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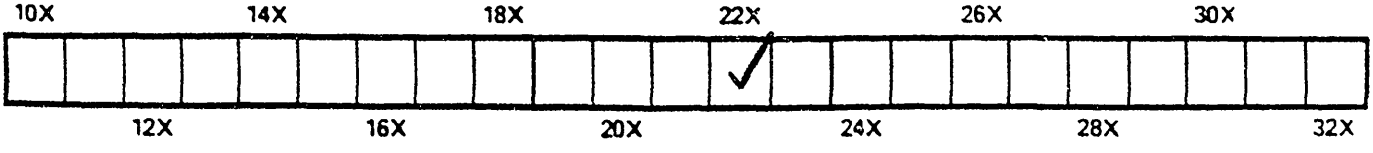

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HORTICULTURAL AND AGRICULTURAL CENTRAL CLUB.

SUBJECT—MANURES.

The third regular meeting for discussion of this Club took place on 1st April, Col. Thomson, Vice President, in the chair.

Professor H. Y. Hind, M. A., Trinity College, read the following paper "On the preservation of Farm Yard Manures, with some remarks on the sudden appearance of Rust, Blight, and Mildew, and suggestions as to a remedy."

The variety of new or modified views respecting the relative importance of different kinds of plant food which are periodically presented to the public under the shadow of great and trustworthy names, is a proof that the question is still involved in much obscurity and well deserves the most careful attention and study.

It cannot now be doubted that it would be very unwise to pen our faith exclusively upon the application of any artificial organic manure, it would be equally injudicious to lay too much stress upon the constant but *bare* renewal of the mineral elements of the soil renewed by cropping; and we should not the less fall into error if we were to abjure all kinds of manures and rely altogether upon the exalted physical and chemical properties of the soil, induced by deep spade husbandry and drainage. We must avoid all extremes, and in deciding upon the kind of plant food to be administered, or the mode of administration, we must be guided, firstly, by the sources from which plants derive their food; secondly, by economical considerations, the physical condition of the soil, and the peculiarities of climate.

In this paper I propose to limit myself to a discussion of the sources, preservation and distribution of one kind of plant food which is universally acknowledged to be necessary, and to lie within our immediate reach. Indeed, the majority of scientific and practical farmers believe it to be the most important element of stable and organic manures, (guano, &c., &c.,) and a few, regard it as the main spring of vegetable growth and luxuriance.

Nitrogen, in the free state or in the form of ammonia and nitric acid, has, probably, excited more discussion and led to a larger number of experiments in relation to vegetables than any other element or compound which assists in building up their structure. Its importance cannot be over-estimated, the simple fact that no flesh forming principles and no seeds can be formed by vegetables in the absence of nitrogen is sufficient testimony to the nature of this most inert and tractible element.

How often has the question been asked,—is free nitrogen directly absorbed by vegetables from the atmosphere? And how repeatedly and with what force of illustration and argument has the question been answered in the negative. Latterly the subject has again excited attention, and an able advocate for the direct absorption and assimilation of Nebrague from the atmosphere been found in M. Ville.* It is unnecessary here to refer further to this difficult and unsatisfactory subject; and for present purposes it is sufficient to assume that nitrogen is not directly absorbed from air, but that before entering into plants for assimilation it takes the form of ammonia or nitric acid.

Ammonia we know exists in the atmosphere, probably to the extent of one part in ten million parts on the average. At times the quantity of Ammonia present is much greater than the above ratio, at other periods less. Rain water contains on an average nearly one part of Ammonia to the million, and of nitric acid about five parts to the million.† Dew always contains ammonia, and mists have prevailed so rich in this substance that the water had an alkaline reaction. Barral analyzed the water collected in the rain guage of the observatory at Paris. He found that in one year, 10.74 lbs. of ammonia fell with the rain, and 10.7 lbs. of nitric acid. In July he found the amount of the ammonia to be the greatest; in September the amount of nitric acid to be the greatest. The ammonia was least in March and increased gradually to July. In August it diminished suddenly, and continued to diminish until October, attaining its second maximum in February. These observations although very interesting are not satisfactory, because they were made in the neighborhood of a great city. Hence we find that Boussingault discovered much less ammonia in the air far away from towns—a gallon of rain water containing only one twenty-fifth of a grain of ammonia. As a general fact, however, the water collected during fogs was extraordinary rich in Ammonia, containing on an average one third of a grain to the gallon—but an instance has been known—before referred to—of a gallon of water from a fog containing not less than four grains of Ammonia. The constant presence of this substance in the atmosphere is not only now fully established, but its influence upon vegetable growth in this gaseous form is of the highest interest, and possibly, of the highest importance.

The experiments of M. Ville upon the effects of ammonia in air upon vegetation show how rapidly and remarkably its influence is felt. If ammonia be artificially introduced into air in the same proportional average as carbonic acid is found to be constantly present, namely, about one part in 2500 parts of air, its influence soon shows itself upon the leaves, which continually acquire a deeper and deeper tint. The presence of such ammoniacal vapours not only stimulates vegetation, but changes the growth of the plant, and causes the developement and enlargement of particular organs. In prosecuting a series of experiments on the phenomena of vegetation with a view to ascertain whether nitrogen was directly absorbed from the atmosphere and assimilated, M. Boussingault observed the growth of minute green cryptogamia on the outside of the flower pots which had been exposed to the air, but he failed to detect any vegetable growth on those from which fresh air had been carefully excluded. The sudden growth of varieties of fungi during misty weather has often been noticed, and their appearance may be accelerated by the introduction of a small quantity of vapour of ammonia into any confined space where they are observed. I am not aware that any extensive experiments have been made upon the growth of fungi in an atmosphere rich in ammonia, such as certain fogs. I have, however, remarked with surprise their absence in an atmosphere from which ammoniacal vapours were probably abstracted by powdered charcoal, without, however, drawing any conclusions

* Transactions of the Paris Academy of Science.
† Experiments of Dr. Gilbert and Mr. Lawes.

from the observation until attracted by the curious discovery of M. Boussingault, that fogs are eminently rich in ammonia. The presence of a large quantity of this important plant food in certain fogs is not difficult to account for. Not only does the gradually increasing quantity of aqueous vapour in the atmosphere before the positive appearance of mist in any locality, collect and condense rare and widely diffused ammoniacal vapours, but the exhalations from the soil produced by decomposing vegetable matter, are arrested and accumulate. The period of the year when fogs rich in ammonia may be expected depends naturally upon the frequency of the fall of rain—upon the moisture of the atmosphere, and upon the winds. In Canada it appears reasonable to suppose that we may expect to find fogs rich in ammonia during the hot months of July and August, when the rain fall is not so great as in September. During these months mist frequently hang over the fields, particularly in low situations. The exhalation of vapour of water from the leaves of plants being then checked, and their juices partially stagnating in an atmosphere often rich in ammoniacal vapours, all the conditions for the appearance of the fungus called "Rust" on the stems and leaves of the cereals appear to be fulfilled. It is commonly remarked that rust is most prevalent on new land; this is perhaps explained by the large amount of vegetable matter thrown into a state of decomposition by access of air and the consequent production of ammonia. There is no doubt that much of the ammonia thus generated would combine with vegetable acids, and be fixed by clay, &c.; but some portion could not fail to combine with carbonic acid and escape into air in the form of the volatile carbonate, as is observed to a greater degree on manure heaps even where gypsum or other solid fixers of ammonia are employed to avoid it. We must regard new land as a storehouse of ammonia and other plant food, which become liable to volatilize when liberated by too free an exposure to air without proper precautions. If the supposition be correct that 'Rust' is mainly occasioned by the concurrence of mists or fogs in July and August rich in ammonia; and that the active agent in inducing the sudden appearance of that destructive parasite is really ammonial vapours, we have a remedy at hand which promises, when properly and carefully applied, if not entirely to check, at least so far to arrest the growth of the parasite as to claim a general trial; especially as its effects would probably prove equally availing in arresting mildew and blight. What we require is an available absorbent of ammonia and its volatile compounds, not an absorbent which will destroy this valuable plant food, but one which possesses the property of inducing it to assume another form, perhaps equally available as a fertilizer, although of much slower action. Recent observations show that powdered charcoal answers these requirements. Charcoal not only absorbs ammonia to an immense extent, but it also oxidizes it to nitric acid, and thus renders it temperately inert, but not unavailable to future fertilization. Powdered charcoal is distributed with the utmost ease over large areas. Being an extremely light substance and easily reduced to a fine state of division, the least breath of air is sufficient to carry it for hundreds of yards. Any one who tries the experiment of gently shaking a muslin bag, containing coarsely powdered charcoal, in a gentle wind, will find that the operation of sowing, as we may technically express it, a ten acre field, would certainly not cost one-tenth part of the labour of sowing the same field with plaster; and as that operation is not unfrequent in this country, a practical guide is at once furnished of the amount of labour the operation involves. Powdered charcoal thus sown is very uniformly distributed by the least motion of air, and its effects are marvellous. In a stable, for example, strongly smelling of ammonia from fermenting urine, an ounce of powdered charcoal, shaken by means of a muslin bag or any fine network, rapidly and uniformly distributes itself, and instantly absorbs the ammoniacal vapours. A curious instance of the action of this deodorizer occurred at Balaclava during the heat of summer, when the stench was almost intolerable in that painfully celebrated harbour. A ship load of charcoal arrived, packed in bags, and the men who were engaged in transferring the cargo to

the shore were covered with the dust, as was every object in the neighbourhood—the stench which before prevailed, suddenly and completely disappeared.

Nothing is more simple than the manufacture of charcoal—a few billets of wood are to be piled like cordwood, then well covered with sods, with the exception of two orifices, one to admit a little fire, and the other to allow the smoke to escape, until the heap has well taken, and then to be firmly closed for the purpose of allowing slow combustion to go on in the absence of air. When cool the charcoal may be crushed in a stout canvass bag by a lever, not by blows, and when sifted furnishes the required material for sowing.

To return to the subject of ammonia, we may examine its relation to the soil, and acknowledging the well known fact of its constant presence in rain water reasonably infer its accumulation in the soil. Professor Way, indeed, has arrived at the conclusion that rich loamy land of the Tertiary Drift contains ammonia within available depths for vegetables at the rate of one ton per acre. The form in which ammonia is contained in the soil, renders it, in general, useless to vegetables, it may be liberated however by certain processes practicably applicable. Together with potassa, this important plant food is separated by clay from its soluble salts, hence from rain-water, however rich in ammonia. This accumulation in a comparatively inert condition is also greatly increased by certain vegetable acids, the result of the partial decomposition of leaves, roots, &c.; during the further decomposition of these bodies soluble salts of ammonia are liberated, hence one advantage of ploughing. But if we are permitted to reason respecting the great operations of nature, guided by the infinitely smaller but not less characteristic results of chemical analysis in the laboratory, we arrive at properties of clay soil, in connection with other bodies, of singular interest and perhaps of equal importance. Ammonia forms with certain constituents of the soil, chemical compounds very sparingly soluble in water (silicate of alumina and ammonia)—one gallon of water dissolves, when pure, about one grain of this compound. Now, although an acre of wheat exhales, during the period of its growth, upwards of 1,000,000 lbs. of this soluble salt of ammonia, yet it is not to be supposed that the quantity derived from this source would serve the exigencies of the plant or materially facilitate its productiveness—if all were absorbed and assimilated, it would certainly assist in the development of the straw and ensure the growth of twenty-five bushels to the acre; but we cannot be permitted to suppose that total absorption, under ordinary circumstances, would take place. Mr. Way, however, has ascertained that water, saturated with carbonic acid, dissolves more than double the quantity of this ammoniacal compound, and further, that the addition of 1.97 per cent. of common salt or about $\frac{1}{3}$ the strength of sea water, dissolves not less than 23 grains per gallon. There is great difficulty in proving the existence of this compound of flint, alumina and ammonia in soils; there is no difficulty whatever in making it in the laboratory, and as all the materials are present in the soil, and as common salt acts in an hitherto unexplained manner upon clay, it is at least desirable that this matter should also be experimentally investigated by the agricultural portion of our club, the more especially as I think that a remarkable field for its elucidation lies before us. We know that many fertile soils in Canada have become what is termed exhausted, and yet upon analysis, these soils yield a very considerable amount of all the materials which plants require for their growth—but at the same time a marked smallness in the quantity of common salt is to be noticed, a very soluble substance, and one which plays an important part in effecting the solubility of certain varieties of plant food. It appears to be desirable that the exhausted flats of the Thames and other localities which have been cropped for 20 to 40 years without manuring, should be tried with common salt; say a dose of three bushels to the acre. I think we should find upon theoretical grounds the application of common salt as a solvent, of considerable value in many parts of Canada, especially in those parts of the country which are evidently of fresh water or lacustrine

origin, and from which this valuable body has been continually washed during ages of rainfall.

We may now pass on to the second form in which nitrogen enters into plants, namely, that of nitric acid. The supposition that nitric acid plays as important a part as ammonia in the nutrition of vegetables is fast growing into a firm belief in the minds of many distinguished agricultural chemists. The theory of the production and preservation of nitric acid is by no means enveloped with so much mystery as that of ammonia. Nitric acid is a constant constituent of the atmosphere, and may be largely produced by electrical agencies, such as flashes of lightning. It is also to a great extent the result of the oxidation of ammonia in various ways. As a general rule it may be stated, that any organic compound containing nitrogen, undergoing the putrefactive fermentation in the absence of lime, potash, &c., gives off its nitrogen in the form of an ammoniacal compound, but in the the presence of lime potash, &c., the nitrogen assumes the form of nitric acid. This is merely one of those numerous and most interesting chemical changes which are induced by the *influence of presence*. Lime, that great antagonist of ammonia, when brought into contact with perfectly fresh urine, determines the conversion of the whole of the compounds containing nitrogen (urea, uric acid,) into nitric acid; but if any decomposition has taken place previous to the application of the lime, all the ammonia produced (carbonate of ammonia from urea), is driven off.

The formation of nitric acid by the influence of charcoal is well worthy of practical study. If we cover the dead body of a dog, a horse, or any other animal with a layer of roughly crushed charcoal some 2 or 3 inches in thickness, not only will the decomposition of the animal matters take place with remarkable rapidity and without any odour, but in the charcoal we shall find the animal constituents in the form of nitric acid, sulphuric acid, and phosphoric acid, the bones alone resisting the rapid process of destruction induced by the charcoal. The nitrogen, the sulphur and the phoshorus of the animal body will be found oxidized to their respective acids, and some of them associated with a limited-quantity of base.

And here it may be remarked, that that element of manures which is considered next to nitrogen in value as a plant food, namely, phosphorus, is not generally recognized as possessing important fertilizing properties in the absence of nitrogen compounds. In other words, *the presence of ammonia or nitric acid is necessary*, in order that the phosphates may acquire their *proper value as plant food*.

Having thus briefly adverted to the sources of the most important nitrogen food of plants, ammonia and nitric acid, it only remains to consider the method of their preservation and distribution. It is exceedingly necessary in Canadian husbandry to keep in view the second axiom laid down at the commencement of this paper,—that we should be guided by economical considerations in the preservation and distribution of our plant food,—we may therefore pass over all so called special manures with the exception of common salt, gypsum, and spent wood ashes, and devote exclusive attention to what every farmer has the opportunity of accumulating and preserving, namely, the valuable portions of Farm Yard Manure.

No single fact in agricultural science has been so exclusively proved as that the urine of animals forms the richest and most valuable portion of their excrements, consequently of farm yard manure. I think that in the present condition of husbandry in this country we are justified in assuming that the forcing elements of farm-yard manure, such as the nitrogen compounds, are without any question or comparison by far the most valuable. Our soils still contain abundance of phosporic acid, sulpuhric acid and potash, in a condition capable of being dissolved by water, without any artificial application beyond the mineral constituents of farm yard manure,—and if we look well to that grand element of fertility, and the preservation of its most valuable but

volatile constituents, we shall exhibit the truest economy and arrive at the most profitable results.

In preserving and distributing farm-yard manure, we cannot advocate, for obvious reasons, (*climate*, seeds of weeds, &c.) the immediate ploughing in of the fresh manure, as now so warmly recommended in Europe, because in general, however clearly the advantage of these methods might appear, yet they would scarcely be economically practicable among farmers with us. I think we must look to the application of those substances easily accessible, and involving no money outlay, which possess the property of arresting volatile exhalations, and retaining in a light and available form the element. Two of these are easily procured on every farm; the third is not expensive, when its powerful effects are duly considered. Partially burnt clay and crushed charcoal furnish us with the materials we are in search of. A manure heap sheltered from the sun and rain, and having its drainings together with those of the stables, cow-houses, &c., well-collected into a simple, inexpensive, but properly closed tank, may remain continually accumulating in dimensions, quantity, and valuable properties, if time after time thin layers of partially burnt (black burnt) clay and charcoal are strewed over it and in the tank. Partially burnt clay has the property of fixing ammonia to a remarkable extent, and is easily prepared during the process of making charcoal. Such substances as gypsum, sulphate of iron, sulphuric acid, &c., so generally and advantageously used in Europe, and to far less extent on this continent, are not specially referred to here, as it seems essential in our farming practice to make the farm produce as much as possible of every item required. The third article to which I am tempted to call your favourable attention, for reasons before mentioned, is common salt. I think that a limited application of this substance on our lacustrine drifts, simultaneously with farm-yard manure, would be found eminently serviceable, and certainly worthy of trial.

[An interesting discussion followed on the subject of liquid manure, &c., a portion of which we may be able to give in our next issue. Ed.]

Kicking Colts.—Mr. W. L. F. Jones, of Asbury, gives us the following mode of breaking colts of the bad habit of kicking:—Whenever a colt kicks he takes hold of the head and neck gently, by clapping his arm around and holding on to the nose until he ceases to struggle, patting him occasionally and speaking kind words to him. By doing this a few times, he says the worst case can be cured.—*Prairie Farmer.*

Mice last Winter.—The R. N. *Yorker* says there has been a general destruction of trees during the last winter throughout the Western States. Many spirited gentlemen determined not to give up the experiment, have replaced their lost trees, still hopeful of their eventual success. The mice have destroyed thousands of apple trees, as wallets, cherry, pear, and peach trees, to the great disappointment of those who relied on their trees for spring sales.

Rheumatism—A Remedy.—The *New England Farmer* recommends the following recipe as a simple and invaluable remedy for rheumatism:—"Take a half pint of spirits of turpentine, to which add half an ounce of camphor; let it stand till the camphor is dissolved, then rub it on the part affected, and it will never fail of removing the complaint. Flannels should be applied after the part is well fomented with turpentine. Repeat the application morning and evening. It is said to be equally available for burns, scalds, bruises and sprains, never failing of success."

Strychnia—Lard an Antidote.—The *American Journal of Medical Science* says that lard is an antidote to strychnia. It was discovered in an attempt to poison a dog, by placing the strychnia upon meat. The meat was near a jar of refuse lard, and after the meat had been eaten, the dog devoured the lard, and to the surprise of the person watching the effect of the poison, it failed of producing any effect, although one grain had been swallowed. The experiment was repeated nine different times with like results and eleven times without the lard, in every instance proving fatal.

GRAIN MARKET AND HARVEST PROSPECTS IN ENGLAND.

We have not been much in the habit of advising our readers as to holding or selling their produce. It would be a hazardous duty to undertake, and its performance, no doubt, would often be as unsatisfactory to us as to them. We prefer to let our readers judge for themselves on such subjects. At the same time, we can see no risk or impropriety in placing before them such facts and statements as may enable them to form a better opinion of the future than they could do without them.

A great deal has been said in the newspapers about the fall of prices as a consequence of peace, and farmers have been advised to sell their wheat at any price above a *dollar*, rather than keep it longer. But, so far, these predictions have not been borne out entirely by events. Prices have fallen, it is true; but the most recent advices do not warrant the belief, that a much greater reduction will take place before harvest. We subjoin the "Agricultural Report" of the *Mark Lane Express* of 5th May, on the markets and harvest prospects of Great Britain. The *Express* is the most reliable newspaper authority from which we can quote:—

APRIL.

The long continuance of cold easterly winds has had the effect of keeping vegetation in check in all parts of the country; and the want of the usual supply of moisture at this period of the year, has been productive of some inconvenience to our graziers, whose pastures are unusually bare of grass. Nevertheless, our accounts of the general appearance of the wheat plant are very favorable, notwithstanding that it has made comparatively little progress. Barleys, too, though not much above ground, have required moisture; whilst oats, beans and peas have been greatly in want of rain. The backward state of the spring has compelled most of the leading stockmasters to purchase large quantities of hay—which is daily becoming very scarce—at a heavy outlay of capital; indeed, in some quarters nearly, or quite, the whole of the winter's supply of turnips, &c., is now exhausted. Both beasts and sheep, however, have been remarkably healthy, and scarcely any losses have resulted from disease. We find, however, that the lambing season has not turned out so favourable as in some previous years—numerous losses having been sustained in the northern districts.

The close of warlike operations has had its accustomed influence upon the corn trade. Buyers, under the impression that "peace signifies plenty," and with the growing conviction that we shall receive immense quantities of food from the Baltic and Black Seas, as well as the Sea of Azoff, have operated with great caution; and not a few of our farmers have evinced much anxiety to become sellers even at reduced rates. The trade has therefore, been in an inactive state, and prices have had a downward tendency. Now, to us, it is a matter of great doubt whether we shall receive anything like the quantity of corn from Russia this year that many parties seem to anticipate; and this opinion is, in a great measure, confirmed by numerous advices from merchants long resident in the northern and southern ports. They intimate that the quantity of grain, &c., at the various seaports ready for shipment, is unusually small; and they contend that, owing to the unusually severe sacrifice of life during the last two years, and to the immense numbers of people drawn from the land for military purposes, it will be impossible to bring down from the interior very large supplies of grain during the next three or four months. But assuming that we shall receive 1,000,000 qrs. of wheat from all Russian ports this year, the practical man must at once see that that amount of supply—when our wants are fairly considered—cannot have a very depressing influence upon value. We are not arguing in favour of any permanent advance in the quotations, because we consider such an event most unlikely; but, at the same time, our impression is that we shall not import more corn than can be conveniently consumed. In confirmation of our views in reference to the export of food from Russia, we may quote the following from St. Petersburg:—"We are informed that the conclusion of the war was followed in London by a rapid fall in the price of Russian commodities, partly provoked by the notion that Russia has accumulated quantities of merchandise of all sorts during the war, and that it must now dispose of them at a low figure. In calculating thus, the English merchants

forget that throughout the war Russian exports have continued by way of land, and that thus we shall not be compelled to sell the old stocks cheaply. The supposition of a great quantity of Russian merchandise prepared in anticipation is equally erroneous. Russia cannot at this moment export any other grain than that already found in our sea-ports, or in their neighbourhood, since there would not be time to bring anything from the interior for the navigation of this year. The corn in store in the southern ports will have probably been already purchased on the account of French merchants. It is only, then, between the autumn and next spring that Great Britain can hope to find corn cheaper in Russia than in America." We must, as a matter of course, receive the above with some reserve; but, at the same time, it is evident that from the crippled state of the resources of Russia, a very large outflow of grain cannot be expected; hence, it follows that a low range in the value of English produce is an event not likely to happen this year.

The enormous produce of the potato crop in all parts of the United Kingdom last year, and the fine condition in which it was secured for winter use, are now more and more apparent. Even up to the present time, immense quantities are coming forward perfectly sound and fit for use. This important feature has no doubt greatly interfered with the consumption of the better kinds of food, and assisted to keep prices in check. The present prices in the London market vary from 35s. to 95s. per ton.

In Ireland and Scotland agricultural operations are very forward; indeed, they have experienced no interruption during the whole of the month. Shipments of grain to England have been small, and prices almost generally have been drooping.

How to Start Melons.—A correspondent of the *Country Gentleman* gives the following plan for starting melons:—

"My plan for obtaining early plants is, to construct a rude basket or wicker-work of willow or other twigs, something like a bird's nest, without the inside filling up. Make a hole in the soil of the hot-bed of sufficient size to admit the basket, fill up, plant and cover the seeds, rake and smooth the surface. When the weather is warm enough, and sufficiently settled to admit of outside planting, I make my hills, and lift the little baskets containing the plants, and carefully remove them to their places, where they quickly strike through the open net work of the basket into mother earth, and soon repay all trouble for giving them 'a start in the world.'"

Soil for Fruit Trees.—Fine fruit can only be grown upon a soil naturally or artificially dry and firm. A wet soil, or a very loose peaty one, never produces fine fruit. Sandy soils, gravelly soils or clayey soils, as well as what are called loamy soils, can all be made to grow fine fruit, if properly cultivated, provided the subsoil is porous enough to permit the water to escape rapidly downwards a sufficient depth to allow the roots of trees at least three feet of soil which is never filled with stagnant moisture—and the greater the depth of perfectly drained soil, the greater the certainty of success.

Agricultural Experiment.—A curious circumstance connected with the growth of clover is, that by cutting the clover twice and removing all the hay, a much better wheat crop is obtained than by feeding it off by sheep, even if some artificial food is used. This is owing to the fact that the growth of roots of clover in the land is in exact proportion to the growth of the leaves in the air. Each leaflet that shoots upward sends a radicle of root downward. *If the leaf be bitten off or destroyed, its rudicle ceases to grow.* It therefore follows that grazing clover by sheep materially diminishes the amount of vegetable matter accumulated in the soil by the roots, and consequently the produce of the succeeding crop.

The above is sustained by the following:—

"A friend of mine in Northamptonshire had a field of clover; it was divided into two portions, both were cut at midsummer, and one part was then fed off with sheep, and the other left to grow till September, when it was again cut and the hay removed. Equal portions of the several pieces were then compared. Where the clover had been cut once and fed off, he got 35 cwt. of clover roots per acre. Where he cut twice, he got 75 cwt., there been a difference of two tons of vegetable matter per acre."

Vegetable Seasoners.—Parsley, celery, thyme, sage, onions, garlic, and other seasoners, should not be put into soups or stews until the soup is nearly done; chop fine, and put in five minutes before the soup is taken from the fire.

SKIN DISEASES OF DOMESTICATED ANIMALS.

This is a topic demanding the earnest attention of stock-breeders and farmers generally. Skin diseases, produced by insects, are by no means uncommon, and seriously affect the breeding and feeding qualities of animals. Till recently, but little scientific progress had been made in regard to the natural history and treatment of these parasites. Professor Simonds, the Veterinary Inspector of the Royal English Agricultural Society, recently delivered a Lecture before the Council on this subject, from which the following statements are gleaned:—

All domesticated animals are more or less affected by peculiar parasitical insects, which may be divided into three g eat classes—1. Insects attacking the external parts of the body, on which they pass through the whole period of their existence, as the *acari*, producing scab, mangi, &c. 2. Insects which pass their larva condition only on the skin, as a temporary *nidus*, from which they escape as flies on assuming their winged condition. 3. Insects, most destructive to animal life, lodged in the internal organs and cavities of the body. Some confusion had arisen from giving different names in case of lower animals to diseases identical in their character; the mange and scab in the horse and sheep being analogous to the itch or scabies in the human subject. It would be more simple to include all such diseases under the general term "scabies."

It is well known, both in Canada and Europe, that the scab often leads to serious losses to flockmasters, by its tendency to deteriorate the wool and the general condition of the animal. Its cause was not satisfactorily determined, till a German physiologist, who clearly proved the wide distribution of acari or mites, in dirt or filth, sugar, cheese, flour, and most vegetable substances. He found that the male and female acarus of the horse and of the sheep possessed well-defined characters in the case of each of those animals, the former being the cause of the mange, and the latter of the scab. These mites have the power of travelling from one animal to another; and the scab disease of sheep will sometimes affect the whole flock, if not arrested. From carefully conducted experiments, Professor Simonds concludes that the mites belonging to one class of animals could not engender the same disease on the bodies of another class; that the mite which produced scab on sheep was not capable of producing mange on the horse or dog. This conclusion, however, from recent experiments made in Germany, may be regarded as somewhat doubtful.

The deposition of the acari on the skin of sheep and the development of the scab disease, may be traced as follows:—"First, a slight redness comes on the skin, albuminous fluid is exuded, which mats the adjoining wool. In a few days, definite pain is felt by the animal, which violently attempts to scratch itself by rubbing the part against any resisting object. The irritation extends to ten or twelve inches. The disease makes rapid progress. Acari had travelled over other parts of the body. In sixteen days, fifty or sixty eggs of the acarus were found at the base of the wool. Large thickened crusts of a white appearance were formed. The health of the animal and its skin became generally affected. Large scales or scabs ensued, which, on

being raised, a great number of acari could be detected. Inflammation ensued on the skin. The itch in the human subject arose from the same cause; the acarus burrowed beneath the scale of the epidermis, or outer skin. This affection was known to be more communicable when the person was warm in bed, the acari then coming freely out and extending their operations. The itch-mite insinuated itself *within* the skin, while the mites of the horse and sheep made their attacks *upon* the skin." These minute creatures are wonderfully endued with a power of extracting the juices of the skin by their suctorial discs; of adhering to the wool or hair by their hooklets; and their trumpet-shapen appendages enable them to hold themselves securely by valves to flat surfaces. The female mite is larger than the male, and is adapted to propagation, while the male is peculiarly formed for sucking the skin; the disease is the result of their joint action. Professor Simonds had found these scab-mites alive and vigorous fourteen days after they had been removed from the backs of sheep; and he considers that there is great risk to any fresh healthy flock occupying the ground from which infected sheep had been removed less than two or three weeks.

The cure of scab is not generally a simple process. The cause must be thoroughly removed, viz., the destruction not only of the mites, but their *eggs* also. Many of the proposed remedies destroy the insects, but not the eggs, which in a few days may turn out a fresh swarm of living creatures. Dippings, ointments, &c., occasionally, all failed, by not reaching the eggs. Arsenical applications are more potent; but from their virulent poisonous nature, require the greatest care in applying. The preferable form of such solution is that of arseniate of potash, blended with vegetable infusions, such as those of foxglove, henbane, dock-roots, &c. Two ounces of common arsenic and two ounces of carbonate of lime, boiled together in a quart of water, until dissolved, when a further quantity of water may be added. To this gallon of solution a gallon of vegetable infusion may be added, made by pouring a gallon of boiling water over four ounces of foxglove leaves, and allowing the infusion to remain till cold, when it may be poured off. Half a pint of it, at intervals of a few days, should be sprinkled (from a bottle, through a quill in the cork) on the skin at the back and sides of the sheep. Two or three dressings will generally be found sufficient to cure the most inveterate cases of scab.

Parasitical insects often travel to other animals; and without producing the identical diseases as they do on the animals to which they naturally belong, nevertheless they frequently occasion a great amount of local irritation of an annoying character on the skin. Poultry sometimes swarm with insects, especially lice and mites, which often travel to other animals. Horses may appear to have the mange, while the effect is simply the inflammation produced by poultry ticks, and admit of easy cure by means of oil impregnated with sulphur.

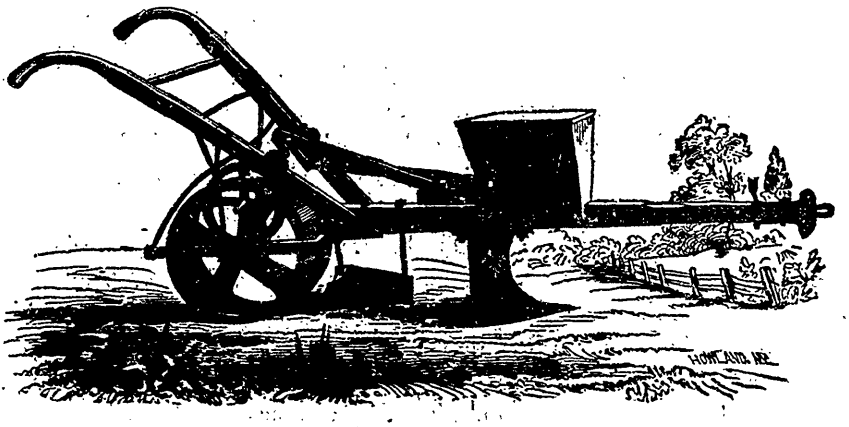
The *warbles* belong to a class of parasitical insects, which pass only one period of their existence in the skin of animals, the period of their larvæ or grub state, before they assume their winged form as flies. Small tumours are commonly seen on the backs of the farmer's best-doing stock, each containing a large maggot, grub, or bot, the larvæ state of the gad or breeze fly. Some species of this fly deposit their eggs in the nostrils of sheep and in the hair and skin of horses, when they are hatched;

being licked up by the horse, and passing into the stomach, and afterwards through the intestinea as bots. The cattle gad-fly deposits its very minute egg on the skin of the animal, which, being hatched by heat, passes beneath the scarf skin, and lays secure, feding on the unctuous secretions of that integument. It afterwards burrows into the skin, and insinuates itself below it, and thus remains secure all winter. In spring diffused swellings are observed on the backs of cattle, which give pain on pressure, in consequence of inflammation. The grub lies in its nidus, or nest, within the true skin, till the approach of summer, when its white colour becomes dark, and it makes its way out of its retreat. On the ground it soon assumes the chrysalis state, escapes from its shell as a gad-fly, lays its eggs, and dies. The eggs again produce grubs, and the same wonderful cycle of changes succeeds. It is the same with the bots of the horse. When they lost at maturity their power of attaching themselves to the stomach, they slipped their holdings, and passed out of the stomach through the intestines to the ground, when they assumed the chrysalis state and became flies. The egg of the sheep gad-fly was deposited about the middle or latter end of summer. The sheep were then herded together with their heads down, and violently stamping with their feet. The fly at length deposited its egg in their nostrils, and the hatched grub penetrated through the intermediate cavities to the frontal sinuses, when a plate of bone prevented its getting into the brain. Various affections in the brain of sheep, such as vertigo, gig, giddy, turnsick, goggles, &c., have been erroneously ascribed to the gad-fly, but they have a totally different origin, viz., arising from the formation of little sacs or bladders, containing hydatids. The mange in dogs is owing to the dog-flea; an insect that was the fruitful source of diseased action of the animal's skin, when it generated and passed through all its various gradations of existence.

The prevention of contagion among animals may be summed up in two words—*improved management*. Cleanliness, ventilation, exercise, nutritious diet, and temperance, have effected the most beneficial changes on the human race, within a comparatively short period of time; and it is but reasonable to conclude that similar causes will produce similar results among our domesticated animals. We have yet much to learn and do in Canada in relation to these important matters.

Carrots.—What would be the result if every farmer in the United States should raise one acre of carrots? An acre will produce from 400 to 1,400 bushels, and when mixed with grain, is of equal value per bushel for feed of all kinds of stock, and for milch cows still more. Another advantage of the crop is that it is equal to a good dressing of manure for the succeeding crop of any other farm product. Do, we conjure you, plant carrots.—*Tribune.*

The Use of Oil.—In this country, children are "perpetually watered," as though they were amphibious animals. In the East Indies, children are rarely washed with water: but they are oiled every day. A child's head can be kept much cleaner if oiled, than without it, and many young people with hectic cheeks would probably never know the last days of consumption, if their parents would insist on having the chests, back and limbs anointed with sweet oil two or three times a week. The Hebrew physicians seem to have considered oil as more efficacious than any other remedy. The sick were always anointed with oil, as the most wonderful means that was known of checking disease.—*Christian Freeman.*



CORN PLANTER.

The above is a representation of Bachelder's Corn Planter—an implement more used in the Western and Southern States than it is likely to be in Canada. We present the cut and description, however, in the hope that some of our own mechanics may get up a cheap modification of it suitable to this country. Many farmers in the western part of the Province grow frequently 5 or 6 acres of corn, and in such cases a "planter" would be serviceable. This is pronounced one of the best machines yet invented for planting corn. The seed is put into the hopper above the beam, and as the horse moves along, the share below opens the furrow; the corn is then dropped by arms moving horizontally. These arms have holes in them of a proper size to receive any required number of grains, and as they pass in and out of the hopper, the holes are sure to be filled with the seed, which as surely drops into a tube conducting it to the bottom of the drill made by the share, which is so formed that it passes under the surface at any required depth, and deposits the grain without turning over the earth. A triangular iron follows to remove all lumps and stones, and a roller to compress the earth over the seed. The dropping of the seed is always visible to the operator, and thus ensures his work being perfectly well done. The arms are made to drop the corn nearer or farther apart by different sized cog-wheels fastened on the crank, moving the arms quicker or slower as required; five changes can be made. Those usually made drop from two feet to four feet apart, as wished. The machine requires a horse to draw it, and with a person to tend it and drive, will plant 12 to 14 acres per day, according to the width of the rows apart.

Every-Day Facts in Science.—If a tallow candle be placed in a gun and shot at a door, it will go through without sustaining any injury; and if a musket ball be fired into water, it will not only rebound, but be flattened, as if fired against a hard substance. A musket ball may be fired through a pane of glass, making the hole the size of the ball, without cracking the glass; if the glass be suspended by a thread, it will not even vibrate. In the Arctic regions, when the thermometer is below zero, persons can converse more than a mile distant. Dr. Jamieson asserts that he heard every word of a sermon more than a mile distant.

REV. T. SCHRIEBER ON FENCING.

LIVE FENCE.—COST PER ROD.	s.	d.
3 Posts, at 6d	1	6
33 feet, B.M., of Lumber, at $14 per 1000 feet	2	5¼
¼ lb. of Nails, at 7½d. ℔ lb.		2
68 sets of Quick, at 8d. ℔ 100		5¾
3 Posts set in ground at 6d. each	1	6
Forming ditches, setting quick, &c	1	0
Keeping Fence clear of Weeds, 3d. ℔ year		3
	7	4¼

COST OF ENCLOSING A SQUARE TEN ACRE FIELD.

Total length, 2,640 feet, or 160 rods, at 7s. 4¼d. ℔ rod	58	16	8

ENCLOSING AND FENCING OFF INTO TEN ACRE FIELDS A TWO HUNDRED ACRE FARM IN BREADTH 1,320 FEET.

Total length, 21,120 feet, or 1,269 rods at 7s. 4¼d. ℔ rod	517	0	7¼

The Homewood, March 12th, 1856.

My Dear Sir,—Assuming that the native Thorn of Canada is best adapted for a live fence, and that its characteristics are nearly the same as the English Thorn, I take the liberty of sending as above the cost of its growth and protection for ten years, at the end of which period it will become such a fence as will last for ages, and be impervious to cattle, sheep, and swine; the Thorn when planted should be cut down to the third eye, the fibres of the roots also shortened, and planted as in the annexed sketch; in the third year after planting it should be cut down close to the ground: with proper attention in cultivation and in keeping it *thoroughly* free from weeds it may be reared up in the seven following years to be a fence as represented in the next sheet, four feet high, *wide at the base and tapering to the top.* It may be observed, the Thorn requires free circulation of air and will not thrive in the shade or under the shelter of trees. The cost of rough protecting fences on each side is inferred from the expense incidental to fences put to keep cattle and sheep off a line of railway in this Province. I am, dear Sir,

Yours faithfully, Thomas Schrieber.

Wm. McDougall, Esq., Yonge Street.

We regret that we are unable to present an engraving of the sketch which accompanied the above. It is the less necessary from the fact that most of those who are likely to undertake the growing of live fences will have had a knowledge of the business, or will avail themselves of the practical skill of some one who has. The Rev. Mr. Schrieber's sketch will be sufficiently understood by such parties when we state, that a cross section of the fence shows two ditches, one on each side, 1½ feet wide at the surface line, and 9 inches deep. The bank between the ditches is 2 feet at the surface line, and the posts of the side fences are set about 9 inches from the outside of the ditch. The Rev. gentleman thinks two boards 6 inches wide will be sufficient for each side fence.

Boil Your Molasses.—When molasses is used in cooking, it is a very great improvement to boil and skim it before you use it. It takes out the raw taste, and makes it almost as good as sugar. Where molasses is much used for cooking, it is well to prepare one or two gallons in this way at a time.

THORN LOCUST FOR FENCES—FIELD MICE—VEGETABLE CUTTER.

St. Catherines, April 22nd, 1856.

My Dear Sir,—In looking over the proceedings of the Agricultural and Horticultural Central Club in your April No., I was very much pleased with the discussion on the subject of fencing. It is a subject that engaged my attention some years ago, seeing that the timber in the old settled parts of the Province was fast wasting away, and that in a few years something else must take the place of zig-zag fences now in generul use. For seventeen years I held the office of Treasurer of the Niagara District Agricultural Society, and during that time the subject of fencing was frequently brought forward; but no one could give advice as to which was the best course to adopt. In 1837, I made up my mind to try the native Thorn, and had half-a-bushel of the haws gathered, and directed my man to bury them in the ground. I believe he did so; but soon after the Rebellion broke out, I directed him one day to take a load of wood to Clothing Works I owned in St. Catherines, he got tipsy, and on his way home the horses ran away, breaking the waggon, which was left in the woods; the horses and part of the harness reached home, but my man never made his appearance afterwards. So much for my first attempt to raise a thorn hedge. For some years after this I had a good deal to attend to, seldom being at home. In 1849, hearing so much about the Thorn Locust for a hedge, I thought I would make a trial, and got a number of the sets for that purpose, and began by drawing a line straight the length of the field; I then cut sods to fit, and set them edgeways along the line, the grass side outwards; then I took earth that was under the sod, and put behind till level with the top of the sod, the base being about three feet, the ditch about the same width at the top. I then put the sets six inches apart, horizontally, on the top of the sods and earth, the tops outward; I then laid on some ground on the roots, then another tier of sods, filling up behind with earth, and so on, till raised about two feet from the surface on the road-side. I made a straight rail fence for the protection of the plants.

All the plants started and grew well, the grass also grew, but was kept down by weeding twice. The next year the plants started handsomely, and had a fine healthy appearance in the Fall.

I now began to think I would succeed in my endeavours to have a hedge that would keep out two-legged animals as well as four-legged. I can assure you I began to be proud of my work, knowing that if such a hedge could be raised without a heavy outlay, it would be a great advantage to the country. In the spring of the third year, the hedge looked very healthy. This year I would have trimmed, but could not find suitable shears. The winter following, the *mice* girdled a number of the young shoots, and every succeeding year, I am sorry to say, less or more have been destroyed. I got a bill-hook made, and kept lopping down the branches, and filling up the spaces where the mice had destroyed. Last Fall, the hedge looked so formidable, that I made up my mind it wanted no further protection, and in the spring (1856) I would take away the fence I had made for that purpose. When an individual undertakes something that he thinks will not only benefit himself but his

fellow-man, and has for years experienced much anxiety of mind for the attainment of his object, and when he thinks his efforts have been crowned with success, what must be his feelings to find that all this anxiety and labour have proved abortive? I am just in that situation; for a number of years I have been watching with intense anxiety the progress of my hedge, and believed I had attained the object of raising a good fence; but great was my surprise and mortification to find, when the snow had receded below the hedge, that not a single bush had been left unscathed—every one was girdled from one to two feet from the roots upward! In my opinion, this has settled the raising of hedges for fences in Canada, unless material can be had, that mice will not cut or girdle, and I am not aware of any plant of that description.

I was much pleased with some remarks made by the Rev. Mr. Schreiber, as well as the very excellent observations of others; but as to killing mice with *nux vomica* to the extent that would be required to protect hedges, if generally grown for fencing, I am somewhat incredulous. If the rev. gentleman had stated how much per rod of fence would be required, and how it should be applied, and how much the cost, it would have been more satisfactory to me. The past (in this part of the country) has been the most remarkable winter as regards the number of mice over the land, that the oldest inhabitants can remember; indeed they never saw anything to be compared with them for numbers. I planted an orchard of apple trees a few years ago, 150 in number, and about one-third are destroyed. If the Rev. gentleman's recommendation for their destruction should prove effectual (unless the cost would be greater than the profit), he will deserve the thanks of the whole country for such important information. Were it not for these destructive animals, mice, I can see no difficulty, with proper care for a few years, in raising the Thorn Locust. They will become a good hedge in seven years.

Your plan of planting posts, and back furrowing to them till the ground is raised eighteen inches, is a good one; but as the bank to the posts is a regular ascent, you would require a higher fence than would be necessary on the plan I adopted with my fence. Cattle can go close to your fence; therefore you will require a higher one to keep them out, than if they were three or four feet from it, and had to jump over the ditch. To keep out pigs, your boards or rails require to be closer, as those animals could go close to your fence; they could not get within three feet of mine without climbing. My ditch has an excellent effect on the field adjoining it. I can plough that field generally a week or ten days earlier than I did before I made it. This shows the great advantage over other modes of fencing for draining the land, which, as you justly argue, is a very great object. Independent of fencing, those ditches would pay well for the making. The plan I adopted, will cost something more, but I think it has advantages. A man understanding the use of the spade, will throw up several rods of such ditch as mine in a day.

I have not written this for publication; but having, for a number of years, taken a lively interest in the welfare of Canadian agriculture (and I am sure I shall ever retain that interest for the welfare and happiness of its people), and having always advocated live fences from material best adapted to the country, and seeing the discussion that took place at the Club on that important subject, I could not refrain

from giving you a little of my experience, and if you think you can extract anything from it that will be of use to the public, you are at liberty to do so.

In your March No., enquiry is made respecting a good kind of *Vegetable Cutter;* and for the information of those who wish to purchase a good and substantial article, I think the one I am about speaking of, is all that could reasonably be required. I bought it last winter; it was made at Rochester, N.Y.; price there $12, charges $4, making the cost $16. I was not aware at the time of purchase, that they were made in Canada; if I had been, I would have given the preference to those of Canadian manufacture, not only to encourage home manufactures, but on the score of economy. The Cut, in your February No., is an exact representation of my Cutter, and I consider it an excellent machine for the purpose. It cuts fast and fine enough for any kind of stock.

Having, I fear, already trespassed too much, I must come to a close.—I am, my dear Sir, yours very sincerely,

JOHN GIBSON.

William McDougall, Esq.

REMARKS.—We have no hesitation in publishing Mr. Gibson's interesting communication, even though it was not written for publication. We feel satisfied that we could not devote the space it occupies to a more important subject, or one that will be more generally interesting to our readers. An efficient, durable, inexpensive system of fencing, generally available, is the great desideratum of Canadian agriculture. The ravages of the field mouse during the last winter have almost destroyed the hopes of those who have attempted Thorn fences in Canada. We trust, however, that some remedy will be found against this pest, either by such means as Mr. Schrieber has suggested, or by the use of a hedge plant not subject to its attacks. It is said that the Buck-thorn is never injured by mice, and that it makes an excellent hedge. Let Mr. Gibson not despair; one trial and one failure have not "settled the question." The experiments, which, we presume, will be undertaken by the Board of Agriculture, will no doubt develope some facts, that will help to guide the intelligent farmer in his efforts to obtain a good fence.

Whether *nux vomica* is an efficient, and, at the same time, a safe antidote for mice, may be doubted. It must not be forgotten that it is a *deadly* poison, and if by any chance the small domestic animals, or children, should pick it up, death would be the consequence. Great caution will be necessary in trying experiments. A well-known remedy is the *Cat*, and if administered in sufficient doses *on an empty stomach*, will do much in the way of cure.

Mr. Gibson's objections to the *banked* fence recommended by the writer in his remarks before the Club, are perhaps well-founded; but the plan we intended to describe presents this difficulty to cattle—their hind feet will be in the ditch when near enough to attempt a leap, and consequently the depth of the ditch is so much added to the height of the fence. If the ditch is made so near the fence that a horse or cow could approach near enough to jump from the level ground, then Mr. G.'s remarks would apply. But this should be guarded against. We are now making a fence on this plan, three boards high, with a bank from twelve to eighteen inches above the surface line, and a ditch extending upwards of four feet from the fence. No law-abiding animal would venture to leap it, and disorderly ones are not allowed to make the attempt. Bad fences make "breechy" cattle; if not *trained* to evil ways, a fence considerably less than *ten* feet high will answer all needful purposes.

FENCES—THE "NATIVE THORN."

Arley Lodge, 26th April, 1856.

DEAR SIR,—In the last number of the *"Canadian Agriculturist"* you have treated your subscribers with a very interesting Report upon the subject of "Fences," as it relates to the Cost, Variety, and Kind, best adapted to suit the climate and different localities in Canada—embracing economy, durability, and appearance. It seems the opinions and communications generally delivered at the meeting of the members of the Society in Toronto, are unfavorable to the continuance of the culture of the "English Hawthorn," as a fence calculated to answer the requirements of the Province for the reasons then assigned.

Mr. Leslie's practical skill and knowledge of the nature and treatment of "Hedge Plants" entitles any opinion or suggestion coming from him to respect and attention, and particularly so when "Live Fences" is the subject under consideration. Impressed with that opinion, I am once more tempted to commit myself to paper with the view of cautioning the farmer against the introduction of any plant whatever upon an extensive scale without first obtaining undoubted proofs of its general fitness for the purpose intended. That is, possessing sufficient hardness to withstand the rigor of the winters—free from the ravages of insects—of vigorous growth—power of resisting cattle—durability and cheapness. These are properties essential to secure a successful issue, and to reward the farmer for his labour. And so far as my own limited experience permits me to form an opinion, I esteem the "Native Thorn of the Country" incomparably the best. I have not yet met with any other plant that possesses so many of the above enumerated good properties and so free from the objectionable ones. Amongst other plants noticed by Mr. Leslie, the "Buckthorn" is expressly mentioned as a hardy and vigorous plant, capable of resisting the severity of winter, and being free from the destructive attacks of insects. These are valuable qualities, and my own attention had been previously drawn to this plant to ascertain its character, and to that end, when in England, in 1854, I made enquiry respecting its fitness for fences at reliable sources, with the intention of importing either the berries or seedlings of the plant in quantity for future use, had the result of my inquiries answered my expectations. All admitted the properties ascribed to the plant by Mr. Leslie, but, in addition, mentioned the very objectionable one of throwing out suckers profusely, which, if not watched and eradicated annually, would in a few years greatly encroach upon the land. For that reason I abandoned my intention of trying the "Buckthorn" for fences. The same objection, I apprehend, also attaches to the "Honey Locust." Having thus drawn the attention of Mr. Leslie and other qualified gentlemen to the subject, the opportunity is afforded of confirming or refuting the statement I have made as experience might warrant. The only object I have had in view in noticing so important an interest as "What is to constitute the future field fences of Western Canada?" is to elicit truth, and to obtain the most reliable information as to the best adapted plant for that purpose, before mischief on an extended scale is committed. If, upon the introduction of a new principle of fencing, we commence the work by selecting a plant possessing the advantages and free from the objections pointed out, a good work will have been performed, much discouragement removed, and painful disappointment, cost, and labour avoided by the farmer. No man who wishes well to the undertaking should take offence, when none is intended, at finding a favorite and long cherished theory of his own assailed and damaged, when temperately conducted and for a worthy purpose. And whether well qualified or not to convey additional information to that already acquired, he still merits applause who frankly and faithfully volunteers to the public the extent of his own experiences. On that principle Mr. Leslie merits the thanks of the public in directing attention to the eligibility of cedar, hemlock, spruce, and other kinds of evergreens, for fence purposes. Any thing retaining its verdant character throughout a dreary winter is valuable, independent of its usefulness, as a pleasing reminiscence of summer, and a graceful ornament at all seasons.

I greatly approve of Col. Mark's suggestion, that Agricultural Societies should offer a premium for the best specimens of well trained Live Fences, for field purposes—not ornamental. The effort to grow them is deserving of every encouragement, and as a prospective benefit to the Province, of the utmost consequence, and well merits the future consideration of the Club.

The Rev. Mr. Schrieber's assertion, that to "grow a hedge is the simplest of all simple things," may apply with some truth to England, where the climate is favorable to the growth of the quickset, labor cheap, and the cost of the plant a mere trifle; but to look for the same result in Canada, in the absence of like advantages, would only lead to disappointment. Instead of its being a simple operation, it will be found a most arduous one, requiring much outlay, constant attention, and unyielding perseverance, to succeed in growing a good hedge. During a long and inclement winter, no outdoor work or hedge dressing can be performed (as in England, the season there particularly devoted to that duty) succeeded by a dry and scorching summer, trying the tender and recently planted quickset to the utmost. The time, too, in Canada, when the hedge most requires attention is the very season when the farmer can least spare time and labor to devote to it. Preparing the land to receive grain and other spring crops calls forth all the energies of the farmer, and exacts the application of all the strength at his disposal to keep pace with the rapid advancement of the season, which, if neglected, entails a heavy penalty. Again, in England, the field or outdoor work is accessible throughout the year, and every successive month has its allotment of labour. But in Canada, all field work is suspended for several months, and field operations contracted within a short space of time. The cost, also, denies unlimited use of manual labor to extra work on the farm, unless applied to the production of immediate profit. The employment of extra hands at the present oppressive rate of wages, for ornamental purposes and remote convenience, would soon leave the farmer pennyless who had nothing more to depend upon than the profits of his farm. I have not introduced these remarks to deter the farmer from pursuing the culture of Live Fences, but to guard him against the impression that it is a simple and consequently an inexpensive process. The farmer, to grow a good and servicable hedge, must make up his mind to encounter both cost and labor before he embarks in the work, or can succeed to his satisfaction. He will know, however, that every kind of fence demands attention, and must be well looked after to keep it in a state to prevent trespass. That being admitted, I firmly believe that the Native Thorn, if well handled, and not planted to a greater extent annually than the farmer can conveniently manage without encroaching on other occupations, will be found in the end the best and cheapest fence he can construct. It must, however, be the work of time, and not of force, remembering that the beautiful and enduring Hawthorn Hedges of England are not the production of a generation, but of the patient progress of time.

I remain, my dear Sir, yours truly,

JOSEPH BECKETT.

Wm. McDougall, Esq.,
Mill Bank Farm, Yonge Street.

TO IMPROVE SEED POTATOES.—Charles Seager of St. Louis recommends the following easily-tried method of improving potatoes, so as to restore them to the general soundness, richness and mealiness of this valuable root:—The plan is this: keep back some seed potatoes for six or seven weeks after the usual time of planting, say till the last week of June or the first week of July, and then plant and cultivate them the same as stock potatoes. They will grow until the frost withers the vines, when they should be dug. As they have not had time to mature they will be quite small—not more than an inch or an inch and a half through; but they should all be carefully gathered, and kept safe from frost through the winter, and planted at the usual time of planting in the spring—one of the small potatoes being sufficient for seed in each hill. The result will be large sized, sound, mealy potatoes, as I have proven by actual trial. I hope that it will be tried by some of our farmers this year."

TRADE IN INSECTS.—Bugs are an important article in the trade of Rio Janeiro. Their wings are made in to artificial flowers, and some of the most brilliant varieties are worn as ornaments in ladies' hair. One man manages to earn his living by selling insects and other specimens to the strangers who visit the port. He keeps twelve slaves constantly employed in finding the bugs, serpents, and shells which are most in demand. The nearest approach to his business that we can remember is, that of the trade of fire-flies in Havana; the insect being caught and carefully fed on the sugar cane, is used as an ornament for ladies' dresses.—Being twice the size of the American fire-fly, it is very brilliant at night. The creoles catch them on the plantations and sell them to the city belles; some of them carry them in silver cages attached to their bracelets. They make a fine display by lamplight.—*Selected.*

SHIPMENT OF STOCK FOR CANADA.

(Abridged from a Dumfries paper by a Correspondent.)

Annan, 24th April, 1856.

There was taken on board the brig *James Redding*, Captain John Reddick, this afternoon, at Annan, Waterfort Jetties, to sail to-morrow for Quebec, the following valuable Stock: A splendid dark-gray stallion, three years old, bred by Wm. Byres, Wharton, Cumberland, purchased for £150. A one-year-old brown colt, price £50, bred by Mr. John Johnstone, White-Know, Nichol Forest, Cumberland. Five Leicester ewes and two tups, purchased in England, at an average of £7 each. One yearling short horn bull, bred by Mr Syme, Redkirk, purchased from Mr. Isaac Fankes, Outertown, Warmanbie, for £60. The sheep and bull are for W. and R. Armstrong, Markham, Canada West; and the horses belong to Mr. Joseph Thomson, there, who sails with the brig in charge of the animals, having come to this country expressly to purchase. The gray stallion is highly recommended, and took two premiums at Carlisle District Agricultural Meetings. Also, four one-year-old, pure-bred, short-horn heifers, from Mr. Syme, Redkirk, Gretna's highly-valued herd; and a bull, one year and two months old, from the same herd, valued at £60. Also, a one-year-old bull, from near Coldstream, valued at £60. These short-horns are of the purest breed, and are shipped for Mr. George Millar, Markham; except the first-mentioned short-horn bull, which goes as a present to a friend of Mr. Symes, resident in the vicinity of Toronto. There are also two rams, from the stock of Mr. Wilkin, Tinwald Downs, for Mr. Millar, valued at £15 each. Five Leicester rams and fourteen ewes with lambs, purchased in Yorkshire and the borders, at high prices, for Mr. James Dickson, Clarke Township, Canada West. A fine short-horn bull and heifer, and a Galway heifer, bred at Balligg, stewardy of Kirkcudbright, for Mr. George Roddick, Cobourg. A one-year-old brown colt, bred by Mr. William Dalziel, Castle Hill, by Lockerbie; shipped by Mr. Dalziel's brother, who goes out as an emigrant. We observed, also, two turnip-cutters, from Stakepond Foundry; a plough and a sawing-machine, shipped by Mr. Syme, Redkirk; also, a quantity of turnip-seed, for Mr. George Roddick, Cobourg, &c.

EVERLASTING LAYERS, &c.

I met with an odd Number, a long time ago, wherein Mr. Buckland recommended keeping a kind of domestic fowls he termed everlasting layers, which I expect are the same as I kept in England, known by the name of Algerines. I had them five or six years old, that never shewed any inclination to sit, so that I kept two or three of the common kind to hatch chickens. I know their value but should like to know where they are to be got in this country. Perhaps Mr. Buckland could tell me.

I should also like to know, whether it would answer to sow lucerne amongst barley in the same manner as clover, in order to obtain a crop the next season, as I should like to seed down my orchard with it.

A SUBSCRIBER.

To the Editor of the "Canadian Agriculturist," Toronto, C.W.

REMARKS.—I am not aware to what particular observations of mine a "Subscriber" alludes. The term "Everlasting Layers" is applied to hens derived from different breeds, but more particularly from those of the Spanish and Hamburg or Dutch. Where the particular variety mentioned by "A Subscriber" can be procured in this country, I can give no precise information. Something, probably, might be learnt by applying to some of the numerous improvers of poultry, either in Canada or the United States. Where any considerable number of fowls is kept, a few hens which are not inclined to sit, and lay a larger number of eggs through

most of the year, particularly in winter, are much to be sought after and encouraged. It should be remembered, however, that continual laying tends very much to debilitate the condition of the bird: and for purposes of breeding, hens that are good sitters must be used for hatching the eggs. The black Spanish, or some of its sub-varieties, are among the most prolific layers, and their flesh is particularly fine and delicious. By warmth and judicious feeding a hen may be made to lay as many eggs in two years as she would under ordinary treatment in three; and everybody knows that a fowl fattened at two years old is much more tender and palatable than one that is older. This and other breeds distinguished as abundant layers, has the reputation of being particularly liable to lay soft or shell-less eggs. Too much exciting food will sometimes produce this effect among poultry in general. Close confinement, or the want of fresh grass, or the absence of calcarious matter, such as lime, rubbish or chalky materials, may occasion in the eggs of the Spanish more than other fowls a deficiency of shell formation.

"No one," remarks a modern author, "who has not observed the natural craving which poultry closely immured and fed on dry diet testify for green food, such as parsley, cabbage, and beet-leaves, can imagine the avidity with which they will devour such substances at times. Confined in towns, fowls often experience an intense longing for such a change from grain; and if the desire be not satisfied, the Spanish, more than fowls generally, from their greater sensibilities, may suffer in the internal agencies which are necessary for the shell-work of the egg."

With respect to seeding down an orchard with lucerne, it would be better not to have barley, oats, or indeed any spring crop whatever. Lucerne belongs to the lime family of plants, and will not thrive upon a wet clay or a poor sandy soil. Upon deep, calcarious, rocky soils it produces abundantly. The shade of trees, however, would cause it to be feeble and less nutricious. It is a plant, on a genial soil, and under suitable treatment, that is very productive, and may be mown two or three times in the course of the season. It should be sown in rows, the intervals kept perfectly clean by the frequent use of the hoe, and a liberal top dressing of farm-yard manure should be given at least every second year. Being a long-rooted plant, deep and perfectly clear culture is essential in preparing the ground for this crop.

G. B.

GROWING PEACH TREES.

Friend Moore, of Norwich, C.W., gives us the result of his experience in raising Peach Trees, generally considered a difficult operation in Canada. He says:—

"I have 275 peach trees on my farm, and not one dead one, while my neighbours are digging theirs up. I find they have generally brought their trees from a distance, the soil in which they were grown being different from that in which they now are. Mine were all raised from the pit, in the same soil they are now growing in. *Query*—Does a change of soil hurt the vitality of the tree? Thy friend, GILBERT MOORE."

PATERSON'S REAPER.

We intended in our last number to have called the attention of readers in the neighborhood of Richmond Hill, and adjoining townships, to the Implement establishment of Paterson & Brothers, near the Richmond Hill Station of the Northern Railroad. They are an enterprising firm, and so far as we can learn, their machinery has given much satisfaction to those who have used it. They make an improved Reaper of the Seymour & Morgan pattern; and from the testimonials given them by a number of farmers, whose names are a sufficient guarantee for the truth of their statements, we have no hesitation in recommending their Reaper to the public. It is generally admitted that, as a Reaper only, the Seymour & Morgan pattern is not excelled by any other yet introduced into Canada.

REAPERS AND MOWERS.

So many machines, more or less "improved," are now before the public, that it is becoming rather difficult to determine their respective merits, and purchasers are at a loss to know which will best answer their purpose. As we remarked in a former number, no one machine will be found the *best* under all circumstances; and it therefore becomes important to ascertain the distinctive traits and peculiarities of each. We observe that in the trials of Reapers to be made this year in several of the adjoining States, a scale of "points" has been decided upon, to enable judges to give a more intelligent and satisfactory decision than under the hap-hazard system. We would recommend a similar plan for trials in Canada, and it should also be adopted as far as practicable at Shows. The State Agricultural Society of Illinois propose a trial of Reapers and Mowers, to begin with the harvest in the southern part of the State, and go to various places north as the grain ripens. Three persons are to be placed at each place of trial, when decisions are to be made upon a scale of points annexed; and are to seal up their decisions, and to deliver them to the Superintendent appointed by the Society; and at the close of the season, the decisions are to be opened by the Executive Board, during the State Fair. The machines on trial are all to be present at the Fair. Six entries are required by the 15th of May, to insure th etrial. Entry, $100; premiums of Reaper, $50, $25; Mower, $50, $25; combined Reaper and Mower, $50, $25.

This will be a good opportunity to test machines; and should the Judges be discreet and disinterested men, we should hope for a decision that would prove valuable.

SCALE OF POINTS IN TRIALS OF REAPERS.

No. 1.	9	Cost of machine.
2.	8	Simplicity of construction to do its work.
3.	10	Facility of management, including time and room required for turning.
4.	30	Durability and reliability.
5.	16	Adaptation to varied and uneven surfaces, and to cutting at different heights.
6.	30	Freedom of the knife from clogging by fibrous or gummy matter.
7.	9	Motive power, or power required for a given amount of work.
8.	45	Manual labor in raking.
9.	26	Rapidity, or amount of harvesting in a given time.
10.	45	The manner of leaving the grain for binding.
11.	72	Saving of grain in cutting, binding, and handling.
	300	

SCALE OF POINTS IN MOWERS.

No. 1.	9	Cost of machine.
2.	8	Simplicity of construction to do its work.
3.	10	Facility of management, including time and room required for turning.
4.	30	Durability and reliability.
5.	10	Adaptation to varied surfaces.
6.	16	Adaptation to cutting close, &c.
7.	70	Freedom of the knife from clogging.
8.	9	Motive power, &c.
9.	20	Rapidity, or amount of cutting in a given time.
10.	30	Manner of leaving grass for curing.
	212	

SCALE OF COMBINED REAPERS AND MOWERS.

300	Reaper scale.
212	Mower scale.
38	Ease of convertibility.
550	

HOW TO DISSOLVE BONES.

Chinguacousy, May 2nd, 1856.

SIR,—I notice in your January number the superior value of bones dissolved in sulphuric acid, compared with ground bones, as an application to the Turnip crop. Would you be so kind as to inform your readers what quantity of sulphuric acid to a certain quantity of bones, and what kind of a place or vessel to dissolve in, and how used after dissolved; and you will much oblige, your humble servant,

JOHN SNELL.

1st. HOW THE BONES SHOULD BE PREPARED.—The bones to be used cannot be broken too small; the more extensive the surface presented to the action of the acid, the more rapid and perfect will be the solution. The bones usually employed are in too large pieces; and a higher price should willingly be given for them when reduced to a powder. In every farmyard, an old sugar hogshead should be kept, into which all the bones, woollen rags, old hats, and broken leather should be thrown and preserved for being reduced to manure in the vitriol vat.

2nd. QUANTITY OF VITRIOL TO BE USED.—The acid should be purchased of full strength, that is, of the specific gravity at which it is sent from the manufactory, viz., 1.845. It should be kept in a closed vessel, as when exposed it rapidly attracts moisture from the air, and becomes weaker. It must not be forgotten that it will burn both the skin and clothes, if allowed to come into contact with them. When the strong acid is mixed with water, a considerable amount of heat is produced; twenty-five pounds of oil of vitriol mixed with ten pounds of water, will raise the temperature to 266 degrees. The proportion of acid to be used in the preparation of vitriolized bones, is one hundred weight of acid for every two hundred weight of bones to be dissolved. A smaller amount of acid is frequently applied; but the above proportions will give the most satisfactory results.

3rd. QUANTITY OF WATER AND MODE OF APPLYING IT.—When undiluted vitriol is poured upon bones, violent action is produced, but continues for a very short time, as the gypsum, which is the first new compound formed, covers the surface of the pieces of bone with a crust, which prevents the acid from coming into contact with the unaltered portions, and in consequence its action is retarded, and a perfect solution is not procured. If we drop some concentrated vitriol upon a piece of limestone, there is a bubbling up or effervescence from the escape of carbonic acid gas; but it continues only for an instant. A crust of gypsum forms and protects the stone from the acid; but if we use vitriol diluted with water, the action and escape of gas continue for a much longer time. The best plan, therefore, is to thoroughly moisten the bones we intend to dissolve, by pouring over them a quantity of water and allowing them to soak in it for an hour or two before adding the acid. The quantity of water used should be three or four times that of the vitriol to be employed. This mode of applying the water obviates the trouble of mixing together the vitriol and water in a separate vessel, as some recommend, and the heat generated, by adding the strong acid to the moistened bones, greatly facilitates the decomposition, and hastens the preparation of the compound.

4th. HOW THE MIXTURE OF THE ABOVE MATERIALS SHOULD BE MADE.—Six bushels of bones, ground as fine as possible, are to be placed in any convenient vessel; an old iron boiler, or a sugar hogshead, even though not perfectly water-tight, may be made fit for use by plastering up the holes and seams with plaster of Paris, or by filling them with melted pitch or asphalte; and even a hole dug in the ground,

and lined with firm plastic clay, may be used when no proper vessel can be procured. An old sugar hogshead, however, with about a third of its length cut off, and the seams secured by a coating of pitch, asphalte, or plaster of Paris, makes a first-rate vitriol vat. In the first place, 18 gallons of water should be poured over the bones, and after allowing them to remain together for an hour or two, that the pores of the bones may be penetrated by the liquid; 133 lbs. of strong vitriol should be added, as the exact quantity required should be ordered from the manufacturer, to avoid the trouble of weighing and pouring from vessel to vessel, which would otherwise be necessary. When the acid has been added and the violent effervescence has ceased, the mixture should be occasionally stirred up; for which purpose a two-pronged fork may be conveniently used. As the fumes which are given off are exceedingly unpleasant, the vessel should be placed under a shed, at some distance from the dwelling-house. In about three days the solution will be ready for mixing with charred peat mould, saw-dust, or any convenient substance; or it may be diluted with fifty or sixty times its bulk of water, and applied with the manure-cart. The quantities given above will be sufficient to prepare manure for a statute acre, and if used with half the usual quantity of farm-yard manure, which is a plan highly to be recommended, in convenient situations—there will be a sufficient supply for two acres.

The farmer will remember, that where vitriolized bones are the only manure applied, the addition of some alkiline substance will be found a judicious practice.

WOOD ASHES.

The virtue of ashes as a dressing for all crops, is, we think, not properly appreciated by a great many, who live by tilling the soil. It is everywhere and on all crops, except perhaps clover, worth as much as plaster, and, on some, far exceeds it as a solvent and stimulant of vegetation. Its action is palpable to the most careless observer in its effects, and the manner in which it acts, is of easy explanation, which is more than can be said of plaster.

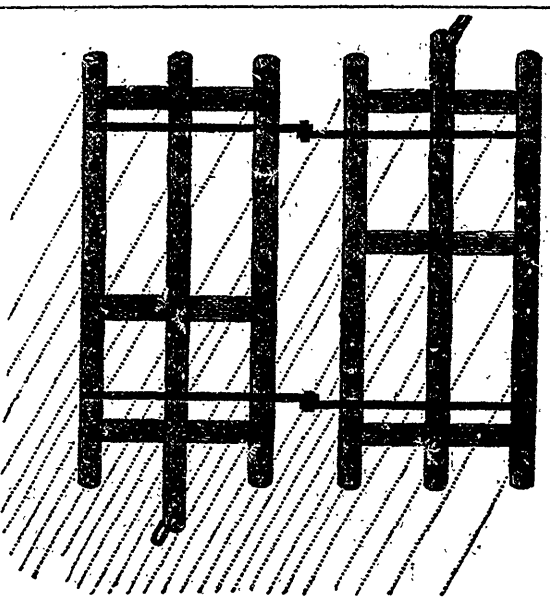
In the first place, potash is one of the most deliquescent salts, or has ability to attract moisture. A lump of potash, when dry, is as solid and hard as a well burned brick, but when exposed to a damp, or night air, it nearly doubles its weight and becomes a liquid, so great is its attraction for watery vapor. This is one of its features, but its great and important function is the supply of silicate of potash—silex or sand dissolved in potash—to form the glazing of straw, hay, cornstalks, and various other vegetable structures, without which no cereal crop can be perfected.

Some soils, particularly clays, contain a sufficient portion of this material, until they become worn and effete. Ashes are most beneficial on sandy, loamy and gravelly soils, that do not contain mineral potash, or its elements. When compared with plaster, the only objection to the profitable use of ashes is its easy solubility—heavy rains dissolve and carry off the potash beyond the reach of the plant; while plaster being insoluble, its action is not destroyed by water.

In this region, wood ashes are about eight cents per bushel; while the price of plaster at the mill is about twelve cents, and the drawing it several miles to be added to its cost; which if our position is correct as to the value of the two manures, it behoves the farmer to make and save all the ashes he can; especially for the corn crop, for which it is unanimously admitted to be worth more than plaster. The custom is now generally prevailing, to mix them together, producing a very striking effect. It has been suggested that broad cast sowing of ashes is equally efficacious with application to the hills, and we are disposed, from some experiments exhibited, to give credence to that course, if double the quantity is so applied.

With *leached ashes*, the effect is not as quick, nor as apparent on crops as unleached; but their action is longer felt when treble the quantity is used. They contain silex in a firm and impalpable state, and some potash and lime, ready for solution. Silex or flint being artificially nearly insoluble, except by the fluoric acid, a substance very sparingly produced by nature, and then in a neutral combined state.—*Rochester New Yorker.*

Soda Fried Cakes.—One cup of milk, two of sugar, three eggs, two teaspoons of cream tartar, one of soda.



HARROWS.

A well constructed harrow is a most important and effective implement in fitting the soil for the reception of seed, by breaking up clods, disengaging roots, and pulverising the earth. Great improvements have been made within a comparatively recent period in the construction of the harrow, by which a more perfect pulverisation of the ground and a great saving of time and strength are each secured; and he must have lived and observed to little purpose, who is content to use the old clumsy and coarse harrow of former days, when any of the several improved forms are so readily obtained.

Harrow teeth should be made of Swede's iron, steel pointed, tapered at the upper end to fit a corresponding mortise made through the timber; and the teeth made fast by a nut and screw, to prevent their becoming loose, working up, or falling out.

We give above a cut of an Improved Hinge Harrow. It is usually made to take a breadth of five feet. It is composed of two pieces of frame-work, connected to each other by iron hinges coming together like common barn-door hinges, and which, extending across the pieces widthwise, are bolted to each bar, thus greatly strengthening the harrow. The ends of the bars are secured from splitting by iron rivets. The harrow may be folded double, or separated into two parts, for the convenience of transportation or other purpose. Either half may be lifted for any purpose while the implement is in motion; and the easy and independent play of the parts up and down upon the hinges, enables the instrument to adapt itself to the surface of the ground in all places, so that whether going through hollows, or over knolls and ridges, it is always at work, and every tooth has an operation upon the soil. There are thirty teeth in the harrow, and yet they stand equidistant and wide apart each way, so that while from their number and arrangement the ground is worked fine, they are not liable to clog. This harrow is made heavy for rough land and the pulverising of sod furrows, or light for grain and grass seed. It is a very light pretty harrow for one horse, when made of bars 2½ inches square, with teeth of half inch steel; and thus made, and carrying a breadth of *five feet*, one horse will harrow as much ground in a day with it, as is usually accomplished by two horses. It is made to draw either end forward; and when the teeth become dull by working in one direction forward, the team may be hitched to the other end, and they are sharp again.

In a former number, we gave a cut of an Expanding Reversible Harrow, which we used this Spring, and found useful among stumps and on rough ground. It cost about $7 to construct it.

AGRICULTURAL REPORTS.

Caledonia Flats, 21st April, 1856.

DEAR SIR,—As my garden has been selected by the experts of the Township of Caledonia, as the one entitled to your premium, and as you require information not furnished you, and as you request it, I will endeavour to furnish you with some information respecting it.

The garden in question is situated about the centre of Caledonia Flats, on the banks of the Caledonia Creek, which meanders through this fertile tract, which was first located and improved by the late John Chesser, sen., Esq., who was one of the pioneers in this section of country. It can be only considered a good kitchen garden, with some choice apples and some small fruit, such as three kinds of currants and some gooseberry bushes, &c.

From the depth and fertility of the soil, vegetables are produced in great profusion; but as I am not a professed gardener, I cannot give you such a description as you may wish, but if I am spared a few years I will introduce fruit and flowers that will fully come up to your requirements. Thanking you for your liberal premium,

I am, dear Sir, yours respectfully,

(Signed) WM. BRADLEY.

Charles P. Treadwell, Esq.,
Ex-President of Agricultural Association of Upper Canada.

Caledonia, 17th April, 1856.

DEAR SIR,—On reading the report of the experts of the Township of Caledonia Agricultural Society, I am fully convinced that justice was not done, in furnishing you the required information in regard to the farming operations of persons competing for your premiums, and as my name was returned as being entitled to the premium for the best farm in this Township, and as you particularly requested that I would furnish you with a statement of my mode of farming, I will endeavour to do it in as brief a manner as possible, and I regret that it had not been done at an earlier date.

Your object in advancing the interests of agriculture is generally acknowledged throughout the country, and I hope that the suggestions which you made may yet be appended to the Agricultural Law of the Province. The farm offered for competition is the one on which I reside, being composed of the east half of lot No. 12, in the first concession of Caledonia, two miles from the Caledonia Springs, with a fine creek running through it, near my house and barn-yard. The farm has been reclaimed by my own hand from the forest, except some small patches cut out to make potash. I came to this country a poor lad in 1825, alone and without funds, from Fermanagh in Ireland; therefore it cannot be expected that the perfect system of British agriculture can possibly be carried on, when the owner of the farm is obliged to lodge in the first and second year in a cabin, covered with the bark of trees taken from the surrounding forest. The soil is mostly a sandy loam, with a sub-stratum of limestone, of the best quality for building, and also for making lime of a superior quality. The wood land is reserved on an adjoining farm, on which there are excellent farm buildings. I regret to state that I have made several attempts to plant an orchard, but have not succeeded. I have, however, young trees growing, from which I hope better success. I always plough and prepare as much ground as possible in the autumn, owing to the short season allowed by the spring for farming operations. I grow Swedish turnips, carrots, beets, and mangel-wurtzel, but not in large quantities. I have, in former years, produced one thousand bushels of Swedish turnips on an acre. I always sow pease, and plant corn and potatoes, and have large crops of each. I generally sow wheat after the root and corn crops, and seed down with timothy and clover. I generally mow it for three years, and then, as I have more land than I can manure properly, I pasture it for a certain number of years, to renovate it before breaking it up, when I sow pease, and if the land is in good heart, sometimes wheat.

I use the Scotch iron plough, the Scotch harrow, and the drill harrow, with both cart and waggons for gathering the harvest and putting out manure.

In reference to cattle, I would remark that several years since the Agricultural Society of the United Counties of Prescott and Russell purchased a fine Ayrshire bull and a

Leicestershire buck, which the Society found it inconvenient to keep more than one year, and when they were sold at auction, I secured the bull, by which my stock and that of the neighbourhood has been much improved, and I recently procured a full-blood short-horn bull, bred by Captain Rhodes, which promises well, and will do much for this vicinity. My stock of horses is mostly of the Canadian breed, being fully convinced that for the work of this country there is no horse that, for the same value and keep, will perform so much service.

My sheep are the Canadian, crossed with Leicester; they are well adapted to the climate, and give good wool and good mutton. My swine are a cross between the grass breed and Berkshire, and answer well. Poultry is the common dunghill fowl, which lay well, and, when fat, are excellent for the table. I keep geese and ducks, and they have a nice creek to swim in. I have surface and subsoil drains, the latter filled with stones, and covered with straw and brush, and then with sods (the grass downward), to prevent the earth from sinking and obstructing the water, and of sufficient depth not to be interfered with by the frost and not to impede the plough.

I regret that there are no tile drain machines yet introduced to this section of country. My fences are made of heavy cedar logs, well capped and staked, and when I have stone to draw from the fields, I have made half wall, and put on two rounds of cedars, with caps and stakes; these form a protection against pigs, sheep, and unruly cattle. My buildings consist of a good stone house, with a verandah around it, an excellent cellar under the whole of it, a part of which forms a fine dairy room, with a door towards the creek, gowing out on a level with the ground, and well ventilated; an excellent wood house and a carriage house, a stone ash house and smoke; one fine barn, two stables, and one hundred and fifty feet of shed connecting the stables and barn, and completely enclosing the farm-yard.

I fully agree with your remarks in reference to every member of the Agricultural Society, being furnished with a copy of the Toronto *Agriculturist*, and this should be rendered imperative by statute, and I fully endorse your views that every farmer should grow his own timothy and clover seed.

My business has not been purely agricultural, for having generally a large amount of produce, and not always a remunerative market, I have turned it into lumber, and I have been rather fortunate in choosing favourable years for these operations, and if I have been successful, it has been in a great degree owing to these circumstances.

I have a son, who is just setting out in life as a farmer, on a farm that has been cleared of stumps and stones, and which is well fenced, and I have recommended him to adopt the system which you have condensed in your offer of premiums, and the making of a chart of his farm, and the keeping of a strict account of his farming operations—are things I will urge him by no means to omit.

Should you think that these observations may be of any service to the public, you are at liberty to publish them. Thanking you for your liberal premium of five pounds,

I am, dear sir, yours most respectfully,

(Signed) James Cross.

Charles P. Treadwell, Esq., &c., L'Orignal.

TRIAL OF PLOUGHS—REPORT OF COMMITTEE.

Toronto, 30th May 1856.

Sir,—The undersigned having been requested to act as a Committee to test the efficiency and ease of draught of the several Ploughs entered at a trial which took place near York Mills, Yonge Street, on the 29th April, beg to send you the following remarks, as the result of their inspection:—

Five Ploughs were entered, namely, one made by Modeland, of Brampton, Co. Peel; one by Bingham, of Norwich, Co. Oxford; one by Gray, of Haddington, Lanarkshire, Scotland; one by Howard, of Norfolk, England; and a Lap-furrow Plough, made by Ruggles & Nourse, Worcester, Massachusetts.

As the Committee considered that the merits of a Plough consist not merely in the quality of the work done, but also in the small amount of force or traction necessary for working the implement, they applied, as a test of this, Small's dynamometer, a very simple and excellent instrument. The result was as follows:—

	DRAUGHT. cwt.	lbs.		FURROW SLICE. Depth, in.	Width, in.
Modeland	3	108	...	6	8¾
Bingham	3	96	...	6	9
Gray's	4	32	...	5⅝	8¼
Howard	4	00	...	5	8½
Lap Furrow	4	28	...	5	10

From this table it will appear that Bingham's plough required less force than any of the others, while the furrow slice was larger. This implement reflects great credit on the inventor and manufacturer. The mould-board is very well shaped, and is calculated to lay down the slice properly. It may be remarked, however, that this Plough did not give the furrow slice so good a *cut* as some others. This, no doubt, was in great measure owing to the set of the irons—a point so essential to the proper working of a plough. The result was, that the grass was very imperfectly buried, and a much smaller amount of tilth was given for covering the seed. This defect can be remedied by any blacksmith who has been accustomed to put plough irons in order. The clevis of this plough was regulated by a screw, very ingeniously applied. The workmanship was very good; and altogether, this implement seems to deserve the encomiums passed on it here and in Europe.

Modeland's plough is very similar in shape and construction to Bingham's, and owing to the set of the irons, did the work better. It is strongly made, and is highly commended by those who have used it.

Gray's Scotch Iron Plough made the best work. This plough holds, on this side of the Atlantic, the high position which it has attained in Great Britain; it is unquestionably the best implement in use as a sward-plough, that is, for thorough and handsome work. It is, however, heavy, cumbrous, and hard to draw. The same patterns of castings, when affixed properly to wood, as has been done by Mr. Cairns of Paris, C.W., and others, give a handy and excellent implement, easily drawn, and in every respect better suited for every-day work than the iron plough.

The next in order is Howard's. This plough made fair work, but, as will be seen from the table, requires considerable force. It is a very complicated, heavy, expensive implement, and unsuited to the country. It had, however, the merit of a skim-coulter; but which, not being used at the trial, deprived the plough of one of its important elements. The skim-coulter is an approximation to the principle of the Michigan sub-soil. It cuts a thin paring from the top of the furrow slice, and thus more effectually buries the grass than can be done by the ordinary coulter. The American plough, however, is stronger, cheaper, and does the work far more thoroughly.

The last plough regularly entered for trial, was the "Lap-furrow." In light soil and in cross-ploughing, or stubble ground, in which there is not much grass, this plough might be used with advantage. It is capable of performing a large amount of work in a given time, but on stiff sod or hard clay it would make very inferior work.

The undersigned regret that a fair trial could not be given to the double plough of Messrs. Ruggles & Nourse. Although this implement is much inferior to those made on the same principle in the State of New York, yet in the hands of a good ploughman, it was capable of making better work than any plough on the ground. Unfortunately, the ploughmen present were unacquainted with the implement: it was also out of order, and there was too little time for a fair trial of it. As an exterminator of couch-grass, and a deep and thorough tiller, it stands unrivalled, and seems destined to supersede many ploughs now in use. The undersigned would suggest to the intelligent and thoroughly practical farmers of York, the propriety of making a special occasion for the trial of this important implement. This is all that is needed to render it generally appreciated.

In conclusion, it may be remarked that trial matches, such as that got up at your suggestion, will bear an important part in promoting good husbandry. They bring out many points which do not and cannot be made to appear at the ordinary ploughing match, by testing comparatively different implements. They deserve encouragement and attentive consideration from farmers, because, when properly managed, they must produce lasting benefits.—We have the honour to be, Sir, your obedient servants,

DAVID CHRISTIE. J. C. AIKINS.
E. W. THOMPSON. JOHN WADE.

W. McDougall, Esq., Editor *Canadian Agriculturist.*

[It is proper to state that Col. Thompson and Mr. Wade did not actually sign the above, but expressed their concurrence in separate communications, which do not essentially differ from the more formal statement of Messrs. Christie and Aikins.—ED.]

Errata.—In a communication on fencing, which appeared in the May number, over the signature "C. P. T.," two or three errors escaped notice, which the author has requested us to correct. On page 141, 8th line from bottom, for "inroads of frogs," read "inroads of hogs." In 4th line from bottom for "moss fence," read "live fence." The reader will easily detect typographical errors that do not make a different word, but the above injure the sense.

Our Correspondents.—We are pleased to find that our agricultural friends are waking up to the importance of an interchange of views in the shape of correspondence in the *Agriculturist*. We have several communications on hand which we are obliged to defer for want of space. We endeavor to give insertion *first*, to those which, from their contents, are most applicable to the operations of the month in which they appear. Those of a general character and which are equally interesting at any period, must give place. We shall at all times be happy to receive the views and opinions of our readers, on practical points especially, and resign a large share of our editorial space to their communications.

New Implements.—At the Show of the Yonge St. Ag. Soc., held at Richmond Hill, on the 22d ult., we noticed some excellent horses, and several promising colts and fillies. The implements exhibited were also of a superior description, indicating the rapid progress Canada is making in the construction of labor saving machinery for agricultural purposes. The Reaping Machine of the Messrs. Patterson & Brothers, of Richmond Hill, was awarded the first prize. It was finished and adjusted in a most superior manner. Mr. Goodfellow's Reaper was also well got up, and the frame work of a Reaper was exhibited by Mr. George Darling, which has some new features. A new Horse Rake, manufactured by Mr. Eckhart, of Unionville, Markham, was considered by some the most perfect implement of the kind, they had ever seen. His Cultivators were also very much approved. This Society appears to be in a flourishing condition.

L. G. Morris' Great Sale of Devons, Short Horns, &c.—We beg to direct the attention of our readers, especially those interested in the breeding of improved stock, to the advertisement of Col. L. G. Morris, on another page. We have seen his herd of short horns, and knowing that he has imported some of the very best blood to be had in England, and at prices that no one with ordinary means could afford to pay, we can safely aver, that no better opportunity has ever been afforded on this side of the Atlantic, to secure cattle from the best herds of England, without the risk of importation, and probably at reasonable prices. Col. Morris informs us that he intends to sell about fifteen short horn bulls and bull calves, and his entire herd of Devons, probably the best in America, *without reserve*. He intends to confine his attention hereafter to the short horns, and therefore will clear his farm of all other stock, including his South Down Sheep, and Berkshire and Essex Pigs. We thank Col. M. for his kind invitation to visit Mount Fordham. If our own farming operations permitted, we should be happy to accept the offer of a "reserved bed" at his hospitable mansion during the sale, but we fear we shall be detained at home by duties which cannot well be entrusted to others. The sale takes place on the 24th and 25th June.

Prize List.—We will present with our next number the Prize List for the coming Provincial Exhibition at Kingston.

Declined.—We respectfully decline to insert the lines "On the Death of My Sister," on the ground that they are hardly suited to our pages.

Col. Morris' Sale.—We have received an Illustrated Catalogne of the Short Horn and Devon Stock to be sold on the 24th and 25th June, at Mount Fordham, N. Y., by Col. S. G. Morris. Any of our readers who may wish to consult this Catalogue can have the opportunity by calling at the *Agriculturist* office.

Registering Cattle.—A subscriber wants to know how he may obtain Certificates of Register for Cattle. He should apply to the Board of Agriculture in this city, stating full particulars of pedigree, both on the part of Sire and Dam. A connection must be shown with the British or American Stud or Herd Books.

Pedigrees of Canadian Stock.—We have handed Mr. Walton's communication to Mr. Buckland. The Board of Agriculture have both the American and English Herd Books in their library, and we have no doubt the information desired by Mr. W. will be sent him.