the best quality, and one of inferior, with the formula, amelioration, &c., by the addition of sugar and water—given, amongst other official documents, by the Imperial Government of France to a very able United States Commissioner, who was officially dispatched to Europe, in order to obtain reliable information upon these important, and I may say (for an agricultural country), vital questions:—

A good must.....	262 lbs sugar,	5-0 acids,	and 733 lbs. water
The inferior must....	110 " "	9-0 " "	881 " "
And required the addition of.....	290 " "	0-0 " "	236 " "

To make it..... 400 lbs. sugar, 9-0 acids, and 1117 lbs. water. Being the exact proportions of the good must, with an increase of five hundred and twenty pounds, or more than fifty-two per cent.

In France, Germany, and other parts of Europe, sugar for the manufacture of wine is now produced at wonderfully low prices from potato starch, and although unfit for ordinary domestic purposes, is superior to the best refined cane sugar for the improvement and production of wine. Indeed, in every respect, chemically and otherwise, this "glucose" is identical with that produced from the grape itself, and is termed grape sugar in the numerous manufactories established in Europe for its production. The artificial as well as the natural grape sugar, in its dry state a combination of six atoms of oxygen, six of carbon, and five of hydrogen, whilst the common sugar contains five atoms of oxygen, six of carbon, and five of hydrogen. From the cane sugar it differs by crystallizing (as upon dry raisins,) in an irregular shape. Its taste is less sweet than the common sugar, and two and a half ounces of grape sugar will in sweetening, be only equivalent to one of cane sugar. In water, the grape sugar dissolves less freely, as one ounce of water will only receive two-thirds of an ounce, although it will readily dissolve three ounces of cane sugar. Both kinds, however, furnish the same quantity of alcohol. Many other plants and fruits contain the same kind of sugar, which was formerly designated "fruit sugar." I have obtained it with facility from the apple,—but it can be always obtained at a cheaper rate from the potato, and I yet hope to see large manufactories upon the borders of the St. Lawrence, many miles below Quebec, where potatoes can be grown at six cents a bushel and in any quantity, for we have there an energetic and intelligent population, ever seeking in vain for occupation—and there is to be found an ever failing supply of the best manure, in the sea weed, driven at regular intervals on shore, by a patient and ever bountiful Providence, in order that it may rot there, perhaps for ages, so that people may discover its value. In our day, certainly the hardy "habitant" recognizes this value, and would make liberal use of it if a market was assured for the potato crop, even at less than six cents a bushel.

I hope the "agricultural limit" will there also in time be removed, and that Lower Canada will furnish "glucose" or grape sugar to Europe and America. The lands, hands, climate, and manure are there;

the machine is there, but the machinist has not yet been granted. In the meantime, we have people deploring as a public misfortune, the impossibility of reaching the Lower Canadian population by indirect taxation, and the hopelessness of being ever able to establish there a direct tax. Had they anything of value to sell, they would soon become consumers—and if taxed before they are placed in a different position, they may use their own old proverb, and exclaim—

“Quand il n’y a ro.n  
“Lo Roy perd ses droits.”

A Royal commission at Coblenz, in 1844, declared that “Cane sugar added to the Must changes into grape sugar, during the fermentation, and leaves no difference whatever, and that a genuine improvement of wine can by no means be termed adulteration, so long as the ingredients employed remain confined to those which are homogenous to the constituent parts of the grape, and the natural production of which in larger quantities, only depends upon the accidental state of the temperature,—but as in wine, a certain relation of ingredients must necessarily prevail. It becomes the duty of the wine-maker to regulate the addition of sugar and water, according to the proportion of other parts.”

Doctor Hübeck, in his very remarkable essay upon “Grape Culture,” remarks: “We have three ways in Germany of improving the sugar contents of the grape. 1st, By keeping them on layers to mature. 2nd, By boiling must to syrup. 3rd, By the addition of sugar. And we have three kinds of sugar—cane sugar, grape, or potato sugar, and slime sugar. (Saccharin Muscosam.) According to the results of the French, who have obtained such a high degree of perfection in the art of wine-making, the potato sugar is the best adapted for the purpose, and we have the conviction that potatoes are one of the principal means of improving the wines of a country, and procuring for them an extended market. Numerous grape sugar manufactories are established in France, Prussia, Rhenish Hesse, Baden, Wurtemberg, Bohemia and Styria, and are monuments of advancing science in its onward march through the vine regions of Europe.”

The writings of such men in Germany, and the incessant labour in France of Messrs. Duberiu, Sault and Doctor Gall has tended in a very extraordinary manner to the improvement of the manufacture of wine; but the greatest honour is attributed to Mr. Abel Péllet, of Chameliy, one of the largest wine-growers of Burgundy, whose essay, published by the French Imperial Bureau of Agriculture, has popularized this improvement in the manufacture of wine throughout Europe.

It has always been known to the principal wine-growers, and for fear of creating their enmity, the French Government, previous to the Empire, feared to instruct the populations, which accounts for the careless manufacture of ordinary wines. The water, it is true, has always been furnished, and with a liberal hand, but it was used in diluting instead of manufacturing, and was an adulteration instead of an improvement. The wines of Canada, however, will, in my opinion, never be of that class that in Europe have become celebrated for their weakness.

I have been always of opinion that Canada would one day be called to supply a great gap in the wine markets of Europe. I mean the want of Essence of Wine, which can only be produced by congelation.

Small quantities of wine, indeed, are frozen in Europe, for although the winters in the wine regions are more severe a good deal than in England, yet the African winds cause so many violent thaws during winter, that the congelation of wine has been found altogether too uncertain. In this climate, on the contrary, where the thaws are only partial, large quantities can be congelated without any risk of loss, and I have succeeded in congelating this winter considerable quantities of both red and white wines without any difficulty whatsoever.

I consider, and my friends know, I have always considered the exportation of congelated wines to Europe as the great future of both Upper and Lower Canada. The demand in Great Britain alone will, I have no doubt, for centuries, be greater than can be possibly supplied. It is a well known fact, that the moist climate of Great Britain and Ireland require wines of more body than can be produced without the addition of distilled spirits; and the evil effects alcohol has on the fibres of the brain, has within the last few years become generally understood. Whilst a necessity has long been felt for the production of an essence of wine that may be either used alone or applied to the purpose of strengthening other wines, and obviating the necessity of adulteration by spirits. This essence of wine can be produced in the Canadas without difficulty, and, I have no doubt, will, before many years, become a source of great national prosperity and individual wealth.

Little is known of congelated wines in Europe, except the difficulty of producing them, for the addition

of brandy necessary to preserve wines when exported to colder regions, would also prevent the prevent the process of congelation from being carried out—at least so far as the production of Essence of Wine is concerned.

I give, however, an extract from the very careful work of Messrs. Foigneaux and Moreau on that subject, and must previously remark, that in order to test the capability of our climate in that matter in the most positive manner, I commenced congelating wine in December, and continued the operation until the 15th of February, without (as I have previously stated) encountering any difficulty whatever.

“It is very difficult to discover a wine-grower (in France) who has succeeded in obtaining congelated wines. Commerce alone has succeeded in obtaining this preparation, and with the object of improving valuable wines by the mixture. Wines exposed to cold at first become troubled, and then forces a sediment; afterwards, when the temperature falls to six below zero (centigrade,) ice is formed on the staves, at nine below zero, it extends itself to the liquid, and if this low temperature continues for five or six nights, the operation is terminated. At fifteen below zero, one or two nights will be sufficient. The wine obtained by this operation is very rich in alcohol. It is deprived of a great part of its salts (inorganic), and of matter subject to ferment or corrupt. It will scarcely deposit (sediment) again, and ought to keep for an eternity.”

(To be continued.)

Advertisements.

GRAPES!

LARGE BEARING VINES.  
CHOICE HARDY KINDS.

Only a few left for Sale. Now is the time to plant.

5 VINES BY EXPRESS FOR \$5.

Address, **W. W. KITCHEN,**  
Grape Grower and Wine Maker,  
v. 3-No. 9-11. **GRIMSBY, C. W.**

WOOL GROWERS' ASSOCIATION.

HON. D. CHRISTIE

Will deliver an Address before the above Association, on FRIDAY, 4th of May next, in the TOWN HALL, at 10 o'clock, A.M.

A. HILL, Secretary.  
v. 3. No. 9-11. Paris, 26th April, 1866

600 BUSHELS RIGA FLAX SEED.

THE undersigned have been instructed by the Board of Agriculture to dispose of the above quantity of Seed, imported by the Government direct from Europe.

PRICE, \$4 PER BUSHEL.

Parties desiring to purchase some of the Seed, should forward their orders without delay to

**JAMES FLEMING & Co.,**  
Seedsmen to the Board of Agriculture for Upper Canada.

AGRICULTURAL HALL, }  
Toronto, April 26. } v-3-9-11.

THE FARMERS' ADVOCATE.

A PURELY Farmers' Journal, published in London, C. W., by **WM. WELLS**, of Delaware, a practical farmer, also owner of the celebrated horse *Anglo Saxon*, suggester of the Farmers' Bank, and projector of an Agricultural Emporium. It is an eight page paper, published monthly, at the small sum of 60 cts, and in addition each subscriber is presented with a copy of a handsome engraving, that took the first prize at the last Provincial Exhibition. It is a good Western Advertiser

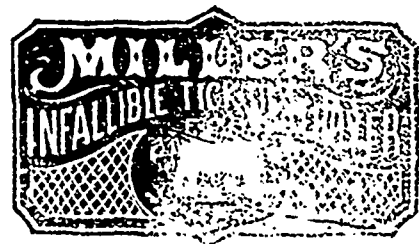
ANGLO SAXON

Will be in the city of London during the months of May and June. Terms.—For Service, \$10, season, \$15, to insure, \$20. His Stock took 1st, 2nd, and 3rd prizes at the Provincial Exhibition. Address, **WM. WELLS, Advocate Office,**  
v-3-9-11. London, C.W.

DAIRY REQUISITES.

THE undersigned is prepared to supply vats of all sizes on the model of the celebrated “ONEIDA CHEESE VAT”; also, Milk Cans, and all other articles used both in Private Dairies and Cheese Factories, of the best material and workman ship, and at very low prices.

**LEWIS F. BUNGAY,**  
NORWICHVILLE, C. W. }  
April, 16, 1866. }



A CERTAIN cure for Tick, and all skin affections in Sheep. No flock master should be without it

Prepared only by **HUGH MILLER & CO.,**  
Chemists, Toronto  
v-3-1-11.

Toronto, Jan. 1.

One Hundred Dollars Premium.

THE above amount will be paid by the South Waterloo Agricultural Society, to the first exhibitor of Cheese Factory within the South Riding of the County of Waterloo, the same to be of the capacity of not less than two hundred cows.

The Annual Fall Show of the above Society will be held in Preston, on Wednesday, the 2nd of October, 1866.

**WM. A. SHEARSON,**  
Secretary & Treasurer.  
v-3-7-11  
Galt, April 1, 1866.

PRIZES! PRIZES! PRIZES! PRIZES! PRIZES!

CANADA AHEAD, THE WORLD OVER!

THE BEST TOOL IS THE CHEAPEST

A. S. Whiting & Co., Oshawa, C. W.,

Manufacturers of the Celebrated Premium

SCYTHES, FORKS, HOES, &c., &c.

THE superior excellence of these Tools is indicated by their high and unequalled popularity, and its rapid growth. Every article from this establishment is SPECIALLY MARKED FOR USE. They have invariably won the HIGHEST HONORS at Exhibitions, and amongst their many prizes are the following.—

- First Prizes at Provincial Exhibition in Toronto... in 1853.
- First Prizes at Provincial Exhibition in Kingston... in 1859.
- First Prizes at Provincial Exhibition in Hamilton... in 1860.
- First Prizes at Provincial Exhibition in London... in 1861.
- First Prizes at Provincial Exhibition in Toronto... in 1862.
- Did not exhibit, there being no competition at the Provincial Exhibition in Kingston... in 1863.
- First Prizes at Provincial Exhibition in Hamilton... in 1864.
- First Prizes at Provincial Exhibition in London... in 1865.

Medal and Diploma for First Prizes at the Provincial Practical Test Exhibition, or grand special trial of Agricultural Implements at work, held under the sanction of the Board of Agriculture, on Mr. Logan's Farm, near Montreal, in August, 1859, at which these Tools COMPLETED VICTORIOUSLY, not only with Canadian makes, but with those from some of the best makers in New York, Vermont, and other of the United States.

The Proprietors have also the honor to state that these Tools obtained the first Prize at the World's Fair or Exhibition of all Nations in London, England, in 1862, for which they now hold the London Medal—also First Prize and Medal at the International Exhibition in Dublin, Ireland, in 1865, at which they were especially commended for their excellence of manufacture and their moderate price.

Caution to Farmers.—As every tool of this make is thoroughly reliable, purchasers should always be particular in seeing to the stamp, (A. S. Whiting & Co., Oshawa, C. W.) to make certain of getting the genuine article.

A. S. WHITING, & Co., PROPRIETORS,  
v-3-11-11. Oshawa, C. W.

SUPER-PHOSPHATE OF LIME,

\$40 PER TON.

SUPER PHOSPHATE OF LIME, a highly concentrated Manure, prepared so as to give a greater quantity of the soluble phosphates, &c., and, as manufactured by us, contains in combination all the ingredients necessary to the nutrition of plants, and to the fertilization of soils. It contains Bi-phosphate and neutral phosphate of Lime in abundance, Sulphate and Carbonate of Ammonia; Carbonic... substances and Nitrogenous organic matter, &c., gradually yielding ammonia to the soil. Manufactured of the best materials, and in the most approved manner, mixed with the utmost confidence, as being fully equal to any superior to the best Peruvian Guano.

**PETER R. LAMB & Co.**  
Manufacturers, Toronto, C.W.

Send for a Circular.

v-3-31-11

HORSE BILLS

Printed on the Shortest Notice,

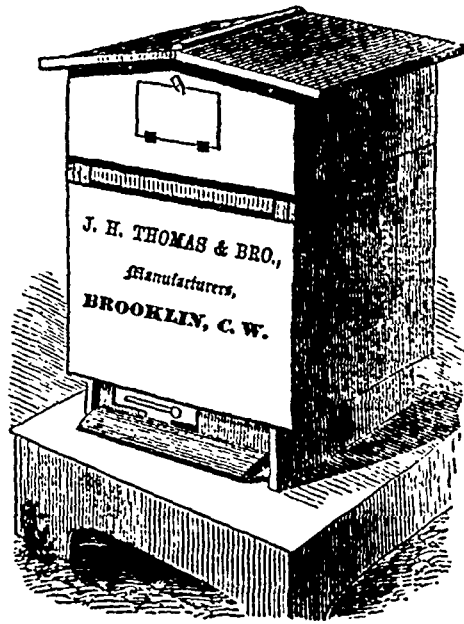
AT THE

FARMER OFFICE, 26 and 28 KING ST. EAST

v-3-32-11



J. H. THOMAS' FIRST PRIZE DOUBLE BOARDED BEE-HIVE.



"The best Bee-hive I ever saw."—MR. HOLDEN, Breeder of Ital...

"The most approved Bee-hive now in use."—Markham Econo...

"With the 'Canadian Bee Keeper's Guide,' the latest notice in the ap...

HAVING in raised facilities for manufacturing J. H. THOMAS' FIRST PRIZE DOUBLE AND SINGLE BOARDED BEE-HIVES, we are prepared to enter them to those having previously purchased a hive...

D. B. Hives \$3 50 S. P. Hives \$2 50 If ordered in lots of three to one address D. B. \$1 25 S. P. \$2 25, in lots of six or more to one address S. D. B. \$4 00. S. B. \$2 00

25- Hereafter, persons ordering a Double Boarded Hive, including freight, will be required to send only Six Dollars.

N. B. These hives are made by machinery are uniform in size and colour, well painted, sent as freight by rail to all parts of Canada. Beams and screws are Three hives can be sent to one address for the same freight as one. Terms cash, which should always accompany the order.

J. H. THOMAS & Bros., Manufacturers, Brooklin, C. W.

VETERINARY SURGEONS.

VETERINARY SURGEONS practicing in Canada, holding Diplomas of any recognized schools, are requested to send their names and addresses, and also the Colleges in which they studied, and the date of their Diplomas, with a view to publishing a list of the members of the Profession in Canada.

Address, "Toronto Veterinary School," Box 571, Toronto.

LANDS FOR SALE.

TWENTY THOUSAND ACRES OF LAND, both wild and improved, and at all prices, for sale in various townships through out Upper Canada, cheap and on easy terms.

For lists and particulars, apply to the proprietor, T. D. LEDYARD, Barrister, &c., South-west cor. of King and Yonge-sts., Toronto. Toronto Oct. 2, 1864

BONES! BONES! BONES!

As a Nutrient for any quantity of Bones, delivered in Boston, or at our Bone Flour Manufactory, in N. Y. Address, C. H. GARDNER, AGENT, 151 Ave. Boston Massing and Manufacturing Co., 10 Cortland St., N. Y.

IMPROVED FARMS

OF various descriptions, in the COUNTY OF PETERBOROUGH, C. W.

FOR SALE ON EASY TERMS.

UNIMPROVED FARM LOTS, any amount of settlement with Grant and Saw Mills, Post Office, Store Schools, &c., at

ONE DOLLAR PER ACRE.

For particulars apply to CHAS. JAS. BLOWFIELD, Secretary to Canadian Land & Farming Co., Toronto Bank Building, Toronto.

Or to CHAS. P. BLIVETT, Resident Agent of the Company, Halliburton, Co. Peterborough, Toronto, March 7.

Markets.

Toronto Markets.

"CANADA FARMER" Office, Tuesday, May 1, 1866. Drovers are not often favoured with as profitable a market for live stock as has lately been experienced throughout the Province. American cattle dealers are still operating very extensively, and buying at high prices. It is beginning to be a serious question whether it is prudent for our farmers to dispose of so many of their cows and other cattle. Although very high prices are being paid for cattle, the stock in the country must soon become exhausted, if the present export movement continues, and farmers might perhaps do better by keeping at least the cows and heifers. In some places stocks are completely exhausted, calves even being included in the purchases for the other side. Farmers should go into stock raising more extensively. At anything like present prices no branch of farming will pay better.

In breadstuffs we have had a firm and steady market during the past two weeks. Prices continue to show an upward tendency. Holders are unwilling to sell, believing, from the advanced rates current in the Western States that prices here will yet be higher while buyers here are not willing to buy at rates offered in the present condition of the market. Considerable speculation continues in Spring wheat and flour. It is reported that the quality of the Spring wheat arriving in Chicago is of so inferior a character that Chicago millers are buying wheat in Milwaukee. A few days ago the receipts at Chicago were 23,000 bushels of which 17,000 were from Milwaukee.

The following are quotations of the prices of produce, &c.:- Fall Wheat—Chicago samples would bring from \$1 70 to \$1 90. Spring Wheat—in active demand, with few transactions. Car loads, \$1 20 to \$1 30.

Barley—in the absence of transactions prices are nominal. Car loads sell at 50c to 60c, samples forced in small lots at 70c to 75c. Flour—No transactions. Holders asked for 60c. Steady and unchanged, at from 65c to 70c. Oats—Quiet and steady. No transactions. Car loads sell at 30c to 35c.

Rye—Prices, in the absence of transactions, are at present nominal at 60c to 65c per bushel of 56 lbs.

Pork—Prices unchanged. Pork, mess unchanged, \$3 per barrel; prime mess, \$2 50 to \$2 75 per barrel. Hams, in salt, \$12 50, smoked do., \$14. Dried Hams, \$13 50 per 100 lbs. Lard, unchanged, at 12 1/2c to 13 1/2c. Bacon, unchanged, at 10c to 12c per lb. Beef hams, \$10 to \$11 per 100 lbs. Butter—The demand for the Montreal market has slackened off, and prices are rather weaker; choice dairy, 21c to 23c per lb, large rolls are worth from 20c to 22c per lb. Eggs break at from 10c to 12c, a good local demand.

Live Stock—A firm. Dressed beef is selling at \$9 per 100 lbs. Calves \$4 to \$5 each. Sheep \$6 to \$8 each. Lambs \$2 50 to \$3 each.

Wool—Clover firmer at \$5 to \$5 25. Timothy steady and firm at \$3 to \$3 25 for No. 1, and \$1 50 to \$2 25 for No. 2. Flax seed \$1 90 for No. 1.

Wheat—Liverpool, in bags, held at \$1. May—\$9 to \$12. Straie—Not in the market. Petroleum—Dull at 25c to 40c for Canada; 40c to 42 1/2c for Pennsylvania; Benzole, 37c to 40c.

Hamilton Markets, April 21.—Grain—Fall Wheat, \$1 20 to \$1 21. Spring Wheat, \$1 to \$1 12 1/2. Barley, 50c to 62 1/2c. Peas, per bushel, 60c to 65c. Oats, 55c. Beef, per side, \$6 75 to \$7 50; hind quarters, \$7 50 to \$8, inferior, \$6 to 7c. Mutton, per lb., 6c to 7 1/2c. Pork, per 100 lbs., \$7 to \$7 75. Eggs per dozen, 12 1/2c. Butter, per lb., 25c. Apples per bushel, 75c to \$1. Potatoes, per bushel, 50c to 55c. Hides, per cwt., \$5; dry hides, 10c per lb. Calveskins, per lb., 8c to 10c. Sheepskins, 37 1/2c to \$1 50 each. Tallow—W. H. Judd & Brother's process—rough, per lb., 6c. Hay, per ton, \$7 to \$9. Straw, per ton, \$2 25 to \$3 50.

London Markets, April 24.—Fall Wheat—Inferior \$1 15, good to extra \$1 40 to \$1 60. Spring Wheat, \$1 20 to \$1 20. Barley, 50c to 60c. Peas, 50c to 60c. Oats, 30c to 31c. Corn, 50c. Buckwheat, 40c to 45c. Flax Seed, \$1 50 to \$1 75 per 60 lbs. Butter—Prime dairy packed 18c to 19c per lb; fresh, in rolls, by the basket, 20c to 22c per lb. Eggs, 8c per dozen. Dressed Hogs—None. Lard, 12 1/2c. Skins—Green hides, \$1 to \$4 50; calf, dry, 12c to 14c; green trimmed, 10c. Sheepskins, fresh, 75c to \$1 50. Wool, pulled, per lb., 20c to 37 1/2c. Tallow at 5c, rendered 7c to 8c. Hay, per ton, \$7 to \$9. Straw, per load, \$2 50 to \$3 50. Peas, \$2 to \$3 per load.

Calx Markets.—Flour, per 100 lbs., \$3 00 to \$3 75. Fall Wheat, per bushel, \$1 50 to \$1 60. Spring Wheat, per bushel, \$1 18 to \$1 25. Barley per bushel, 50c to 62 1/2c. Oats, per bushel, 25c to 30c. Butter, per lb., 10c to 17c. Eggs, per dozen, 14c to 16c. Beef, per 100 lbs., \$5 to \$7. Pork, per 100 lbs., \$7. Hides, per 100 lbs., \$5. Calveskins, over 8 lbs., 10c to 12 1/2c. Sheepskins, \$1 to \$1 50. Potatoes, 31 1/2c to 40c. Hay, \$9 to \$10. Apples, 37 1/2c to 75c.

New York Markets, April 23.—Cotton steady at 31c to 32c for middling. Flour—receipts, 3,363 bbls.; closed a shade easier and less active; sales 7,600 bbls., at \$7 25 to \$7 90 for superfine state; \$7 95 to \$8 50 for extra state; \$8 55 to \$9 20 for choice do.; \$7 25 to \$7 90 for superfine western; \$8 to \$9 10 for common to medium extra western, and \$9 to \$9 20 for common to good shipping brands extra and hoop Ohio. Canadian flour closed rather easier; sales 350 barrels, at \$8 20 to \$9 for common, \$9 10 to \$12 65 for good to choice extra. Wheat—Receipts, none; market opened firm, and closed 2c to 3c lower; sales 37,000 bushels, at \$1 55 for old No 1 Milwaukee club; \$2 10 to \$2 20 for new winter red western, and \$2 50 to \$2 55 for old do.; \$2 70 to \$2 80 for white Michigan. Rye quiet, sales 2,000 bushels western at 75c. Barley—Sales 48,000 bushels at 85c to 85c for unsound; 85c to 87 1/2c for sound western mixed, in store and delivered. Oats, in moderate request at 43c to 40c for old Western, 57c to 60c for new state, 60c to 60c for Canada, 55c to 57c for Jersey, and 61c to 62c for State. Pork, opened firmer, but closed heavy; sales 6,350 bbls., at \$23 87 to \$28 12 1/2 for new mess, closing at \$27 87 cash, and \$26 75 to \$27 for old do.

Latent Markets.—Flour closed a shade easier and dull. Wheat closed at 2c to 3c lower. Corn closed rather more active. Pork closed heavy; new mess \$27 87 cash. Lard closed firmer, at 17 1/2c to 21c.

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Communications on Agricultural subjects are invited, addressed to 'The Editor of the Canada Farmer,' and all orders for the paper are to be sent to GEORGE BROWN, Proprietor and Publisher.