Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

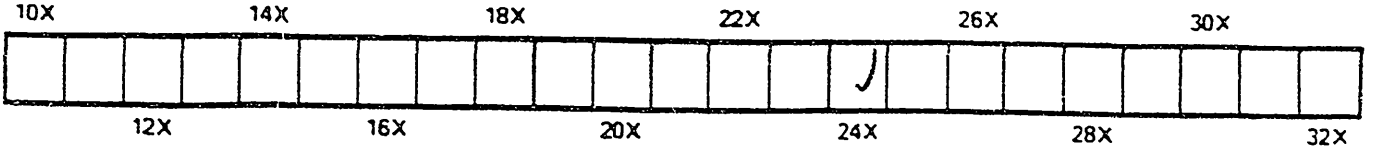
- ☐ Coloured covers/ Couverture de couleur
- ☐ Covers damaged/ Couverture endommagée
- ☐ Covers restored and/or laminated/ Couverture restaurée et/ou pelliculée
- ☐ Cover title missing/ Le titre de couverture manque
- ☐ Coloured maps/ Cartes géographiques en couleur
- ☐ Coloured ink (i.e. other than blue or black)/ Encre de couleur (i.e. autre que bleue ou noire)
- ☐ Coloured plates and/or illustrations/ Planches et/ou illustrations en couleur
- ☐ Bound with other material/ Relié avec d'autres documents
- ☐ Tight binding may cause shadows or distortion along interior margin/ La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure
- ☐ Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/ Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

- ☐ Coloured pages/ Pages de couleur
- ☐ Pages damaged/ Pages endommagées
- ☐ Pages restored and/or laminated/ Pages restaurées et/ou pelliculées
- ☑ Pages discoloured, stained or foxed/ Pages décolorées, tachetées ou piquées
- ☑ Pages detached/ Pages détachées
- ☑ Showthrough/ Transparence
- ☑ Quality of print varies/ Qualité inégale de l'impression
- ☑ Continuous pagination/ Pagination continue
- ☐ Includes index(es)/ Comprend un (des) index

  Title on header taken from:/ Le titre de l'en-tête provient:
- ☐ Title page of issue/ Page de titre de la livraison
- ☐ Caption of issue/ Titre de départ de la livraison
- ☐ Masthead/ Générique (périodiques) de la livraison

☐ Additional comments:/ Commentaires supplémentaires:

This item is filmed at the reduction ratio checked below/ Ce document est filmé au taux de réduction indiqué ci-dessous.



THE

CANADIAN AGRICULTURAL JOURNAL.

VOL. I. MONTREAL, OCTOBER 1, 1844. No. 10.

One great obstacle to the advance of improvement in the Agriculture of Canada is, that it is not considered by the best educated or most wealthy classes a respectable business to be engaged in. Consequently those who would be best qualified to introduce the latest improvements, and possess the means to work them out to the greatest advantage, are altogether unconnected with agriculture. This fact will account at once for the backward state of our Agriculture compared with that of the British Isles. Even our farmers' sons here, if educated well, generally apply themselves to some other occupation rather than farming. Where the sons of farmers have a little education—they are anxious to appear like other young men of the mercantile classes, and as they find the profits of farming are not sufficient to furnish them with the means of appearing like others, they become dissatisfied, and give up farming for other occupations that afford them more cash to spend for the present moment, though much less of permanent property to depend upon. We do not envy the feelings of those who, brought up the sons of farmers in the country, would give it up for a town life. In our estimation a farmer's life in the country, residing upon his own property, surrounded with his green fields, his crops and cattle—and sufficient capital to carry on business properly, would be a much preferable mode of life, and more respectable, than any occupation which they would be likely to find in town. Until farming becomes a fashionable occupation, as in England, neither talent nor capital will be attracted to it, nor much of either employed in it. There is one thing certain, however, that it is by the produce of the country, chiefly, that the cities must be maintained. Yes, it is the agricultural productions which must furnish the principal means of paying town rents, and taxes, as well as the revenue for the support of our civil government. The productions of our lands alone, must be the chief basis of the wealth of towns, as well as of the country, and our residents in towns will soon discover this, if they do not already understand it. The thin attendance at the Cattle Show on the 26th of September, though held in the immediate vicinity of Montreal, and on a fine day, should be sufficient to show the estimation in which our agriculture is held by other classes. If in any part of British America, fine horses, cattle, sheep, pigs, and other agricultural productions, could be expected to appear at a Cattle Show, and a numerous attendance of all classes to see them, it should be at Montreal, and the fact—we leave those who were at the last Agricultural Show to reply to. We introduce the subject only to show how little interest is felt in the advance of improvement, and the prosperous condition of our agriculture.

It is quite as necessary that attention should be given to the improvement of the country as of the city—as both must prosper together, to make the prosperity of either permanent. It is only by raising produce in this country, that we can pay for importations of whatever description,—so far as regards the agricultural class, they can have no other means paying for them, and they constitute nine-tenths of our population. Almost all the floating capital of this country is employed for the improvement of our cities, while the country is neglected. However wealthy a man may be, he builds houses with his capital rather than employ it in cultivating land, in such a manner as might be an example to others. It is by the exertions of wealthy men in England, that agriculture is so much improved, and improving there. They try experiments, and show examples to the practical farmers, whose experience enables them to adopt these plans at less expense.

OBSERVATIONS ON THE MANAGEMENT AND APPLICATION OF MANURES.

The importance of attending to the liquid matters of the manure of the farm-yard has been already incidentally mentioned, but before entering on the consideration of the portable manures, the subject will demand our special attention. This is the more necessary, as the practice of even our most enterprising farmers in the preservation and application of the liquid matters which are at certain times so abundant in the farm-yard, has hitherto been greatly defective. This department of rural economy is, perhaps, nowhere so well understood as in Flanders: there the liquid is prized still more highly than the solid portion of the manure, and it is applied at all seasons by these industrious cultivators of the soil with the best effects, their management in this respect in fact, forming one of the chief characteristics of their husbandry. With the Flemish farmer the liquid manure tank is considered to be an essential part of the arrangement of the farm yard, in

which the urine and excess of liquid in the manure heap is collected and retained until it is to be applied to the land. In British husbandry the introduction of reservoirs for the collection of liquid manure is of comparatively recent date; the practice of the British farmer has been rather to apply the liquid in conjunction with the solid portion of his manure than by itself—nor is this practice to be hastily condemned. It is only when the urine is allowed to go to waste by running out of the yards that the practice is reprehensible; there is no doubt, indeed, that considerable loss is annually sustained by our farmers from inattention in the construction of reservoirs for its preservation; and the prevention of rain-water mixing with it would be productive of great advantage.

It has been ascertained, and, in fact, may be apparent to every one by observation, that the application of fresh urine to plants is not advantageous—nay, that when applied in considerable quantities in this state it is decidedly injurious. In practice it is, therefore, allowed to ferment for a period of several weeks, according to its compositon and the state of the weather, before being applied to the growing crops, and such additions are to be made to it from time to time as will concentrate the gaseous matter, which would otherwise be evolved and escape during that period. The necessary arrangements for this purpose are tanks in communication with each other, or divided into different compartments, each containing urine in different stages of decomposition, and communication with each other in such a way that when the contents of one are taken out for application, it can be immediately filled by urine less fermented, which, in its turn, is there to remain until the necessary changes have taken place in its composition. The circumstances to be attended to in the construction of these reservoirs are, that they shall be impervious to moisture, to secure the urine from being wasted, and that they shall present a small surface to the atmosphere to guard against waste from evaporation. When proper attention is paid to the retention of the gaseous matters already referred to, by the introduction of suitable substances to enter into combination with them, and thus form compounds not volatile in their nature, the loss from evaporation cannot, however, be considerable.

The proper materials for the construction of liquid manure tanks are bricks laid in cement and well coated over with the same material; after the cement has properly set, it is impervious to moisture in the highest degree. The size will obviously be regulated by the quantities which they are required to contain, which will depend on the number of animals, and, in some degree, on the nature of their food. The most convenient form is oval or circular, the dimensions being gradually diminished towards the top, which may be covered by a flag, through which a circular opening is made for the admission of a pump to remove the contents when necessary, and the flag itself can be raised to remove any accumulations of more solid matters which may from time to time take place. The passage of the urine from the manure heap and the cattle sheds must, as already observed, be secured from the surface of the yards or from the roofs of the buildings, otherwise it may become so diluted as not to contain more than a few per cent. of the really important ingredients, in which case its effects would scarcely repay the expence of the application. The importance of this precaution becomes the more apparent when it is considered that even in its natural state urine contains from ninety to ninety-five parts of water, so that the fertilizing matters are, in any case, present only in small quantity.

The composition of urine is very various, not only in the case of different animals, but also in that of the same animals under different circumstances, as regards health or disease, or the quality of food with which they are supplied. The same circumstances affect the quantities voided by each. The following table may be regarded as exhibiting the average composition of that of man and some other animals in their healthy state, with the quantity voided by each, so far as they appear to have been ascertained, as quoted by Professor Johnston:—

	Water in 1000 parts.	Solid matter in 1000 parts.			Produced in 24 hours.
		Organic.	Inorganic.	Total.	
Man...	969	23-4	7-6	31	3 lbs.
Horse.	940	27	33	60	3
Cow...	930	50	20	70	40
Pig....	926	56	18	74	—
Sheep.	960	28	12	40	—

It is seen from the foregoing table that the urine of the cow is not only the most valuable, but is also produced in much greater quantity than any of the others: the urine of the pig, indeed, contains a few per cent. more of solid matter, but then it is produced in so small quantity as to be of comparatively little importance. Although the farmer is, generally speaking, little interested in detailed analyses, yet it will be interesting to exhibit the extremely compound character of the urine of the cow, as given by Sprengel, both in its fresh and fermented state; in the latter case being allowed to stand four weeks exposed to the open air, by which, it will appear, it is become considerably concentrated.

	Fresh.	Fermented.
Water,	926.2	954.4
Urea,	40.0	10.0
Mucus,	2.0	0.4
Hippuric and lactic acids,	6.1	7.6
Carbonic acid,	2.6	1.7
Ammonia,	2.1	4.7
Potash,	6.6	6.6
Soda,	5.5	5.5
Sulphuric acid,	4.0	3.9
Phosphoric acid,	0.7	0.3
Chlorine,	2.7	2.7
Lime,	0.6	a trace.
Magnesia,	0.4	0.1
Alumina, oxide of iron, and oxide of Manganese,	0.1	a trace.
Silica,	0.4	0.1
	1000.0	998.2

Urea is seen to constitute a large proportion of the solid matters in the urine of the cow, as in other animals, and the change produced in it by fermentation is apparent from the table. The quantity of ammonia is seen to be increased by fermentation, but not by any means in proportion to the quantity of ammonia that escapes during that process, where proper measures are not taken for its retention. Dilution to a certain extent is favourable to fermentation, and, consequently, to the production of ammonia. Under any circumstances a portion of the ammonia will escape, so that it is desirable that it should be applied as soon as possible after fermentation has taken place.

Various matters may be added to the tank, with the view of preventing the escape of the volatile ingredients. Ammonia and carbonic acid gas are freely given off by the fermentation of animal matters, whether liquid or solid; and perhaps the most convenient and efficacious substances at the command of the farmer for retaining both of these are refuse vegetable matters, rich earth, ashes, &c. Charcoal, for instance, will absorb nearly ninety times its bulk of ammoniacal gas, nearly forty times its volume of carbonic acid gas; diluted sulphuric acid, added in small quantities,

will also combine with the ammonia and prevent its escape. Gypsum is generally recommended for the purpose; that substance by its decomposition, entering into new companionship with both the ammonia and the carbonic acid gas, the resulting compounds being sulphate of ammonia and carbonate of lime. Gypsum is, however, very sparingly soluble, and it must be in solution in order that any such changes may take place, so that its efficacy in this respect is less than is usually supposed; nor is gypsum available only in very few cases, unless at very considerable cost; matters already existing on the farm are evidently to be preferred when the required purpose is attained by their use.

Before urine is applied to the land, it may be combined with various other fertilizers to increase its effects; but these should not be bulky, so as materially to add to the difficulty of applying it. The Flemings judiciously add rape cake, which, from its composition, is well suited for the purpose; that might be similarly applied in this country. All succulent vegetable matter, such as weeds from the garden and fields, may also be added to it before fermentation with the best effects.

The annual value of the urine of a cow is estimated by the Flemings at 2l., and this sum is, in fact, frequently paid in Flanders for it. A portion of the urine is, no doubt, at present conveyed to the fields in this country along with the solid manure; but it is not too much to suppose that, taking the whole of the United Kingdom into account, one half of the urine produced is allowed to go to waste. When we recollect the number of cattle contained in it is assumed at 8,000,000, without taking any of the other domestic animals into consideration, it will be seen what an immense loss is sustained by such waste. The urine of a cow annually contains little less than 10 cwt. of solid matters, equal in value, if not superior, to an equal weight of guano, which, at the present price of that article, would be worth 4l. 10s. Where the number of cattle kept on the farm amounts to 50, the salts contained in their urine are thus seen to be worth upwards of 200l. per annum—no inconsiderable sum. It is, of course, impossible to tell what proportion of this goes to waste, but, as before observed, it is probably too much to assume this at one-half.

Several methods have been adopted with a view of rendering the valuable ingredients of urine portable so that some portion of the vast quantities produced, in large towns might be saved. Thus the urate which is announced in the manure market is produced by the addition of one-seventh the weight of the urine of powdered gypsum, allowing the whole to stand for some days, when the liquid is poured off and the powder dried. This powder, it is said, contains the urea; but it is obvious that the salts in solution are entirely lost by this method of treatment. The Messrs. Turnbull of Glasgow, add diluted sulphuric acid to the urine as the ammonia is formed, after which the whole is evaporated to dryness, the resulting powder being sold as a manure, and a most efficacious one it would no doubt prove, if the process was so conducted as to retain the ammonia, the only volatile ingredient.

The application of urine is valuable to every kind of crop, especially when applied at an early stage of its growth; but it is to be observed that it is not equally advantageous when applied before the crop is put into the ground, the fertilizing matters in that case being dissipated before advantage can be taken of them. On the lighter class of soils it is of much greater value than on those of a clayey nature, being, in the latter case, subject to a greater degree of evaporation before being absorbed and rendered available. When applied to meadow and grass lands, it not only causes an increased produce, but also tends to the destruction of the mosses which are so injurious in lands long in grass.

Notwithstanding the advantages resulting from the application of urine separately from the more solid animal manures—and they are confessedly very great—yet, in some cases, it is believed an undue importance has been attached to the course of management when the urine and other liquid matters might have been advantageously applied in conjunction with the soiled manures. In cases where the supply of litter is deficient in proportion to the number of animals which can be profitably maintained, and where the urine will, of course not be all absorbed, it may, and, in fact, must be, separately collected and applied; but on all the heavier class of soils, on which root crops are not extensively cultivated, it will rarely occur that an excess of moisture will be present, especially when due precautions have been taken to guard against the admission of rain water, which has already been seen to be extremely injurious. Indeed, in such soils one of the chief difficulties hitherto has been to cause the decomposition of the excess of straw produced in proportion to the number of animals which could be maintained; grain is the chief product of such farms, and when this is the case the entire of the urine will be absorbed by the litter which is consequently so abundant.

As improvements in husbandry advance, and the cultivation of root crops becomes more general, the proportion of liquid matters in the farm yard will, however, be on the increase, and in whatever manner this may be appropriated, a liquid manure tank is essentially necessary on every farm. Composts of various kinds will always be in process of collection on every well-kept farm, consisting of the scrapings of roads, scourings of ditches, &c., to which the contents of the tank will form a valuable addition. During the preparation of the land for green crops, quantities of weeds will have been collected, which, when formed in a heap in a convenient situation, and repeatedly turned, liquid manure from the tank being added at each turning, will thus form a compost little inferior to farm-yard dung.

Having now brought this department of our subject to a conclusion, a few general remarks may not be out of place before entering on the consideration of the portable manures. The question as to what extent the latter may be substituted for farm-yard manure has of late been much agitated among the farming community, although we do not conceive it can be fairly entertained for a moment. The dung of the farm yard is of home production, and could a sufficient supply of it be obtained, no good reason would exist for the use of any of the other manures at all, and the use of them in any case must be regulated by the extent to which the home supply is deficient. The portable manures are unquestionably of vast importance, and their introduction has formed a new era in the agricultural annals of the country; but in the eagerness to render them available to the fullest extent, it is to be feared that proper attention is not in the majority of cases paid to increasing the home supply, as being of comparatively less importance than before such auxilliaries were available. Without the aid of these auxilliaries, the extent of land which can be profitably cultivated is regulated by the supply of farm-yard manure which can be produced. They, have, however, enabled the farmer to bring into cultivation lands which otherwise he could not have done, and every addition to the cultivated produce of the farm also increases the sources of fertility for the production of future crops. The progress of improvements hitherto has not tended to lower the value of the dung of the farm yard, nor can

it ever do so. The judicious use of the portable manures many indeed be made the means of largely increasing the home supply, and from this circumstance they derive much of their value.

In the vicinity of towns where a farther supply of farm-yard manure can be obtained, its value as compared with some of the portable manures, taking not only the original expense, but also the cost of transit into account, then becomes a proper subject of consideration. The expense of carriage is at all times a great drawback on the use of farm-yard manure, this item alone frequently exceeding the total outlay connected with the use of some of the other class of manures, and this circumstance will undoubtedly cause the preference to be given to them in every case in which an extraneous supply may be required.

Comparative Value of Articles used as Food. —Professor Silliman has given a translation of M. Dombasle's experiments with several articles in feeding animals. Seven lots of seven sheep each were selected, of nearly equal weight, kept in separate divisions of the stables, the weight of each lot ascertained once a week, and the experiment continued five weeks. One of the lots was fed exclusively on lucerne hay, of which each sheep was found to eat 15 pounds per week. Each of the other lots recived half the quantity of lucerne, and enough of other kinds of food named to keep them in good health, and of the same weight. The kinds of food used were, *dry lucerne, oil cake, oats and barley, raw potatoes, cooked poiatoes, beets and carrots;* of these substances, the quantity found necessary to equal the half ration of 7 1-2 pounds of lucerne, withheld from all the lots excepting the first, was as follows:—

Oil cake,.....4½	lbs.
Barley,.....3½	"
Oats,.....3	"
Raw potatoes,.....14	"
Cooked potatoes,.....13	"
Beets,.....16	"
Carrots,.....23	"

or in others words, 23 pounds of carrots were only equal to 3 1-2 pounds of oats. It may be remarked that the quantity of water drank by each lot of sheep was also accurately ascertained, and while those fed on grain and cake used during the experiment about 200 quarts of water to each lot, those fed on roots did not use 100 quarts; and those on carrots, only 36 quarts.

SEPTEMBER.

The end this month is the commencement of the season for gathering and *storing apples and pears*, and it is somewhat singular, though one of the most simple of the gardener's labours, that it is one which he too often most ignorantly practises. Of course there are many exceptions from this blame, but that the charge is just is testified by the varying and most discordant practice adopted in fruit store-rooms. This arises from a want of due consideration of the objects to be attained, and the evil to be warded off. The object to be attained is the preservation, as long as possible, of the fruit in a state firm and juicy as when first picked; and the evil to be avoided is putrefaction. Now it so happens that the means required to secure the one also effect the other. To preserve the juiciness of the fruit, nothing more is required than a low temperature and the exclusion of the atmospheric air The best practical mode of doing this, is to pack the fruit in boxes of perfectly dried pit-sand, employing boxes or bins, and taking care that no two apples or pears touch.

The sand should be thoroghly dried by fire heat, and over the uppermost layer of fruit the sand should form a covering nine inches deep.

Putrefaction requires indispensably three contingencies,—moisture, warmth, and the presence of atmospheric air, or at least of its oxygen. Now burying in sand excludes all these as much as can be practically effected. The more minutely divided into small portions animal or vegetable juices may be, so much longer are they preserved from putridity,—hence *one* of the reasons why bruised fruit decays more quickly than sound—the membranes of the pulp dividing it into little cells are ruptured, and a larger quantity of the juices are together; but this is only *one* reason, — for bruising allows the air to penetrate, and it deranges that inexplicable vital power which, whilst uninjured, acts so antiseptically on all fruits, seeds and eggs.

Bruises the most slight, therefore, are to be avoided; and instead of putting fruit in heaps to *sweat*, as it is ignorantly termed, but *to heat*, and promote decay, fruit should be placed one by one upon a floor covered with dry sand, and the day following, if the air be dry, wiped and stored away as before directed. Fruit for storing should not only be gathered during the midday hours of a dry day, but after the occurrence of several such.

Although the fruit is stored in sand, it is not best for it to be kept there up to the very time of using.

A fortnight's consumption of each sort should be kept upon beach, birch, or elm shelves, with a ledge all round to keep on them about half an inch in depth of dry sand. On this the fruit rests softly, and the vacancy should be replaced from the boxes as it occurs. If deal is employed for the shelving, it is apt to impart a flavour of turpentine to the fruit.

The store-room should have a northern aspect, be on a second floor, and have at least two windows to promote ventilation in dry days. A stove in the room, or hot water pipe with a regulating cock, is almost essential, for heat will be required occasionally in very cold and in damp weather; the windows should have stout inside shutters. Sand operates as a preservative, not only by excluding air and moisture, but by keeping the fruit cool, for it is one of the worst conductors of heat, and moreover, it keeps carbonic acid in contact with the fruit. All fruit in ripening emits carbonic acid, and this gas is one of the most powerful preventives of decay known.

The temperature of the fruit-room should never rise above 40°. nor sink below 34° of Fahrenheit's thermometer, the more regular the better. Powdered charcoal is even a better preservative for packing fruit than sand, and one box not to be opened until April ought to be packed with this most powerful antiseptic. If it were not for its soiling nature, and the trouble consequent upon its employment, I should advocate its exclusive use. I have kept apples perfectly sound in it until June.

In the flower department, I would observe that the most judicious mode of treating *exotic bulbs* that have newly arrived from Holland or elsewhere, or indeed any that have been kept in a dry state for a lengthened period, is to place them at first in damp sand until they have become plump, and show symptoms of reviving vegetation. Placing them at once in rich earth, and supplying them with water freely, is often as injurious as placing a frozen limb before the fire or in hot water, viz., putrefaction, and apparently for the same reason, disorganization is produced by the sudden application of excessive stimulants—the limb put into cold water, or even rubbed with snow, slowly recovers warmth, and is restored to a healthy state—so the dry bulb, if placed in a medium slowly imparting the stimulus of moisture and heat, is as gradually roused into healthy

activity. Of twenty-five Dahlia roots which a lady believed had been frozen when left at a waggon office, and which she unadvisedly plunged into tepid water, more than half decayed before the time for planting in the spring arrived. Twenty-five roots, which arrived in the same box, and were stored immediately in dry sand and in a cold shed, every one vegetated vigorously when planted out. In connexion with this subject, it is worthy of remark, that those who desire to have Dutch bulbs flowering before the year closes, should have procured them last month, and begun forcing them in the first week of the present.

In the forcing department, the gardener may be reminded that this is found by general experience the best month for constructing *Mushroom-beds*.

In the kitchen-garden, the cultivation of the *Water Cress* in a moist shady border, is worthy of being adopted. This is the month for planting slips of it, the only cultivation necessary being to dig the earth fine, to draw a slight trench with a hoe, to fill this with water until it becomes a mud, to cover it about an inch deep with drift sand, and then to stick in the slips about six inches apart, watering them until established. The sand keeps the plants clean. They will be ready for gathering from in a very few weeks, and the shoots should be *invariably cut* and not picked. They are not so mild flavoured as those grown in water, but then they are free from aquatic insects, &c.

SAND AS AN IMPROVER OF SOIL.

Sand, as every body knows, is an aggregation of loose, small grains. Generally it is believed that the grains consist merely of quartz or silica, but by closer examination it is found that many grains of felspar, mica, iron ore, silicates of potash, soda, and lime, oxide of iron, &c. are amongst the main mass. If therefore, sand is brought on fields, we must not believe that it merely improves them mechanically; on the contrary, we may assume that it furnishes them with sources of vegetable nutriment. Because, although the mineral substances of which it is composed are not soluble in water, still they are decomposed by the humic acid, and gradually changed into food for plants. For marshy or very humic soils, even the quartz is a manure, as it supplies them with silica, in which they are mostly deficient.

As the value of sand, as a manuring substance, consists in the quantity of those of its mineral component parts which are fit for becoming the food of plants, obviously that is to be chosen which is richest in lime, soda, potash, and magnesia silicates; this, however, can be only ascertained by chemical analysis. Sand, moreover, used as manure, ought to be very fine, as it will then present to the humic and carbonic acids which have to decompose its silicates, a greater scope for contact; a clayey soil, nevertheless, which has to be loosened and improved by sand, requires one of coarse grains. Although sand, generally speaking, is only used for the improvement of clayey or very humic soils, it may be also useful for chalky soils, as these are always deficient in that quantity of silica which is required by the grain-bearing plants.

On stiff clayey soils, which require an improved texture, a sand is to be used which contains many grains of lime, as those will loosen the soil even better than grains of quartz. On the sea-coast that sort of sand, therefore, which is thrown out by the waves, is used with much success for the improving of clayey fields, as it always contains fragments of shells, rich in carbonate of lime. It is generally first used as litter, and then carried (mixed with excrements) to the clayey fields, which, if the process is often repeated, will not only be improved physically, but also become very fertile. The course sand may be spread over a clayey field to the thickness of half an inch, at the time when it is used as pasture, as in this case it will not only be trodden in by the cattle, but will work downward into the crevices which are to be found in a dried up clayey soil—an operation which will be also assisted by the rain-water. The first subsequent plowing is done very shallow, and the first crop should be oats. After the lapse of a few years or when the field is used as a pasture, sand is again spread to the above thickness, which, in fact is repeated until the clayey soil is changed into a loamy one. The same process is resorted to if sand is used for the improving of moors, peaty and marshy soils, but here the thickness of the sand may be 1 to 1 1-2 inch. It will improve the moor, and bring the organic matters to speedier decomposition.

On fields rich in humus, where rye is grown, sand a quarter or half an inch thick may also be strewed to great advantage in winter, on the frozen soil; it will also tend to prevent the freezing of the crops during spring. As before stated, the sand may be used in the stable as litter, before applying it.

When sand is used in large quantities, its effects are lasting, unless on marshy soils it sinks so deep as to be beyond the reach of the roots; in this case it will even act no longer physically; so that the spreading of it must be repeated. Clayey and chalky soils, on the other hand, will be constantly improved by large quantities of sand, as the water cannot then carry off any of it.—*Prof. Sprengel.*

Compound Lever Power applied to Thrashing Machines.—We perceived in the outside yard of the Show ground at Southampton, a very ingenious and powerful instrument, capable of being applied to thrashing machines, or other laborious work now performed by horses, and by which two men could do the work of a full-sized thrashing machine. This invention attracted the attention and admiration of great numbers, it being of a simple construction and most efficient in its application. We have no doubt but it will be of essential benefit to the agriculturist, and will yet, in a great measure, supersede horse-power. Its speed can be regulated from 8 to 1,200 revolutions in a minute, and it can instantly be applied to any machine, apple mill, malt mill, chaff-cutter, &c., &c., it being portable and on wheels. It was represented to us as being capable of thrashing effectually from 10 to 12 bushels of wheat (or thirty stetches) within the hour. Lieutenant Vibart the inventor, has got a patent for the invention.

Hydrophobia cured by Vinegar.—At Udina, in Friule, a poor man suffering under the agonizing torture of hydrophobia, was cured with draughts of vinegar, given him by mistake, instead of another potion. A physician, at Padua, got intelligence of this event, and tried the same remedy upon a patient at the hospital, administering a pound of vinegar in the morning, another at noon, and a third at sunset, and the man was speedily and perfectly cured.

Liberty is not a paper that we see stuck up at the corner of a street. It is a living power which we feel within us and around us, the protecting genius of the domestic hearth, the guarantee of social rights.—*De la Mennais.*

Not to grow better is sure to end in growing worse.

Trust not the man who promises with an oath.

Distrust all who love you extremely upon a very slight aquaintance, and without any visible reason.

The Feeding of Cattle.—Mr. Elsworth, in his annual report to Congress, remarks that the subject of the economical feeding of cattle, deserves due attention. The following table furnishes the relative value of some of the principal articles of fodder, as determined by experiment:

100 lbs. of good hay are equal to—

275 lbs. green corn,
442 lbs. rye straw,
164 lbs. oat straw,
153 lbs. pea stalks,
201 lbs. raw potatoes,
175 lbs. boiled do.
332 lbs. mangel wurtzel,
504 lbs. turnips,
105 lbs. wheat bran,
109 lbs. rye bran,
167 lbs. wheat, pea and oat chaff,
179 lbs. rye and barley,
54 lbs. rye,
64 lbs. wheat,
59 lbs. oats,
45 lbs. peas or beans,
64 lbs. buckwheat,
57 lbs. Indian corn.

16 lbs. of hay are equal to 32 lbs. of potatoes; and 14 lbs. of boiled potatoes will allow of the diminution of 8 lbs. of hay.

An ox requires 2 per cent. of his live weight per day in hay; if he works, 2½ per cent. A milch cow, 3 per cent; a fattening ox, 5 per cent. at first, 4 per cent. when half fat, or 4½ on an average. Sheep, when grown, 3½ per cent, of their weight in hay per day.

To make Cream Cheese.—Take one quart of very rich cream, a little soured, put it in a linen cloth and tie it as close to the cream as you can.—Then hang it up to drain for two days—take it down, and carefully turn it into clean cloth, and hang it up for two or more days—then take it down and having put a piece of linen on a deep soup-plate turn your cheese upon it. Cover it over with your linen; keep turning it every day on a clean plate and clean cloth until it is ripe, which will be about ten days or a fortnight, or may be longer, as it depends on the heat of the weather. Sprinkle a little salt on the outside, when you turn them. If it is wanted to ripen quick, keep it covered with mint, or nettle leaves. The size made from a quart of cream is most convenient, but if wished larger, they can be made so.—*Albany Cultivator.*

Sore Teats in Cows.—An old receipt for this ill which the cow is heir to, is rubbing the parts affected in molasses, and we have known it to be tried in many cases with success.—*Boston Cultivator.*

England.—England stands, without dispute, the first naval and commercial power in the world. Ships and money, the two great elements of superiority in modern warfare—she commands to an almost unlimited extent. Her public credit never was higher. Her resources are stupendous. The united annual incomes of the people are estimated at from £290,000,000, to £310,000,000, little more than two years of which would pay off the whole national debt. Accumulated savings can scarcely find an outlet. In the course of about six years, 1,700 miles of railway have been completed at a cost of £54,000,000. The length of navigable canals in England exceeds 2,200 miles. The value of British produce and manufactures annually exported has risen, in the course of the last fifteen years, from about £35,000,000 to upwards of £50,000,000. In 1834 there were consumed 35,127,000 lbs. of tea, 22,779,000 lbs. tobacco, 7,000,000 gallons of wine, and 3,825,000 cwts. of sugar. In the same year there was used 39,814,000 bushels malt, and 35,190,000 gallons of British spirits. On the 1st of January, 1831, the United Kingdom owned 21,983 vessels, having a tonnage of 2,724,104; upwards of 3,000,000 tons of shipping leave port annually. Since 1820, upwards of £60,000,000 of British capital have been invested in foreign loans.

It is to her colonial system that England owes all her greatness. She has spent large sums in defending these colonies, but they have benefitted her trade to an extent which has repaid vastly more than the cost. —*Newburyport Herald.*

Chinese proverbs.—The heart the most capable of loving, is that which has never loved.—Water does not remain on the mountains, nor vengeance in a great mind.—Whoever has found the measure of his own heart, has found that of all others.—The lightest reproach weighs heavy on the heart.—We may dispense with men, but we require a friend.—Ceremonies are the smoke of friendship.—We lose more friends by our requests, than by our refusals.—*Pidding's Chinese Olio.*

Safety in a Thunder Storm.—People are often led to enquire what are the best means of safety during a thunder storm? If out of doors, we should avoid trees and elevated objects of every kind; and if the flash is instantly followed by the report, which indicates that the cloud is near, a recumbent position is considered the safest. We should avoid rivers, ponds, and all streams of water, because water is a conductor, and persons on the water in a boat, would be most likely to be struck by the lightning. If within doors, the middle of a large carpeted room will be tolerably safe. We should avoid being near the chimney, for the iron about the grate, the soot that often lines it, and the heated and rarified air it contains are tolerable conductors, and should on that account be avoided. It is never safe to sit by an open window, because a draught of moist air is a conductor—hence we should close the windows on such occasions. In bed we are comparatively safe, for the feathers and blankets are bad conductors, and we are, to a certain extent, insured in such a situation.—*Selected.*

Rural embellishments.—I have said and written a great deal to my countrymen about the cultivation of flowers, ornamental gardening, and rural embellishments; and I would read them a homily on the subject every day of every remaining year of my life, if it would induce them to make this matter one of particular attention and care. When a man asks me what is the use of shrubs and flowers, my first impulse always is to look under his hat and see the length of his ears. Heartily do I pity the man who can see no good in life but in pecuniary gain, or in the mere animal indulgences of eating and drinking.—*Colman's European Agriculture.*

To prevent Horses being teased by Flies.—Take two or three small handfulls of walnut leaves, upon which pour two or three quarts of cold water; let it infuse one night, and pour the whole, next morning, into a kettle, and boil for a quarter of an hour; when cold it is fit for use. Moisten a sponge with it and before the horse goes out of the stable, let those parts which are most irritable be smeared over with the liquor. Every "merciful man" who uses a horse during the hot months should promote his comfort by this simple remedy.

ANSWERS TO AGRICULTURAL QUERIES.

LUCERNE.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—In reply to "a Corn Miller," as to the best plan of producing good lucerne, I would recommend the following —Select a dry piece of land, either rather light or good mixed soil, but not stony, strong, or clayey, certainly not the least inclined to be wet or springy, with either a sand or chalk subsoil—the latter is preferable; let it be made perfectly clean, especially from couch-grass, and deeply ploughed, but if on a small scale, I would say by all means have it dug by spade, or, which is far preferable, with a four pronged carrot fork (prongs 16 inches long and a little flattened), digging in plenty of good rotten farm-yard manure. When the ground is ready for the seed, open drills with a hoe 17 or 18 inches apart, and not more than 1¼ or 2 inches deep; then put the seed in a glass wine-bottle with one or two quills stuck in with the cork (which is cut on the sides to admit the quills); this will deposit the seed more regularly than by hand into the drills, which are then raked over; about 24lbs. of seed per acre is sufficient, which can be procured of Messrs. Gibbs of London, or of any respectable seed merchant, at 11d. or 1s. per lb. I consider May the best time for sowing, but if the ground is not too dry for the seed to vegetate, any time before the middle of August will do; but if the land is not perfectly clean, let the sowing be put off till the spring, and without a crop of corn. It is fit to cut for a first crop of hay generally from the 20th to the 28th of May, the second year after sowing (this year it was a fortnight earlier), and for a second crop when it comes into blossom; it takes a longer time making into hay than grass, as it is better only turned, not shaken out, otherwise much leaf is lost. The crop must be well manured every January, February, or beginning of March, and the ground between the drills kept perfectly free from weeds by hoeing in dry weather, and picking the grass out of the drills where the hoe would cut off many of the plants. The grand secret in growing lucerne, I am persuaded, is in keeping it clean, and when kept so, no green crop can bear any comparison in value; it is very far superior to tares. I have now a third crop fit to cut, 26 inches high, on the same ground I cut for hay only five weeks since. No lime must be used for manure. I am inclined to think guano mixed with farm-yard manure would answer well. If the quantity to be laid down be more than one acre, the plough and drill must be used, in which case it should be put in not more than 2 inches deep.

I am, sir, yours most respectfully,

July 16. WEST NORFOLK.

CHEAP BREAD AND THE HOME TRADE.—Rent could only withstand foreign competition by screwing down wages and profits. But whether the loss of income is sustained by the landlords or the labourers, the home trade—that great interest which, of all others, ought to be protected, as it constitutes in itself the "wealth of nations"—would be a serious sufferer if the forty millions now paid to the landlords were no longer so paid; the amount of trade lost (following the minute qualifications with which trade runs) cannot be estimated at less than one hundred and twenty millions. In fact the expenditure of that forty millions creates incomes arising out of trade to the extent of at least one hundred and twenty millions, which must of course be swept away with rent. Trade consists in producing on the one hand, and consuming on the other. Here, then, would be one hundred and twenty millions of the power of consuming lost. An equal quantity of producing would have to be given up. Rent is the foundation of at least one-third of the trade of the country.—*Baring Kemp on the Science of Trade.*

PROVISIONING THE NAVY.—Some idea may be formed of the vast expense of provisioning the navy, from the annexed statement of the stores taken by the Albion, 90 guns, when proceeding on her voyage to Gibraltar:—3,385 gallons of rum, 1,000 lbs. tea, 8,008 lbs. sugar, 4998 lbs. chocolate, 1,900 lbss. peas, 4,800 lbs. pork, 2,290 lbs. beef, 10,080 lbs. flour, 900 bags of bread, 89 gallons vinegar, and 619 lbs. soap. The quantity of live stock and fresh provisions, poultry, &c., was large in proportion.—*Cork Examiner.*

ADVANTAGE OF A MILD TEMPER.—Dr. Caldwell, an American writer on physical education, contends that a well balanced brain contributes to long life, whilst a passionate and turbulent one tends much to abridge it; and if persons knew how many dangers in life they escape by possessing mildness of temper, instead of the opposite disposition, how eager would be the aim of all men to cultivate it!

MAXIMS OF BISHOP MIDDLETON.—Persevere against discouragements. Keep your temper. Employ leisure in study, and always have some work in hand. Be punctual and methodical in business, and never procrastinate. Never be in a hurry. Preserve self possession, and do not be talked out of a conviction. Rise early, and be an economist of time. Maintain dignity without the appearance of pride; *manner is* something with every body, and everything with some. Be guarded in discourse, attentive, and slow to speak. Never acquiesce in immoral or pernicious opinions. Be not forward to assign reasons to those who have no right to ask. Think nothing in conduct unimportant and indifferent. Rather set than follow examples. Practice strict temperance; and, in all your transactions, *remember the final account.*

NEW AGRICULTURAL IMPLEMENT.—We have great pleasure in announcing that Mr. Gregory Brayne, of Shrewsbury, has completed, for exhibition at the grand agricultural shows for 1845, a machine by which woodlands can be cleared with as much facility as a mower can cut down hay with a scythe. The machine is drawn by four horses, the wheels acting upon six large and sharp axes, which strike, and at one blow fell the largest trees with perfect ease. The *only* obstacle as yet in the way is, the inventor cannot avoid the possibility of some trees falling on the driver and horses, whereby a serious loss of life might be incurred.—*Shropshire Conservative.*

CHINESE GARDENS.—The Chinese gardens are of a peculiar character, and differ altogether from ours in their arrangements: while the care bestowed on them by their possessors exceeds anything of which we could have formed an idea. To each branch, often even to each leaf of a tree or a shrub, the utmost pains are taken to give the appropriate turn; and the gardeners may be seen sitting constantly beside the plants, and employed in binding and pruning them, in order to accomplish the desired form. The production of the greatest variety and contrast of colours is the chief object of the Chinese flower-gardeners. Strangers to refinement and the tender emotions, the Chinese have no taste for the pure and tranquil enjoyment which the perfumes of sweet-scented flowers yield. It is only in gaudy colours, and by a marvellous skill in developing singular growths, that the Chinese gardener excels. Long and straight alleys run directly through their gardens, and are bordered by low trees of one and the

same species. Citrons and shaddocks are cultivated assiduously, not only for the adornment of the gardens, but also for the sake of the well-known Chinese preserved citron. For this purpose they use chiefly the smaller fruits, three or four inches long, which are boiled in refined sugar. The larger fruits of monstrous shape are of the shaddock kind, are often from ten to eleven inches long, while the several segments extend singly in all directions. In the gardens these odd-shaped fruits, as well as the sweet oranges, with which whole plots are planted, have a neat appearance, as they do not allow any trunk to form, but force them at once to spread into branches. Large borders are to be seen planted with camellia japonica, and others with coxcombs, some with white, others with yellow or red flowers.—*Captain Pidding's Olio and Tea Table Talk.*

The Canadian Agricultural Journal.

MONTREAL, OCTOBER 1, 1844.

Wheat has been of very general cultivation on almost all descriptions of soils in Canada, but the best suited to it are those which are more or less clayey. So particularly is wheat suited to these soils, that those soils are in England, familiarly termed wheat-soils. The soils of the lighter classes, are better suited to other species of grain, and it is an error in practice to force the production of wheat on soils better for other grain. In England, there is a general rule applicable to all cases in which wheat is sown—that the land shall be in the best condition that circumstances allow, with respect to tillage, cleanness, and fertility. Wheat being the most valuable of grains, so it requires greater care than the others to produce it. It is considered an error in farming to sow with a grain-crop any land which is out of order, or greatly exhausted; but this error is greater and more hurtful in the case of wheat than of the other grains. In Canada, it is a great error, and most hurtful to agriculturists, the neglect of this careful preparation of the soil for wheat—and also sowing other grain in soil that is not in condition to grow it in any perfection. There is the expense of a defective tillage, the loss of the land—the seed—the harvesting,—and no return of crop that will pay for all this in consequence of the unfit state of the soil to produce a good crop. If this country was not very favourable for wheat growing, we could seldom expect to see any thing like a good crop of wheat from the mode of cultivation in general practice. The summer-fallowing of our strong lands would be the proper mode of cultivating for wheat, whether sown in the fall or the spring. Where there are summer-fallows preparing now for wheat or barley the next spring, or any other soil ploughed now for spring sowing, it should be carefully water-furrowed, so that all wet may be perfectly drained from it immediately after the snow disappears. This is most essential in all cases, for without it, no good crops need be expected. After the land receives the last fall ploughing the common plough with one horse, should pass once along each open-furrow, and then along the open-furrows of the head-lands, and draw open-furrows in such hollows of the field as water might remain and stagnate in. A person should then follow with a spade, to clear out the open-furrow of the head-lands to the necessary depth; to make channels through the head-lands to the ditch, when necessary, to clear out the cross furrows in the hollows, so as to allow the water to run: and to open the intersections of the open furrows of the ridges with those cross furrows, and the furrows of the head-lands.

The leading drains must of course be put into good order to receive and carry away all the water from the land-furrows, or no good can be effected by all this labour. More attention is required in draining than in any other part of farming operations.

The following selections on winter-fallows, are from a late number of the Mark-lane-Express, and they are deserving of the attention of farmers. This mode of ploughing land in the fall that was intended for potatoes in the spring, for summer-fallow—or in any case where it was proposed to plough it again in spring previous to sowing, we would strongly recommend, particularly in strong clayey soil. The land will be kept in a much dryer state, and be more exposed to the beneficial influence of the frost and snow. The ploughing is done in much less time, and answers all the required purposes. If the farmer thinks it necessary, all the soil might be turned, and still have the land in drills.

EXPERIMENT ON WINTER FALLOW AND SUBSOIL PLOUGHING MADE AT POLONAISE LAST WINTER.

This experiment was tried upon four fields, in all about forty acres, consisting of drilled bean stubble, and oat stubble. The method adopted was the following:—Immediately after harvest, the fields were ploughed across, in drills, by furrows from nine to ten inches deep, laid together, and the subsoil plough passed once between the drills seven or eight inches deep, the horses in the subsoil plough being yoked one before the other, to avoid treading on the ground subsoiled. During the dry winter weather the drills were reversed, and the subsoil ploughing between the drills was repeated as far as the season would allow it to be overtaken. By this plan of working, the ground was kept comparatively much drier, and a much larger surface exposed to the action of the atmosphere, than is attained by the common method of winter ploughing, and the beneficial effects were evident even during the winter, from the ridges appearing dry and white, before the ground ploughed in the common way. Besides, the constant scouring by the winter rains, so detrimental to clay and tilly ground, was in a great measure avoided, and the spring work rendered comparatively light and easy. At seed time, the ridges were ploughed up and down in the usual way with a light furrow, which was

also the seed furrow, of course across the drills, but the drills were never harrowed down nor interfered with, the action of the plough carrying forward enough of earth to fill up the hollows in the drills, and no more was ploughed in a day than could be sown and harrowed. In this way the rest of the field was left in the drills, and therefore less likely to be injured by the heavy rains of last spring. Part of the ground was sown broadcast, and part drilled by a single horse plough, with a drill harrow placed between the stilts of the plough, the single horse plough crossing the drills as in the broadcast, without being harrowed down. By this method the ground was rendered so fine, from not being so deeply ploughed, that the grass seeds required only to be bush harrowed, and in this way the spring labour was rendered very light indeed. Notwithstanding the heavy rains of last spring, the barley sowing was made very easy by this method of winter fallowing, and the same advantages were obtained in the turnip ground which had been similarly treated. The crop of barley produced on the ground prepared as above, was a third more in bulk than that after turnip ground treated in the usual way—the one being thirty-five threaves, and the other forty-eight threaves per acre. The drilled barley and the broadcast were nearly the same—if anything the drilled being more productive.

In the turnip the following mode was adopted:—The winter drills were once ploughed across, and after being harrowed and rolled, the ground was immediately drilled up for receiving the dung; the rest of the field remaining in the winter drills, and thereby not suffering from the severe rains of last spring. A specimen of the turnip may be seen in Messrs. Drummond's Museum.

It may be useful to mention, than by taking the mould board off a common plough, it can be used as a subsoil plough.

WINTER FALLOW.—EXTRACT OF A LETTER, DATED FEBRUARY, 1844, FROM PROFESSOR JOHNSTON, TO WILLIAM MURRAY, ESQ., OF POLONAISE:—

"I will state briefly the several ways in which laying the land up in drills, and subsoiling, as you have done, is likely to be beneficial:—1. The drilling up the land dries it more thoroughly, by allowing the winds to act upon it, and thus causing a larger amount of evaporation. It will, in fact, almost double the surface, and in an equal degree allow the escape of watery vapour, by evaporation into the air. 2. The mode of subsoiling between the drills, and allowing it to stand thus some time before the drills are slipt up, makes the action of the subsoil plough more effectual. The land does not so easily run together again, when not covered up immediately, as in the ordinary method of subsoiling. The air also penetrates more completely into the fissures caused by the plough, and more effectually mellows and changes the subsoil, so as to render it innoxious to the roots of the plants. 3. The same good effect is produced upon the upper soil which is left in drills—the surface exposed to the air being nearly doubled; the mellowing effect of the winter's frost, and the other salutary influences of the air, which I need not specify, are experienced by it in double measure. The same influences are prolonged, also, by the system of leaving the drills untouched, when the land is ploughed across in sowing the seed, the air being admitted everywhere into the loosened soil while the plant is growing. 4. This mode of laying up in the drills will no doubt, as you say, if any frost come in winter at all, aid in the destruction of insects of various kinds. 5. These benefits would follow from the use of this method, on soil not difficult to drain, or which was already pretty well drained; but they will be greatly more observable when the land is imperfectly drained, or where the drains have not yet had time to act; or on stiff soils in which the water is inclined to linger long, even when drains are put in at the proper depths and in sufficient numbers; especially in wet winters and springs, when heavy clay or tilly lands lie wet for a length of time, will the advantages of this method become more distinctly perceptible. Whatever process, indeed, draws the water from a large portion of the soil to a greater depth, or lower level, will, in an equal degree, render the subsoil wholesome and capable of sustaining and feeding the roots of plants on any soil."

We copy the following extract of a letter on the Agriculture of Canada, written by an American tourist, which we consider perfectly correct. We have repeatedly suggested the adoption of the measure, which, this writer says, is necessary to forward the improvement, and secure the prosperity of Canadian Agriculture, but all our efforts have been hitherto unavailing, for this simple reason, that those men who have had the principal management of our affairs in their hands, for many years past, of whatever party, took no interest in Agricultural prosperity, because they could not see any direct profit to themselves in taking any trouble about the matter. This letter says our Agricultural publications must be better conducted, and better supported. Certainly they might be better conducted, if better supported; but in our own case, we cannot have much confidence to write or expend time and money, in collecting useful information for our Journal, when we know we shall be at the loss of two or three hundred pounds for this year by the publication. We have incurred the expense of translating our Journal into the French language also, and, notwithstanding all this, we have to complain of being very inadequately supported by subscribers. We have offered our columns to all who thought they could give useful information to farmers, and surely it would not be too much to expect that any farmer who could give useful information would do so. To withhold such information, is, to say the least of it, most ungenerous; indeed we would be inclined to say, it is unjust, because our best informed practical farmers have derived most of their skill from the experiments and publications of others. It is not by na-

tural instinct that men will become good farmers, but by seeing, reading, and other accidental advantages, that give them better opportunities to become good farmers, than those who happen to be less fortunate. If agricultural publications have produced so much good in other countries, why should they not do so here, if properly supported? If those who consider themselves at the head of their profession as farmers, were to aid an Agricultural Journal, and come forward and suggest what they had proved to be useful, how much more confident we would feel in our humble efforts. This would encourage the publisher of a Journal and would be for the public advantage. Envy and selfishness influence every thing in Canada, and until the principle of true patriotism is more generally felt, and properly understood, we may look in vain for any great advance in the general and permanent improvement of Canadian Agriculture, or the prosperity of the Agricultural class.

AGRICULTURE IN CANADA.

From the New Genesee Farmer for September:

We spent a week in Canada the past month, mostly in Toronto and its vicinity. We have had occasion to make a tour through a good portion of Canada West, annually for 7 or 8 years past, and have watched the progress of improvement, or rather *the want of progress*, with considerable interest. With the large number of intelligent English and Scotch agriculturists in the province, and the noble example of England, Scotland and the United States before them, together with the liberal bounty from the government to the Agricultural Societies, we are surprised that so little general improvement is manifested among the farmers; and if they will excuse our freedom, we will mention one or two things which in our opinion will have to be done before much progress will be made.

In the first place there should be a Central Provincial Agricultural Society, to which all the others should be auxiliary, and through which a system of correspondence and the publication and circulation of reports and essays might be carried on, so that the district and county societies throughout the province would become acquainted with each other's operations, and the improvements and discoveries made known to all. This would soon bring out and unite the whole strength and talent of the province, and the cause would at once go forward.

In the next place, more thorough and successful efforts must be made to circulate intelligence by means of *spirited* and *interesting* agricultural papers; and for this purpose their papers must be better conducted as well as better patronized. The writers must dwell, or travel much among the readers, and adapt their remarks to their condition and practice, instead of copying from foreign essays and publications, as is too often the practice.

AGRICULTURAL REPORT FOR SEPTEMBER.

At the date of our last Report, the 31st August, we were not fully aware of the state of the wheat crop, but we have since learned that it has sustained considerable injury by rust, and sprouting; but still a large quantity of good wheat has been secured. The latter damage has been done before and after it was cut down, in consequence of the very wet weather. It was not the quantity of rain that would have produced injury, but its constancy, keeping the crops moist continually. We have, however, the consolation to know that there is a variety of wheat which though sown late, will not be much injured by rust, and there is now sufficient of this wheat in the country to give seed to the whole of Eastern Canada. We would again strongly urge those who have this wheat to keep it all for seed. Some farmers may not find it convenient to hold their wheat over to the spring, but surely there are merchants in Montreal and Quebec, who have public spirit to buy up this wheat, and keep it for sale again in spring for seed. This matter is of more consequence than is generally imagined. It is of vast importance whether this country shall grow wheat or not—whether the farmer shall be able to raise a good crop of wheat for his land, and labour—or whether he shall see labour, seed, and land lost, by the ravages of the wheat fly, or by the most destructive disease of rust. The barley was all housed at the date of our last report. Oats have suffered some by rust, particularly those sown too late—the early sown are very good. Peas have been injured before and after they were cut, from the constant moisture, just at the period of their coming to maturity, and being harvested. We hope the damage is not great, though we fear it is considerable. Peas should pay both farmer, and merchant, to export, as they always bring a fair price in England. Indian-corn improved much during the month of August, and the beginning of September, but whether it will have come to a perfect state of ripeness we are unable to report. The potatoe crop has sustained a very great damage by a new disease very like the dry rot in the seed. This disease appears to affect the crop in the soil exactly in the same way as the dry rot did potatoes in the root-house, or the seed after the planting. It is equally prevalent in all descriptions of soils, though not in all varieties of potatoes, the common white and red varieties being the most damaged. We cannot satisfactorily account for this disease, except from the crop being generally luxuriant, and the continual moisture and heat, throughout the month of August. These causes might have produced a softness, and tendency to decay in the crop. From whatever cause, there can be no doubt that a large proportion of the potatoe crop is lost in the District of Montreal, and that this loss will be severely felt both by the farmers and their customers. We believe that it is highly necessary to procure new varieties of potatoes, that would not be so subject to disease either in the root-house or in the field. We would further suggest the propriety of not applying too large a quantity of fresh manure in the drills for potatoes. In such a year as this we conceive it could not fail to be injurious, producing too luxuriant a growth, and too great a degree of heat to the new potatoes in their soft state. To plough in the manure in the fall in land intended for potatoes, we are sure

would be a good mode—the manure would be more equally divided in the soil, and be every way better. It might not produce so large a bulk of crop or tops, but we are persuaded the produce would be more healthy and of better quality. It is the opinion of some of the first Agriculturists that when the produce of an acre of potatoes exceeds two hundred bushels the most of the remaining bulk is nothing else than air and water. There can be no doubt that a crop of two hundred bushels to the acre will be the best for the food of man. This circumstance is not sufficiently regarded, and farmers are more anxious to have a large crop of potatoes than to have them good for the table. Manure frequently applied in moderate quantities will be more beneficial in a given number of years than the same, or a greater quantity, applied at once —and every crop of every species produced from it would be more healthy, and of better quality. The month of September from the 3d to the end was as fine as could be desired, and afforded ample opportunity to cut and secure all the late sown wheat—the oats, buck-wheat, and some of the hay not previously housed. The hay crop this year, though an average, has been greatly injured in curing—and the sample consequently is generally bad, and deteriorated in quality. The market price is low, but we believe good hay will sell much higher during the latter part of the winter and spring. The straw has been considerably injured by rust, and wet after cutting, so as to render it not the best food for cattle—this will increase the consumption of hay, and the market demand for it. The loss of so great a portion of the potatoe crop will also have some influence on the consumption and price of hay. The pastures are good, as they got no check by extraordinary drought during the past summer. We are sorry to perceive that the very low price of salted beef in the Montreal market, does not give much encouragement to the farmer to fatten cattle to make good beef for exportation; we are, however, of opinion that the low price must be the consequence of the beef being of very inferior quality. If the beef were of good quality it must sell for a fair price for exportation, as the prices in England would give sufficient encouragement to the merchant here to export beef of good quality. Of good quality our beef must be, if we expect to make it a profitable business for the farmer or merchant to export it. With good cattle of moderate size, and good pastures, both of which it is in our power to have, we may be certain to have good beef—careful attention to these matters is all that is required—as we have all the materials at our disposal. We regret to say that there is not a country on earth, we believe, whose natural advantages are more neglected that in Canada; the inhabitants do not derive one half the benefit from these advantages which they might enjoy. It should not be fatal to the prosperity of the country that our wheat is liable to be destroyed by the wheat fly, because we have a remedy, by sowing varieties of wheat that can resist the ravages of the fly, or be sown at such a periods as to escape the fly. We now find that, by careful management, wheat may be grown successfully in Canada.

A new affliction has befallen us in the partial rotting of the potatoe crop. We feel satisfied that it is only a temporary or accidental occurrence, that may be remedied another year by care and skill. We want new varieties of potatoes, and they should be imported before the next spring if possible, as we very much fear seed cannot be depended upon that is taken from the diseased crop, but of this we cannot speak positively at present. In reference to the rot in the potatoe crop, we would observe that we have carefully examined the stalks or vines, and tubers that were rotting, and we found worms, or a sort of caterpillar in the stalk close to where the stalk is attached to the tubers or potatoes, and we also found worms of the same description in the diseased part of the potatoes, and minute bugs, that appeared to have burrowed into them. We cannot say, however, these vermin are the cause of the rot in the potatoe crop, or produced by the rot. The very sudden decay of the stalks or vines, without frost, indicated some extraordinary cause, and it is quite possible that the moist warm weather might have produced these vermin that caused the decay of the stalk, and rot of the potatoe; but it is equally possible that the vermin might be produced by the decay of the stalk, and rot of the tubers. We did not examine them sufficently early after we perceived the decay and rot, to be able to form a very correct opinion on the subject now.

We have seen by our exchange papers, that the disease in potatoes is found to exist in the United States, to as a great an extent as with us, and was known there last season. We think it was much the best plan to allow the potatoes to remain in the ground until this time. Those that are affected by the disease will now be quite rotten, and may be separated from those that are sound, and the sound ones will have kept much better in the clay up to this time, than in the root-house. Some measures should be taken this fall to provide seed for spring. This might be imported in sufficient time, and should be ordered of the most approved varieties.

Côte St. Paul, Sept. 30th 1844.

We have often suggested the expediency of a City regulation to enforce the closing of the Hay Market, at the hour of two or three o'clock in the afternoon, and that all hay unsold at that hour should be put in a yard under cover provided for the purpose, until next day. This would be a great benefit to the farmer, and prevent much waste of time, and injury to men and horses. We cannot see any good reason why this regulation should not have been adopted long before this. It cannot serve any interest to waste time and injure horses, as is the consequence of the present system. The buyers and sellers of hay might as well conclude their bargains before two o'clock, as after

that hour. A man who does not sell his hay until nearly night, as frequently happens, may have from ten to thirty miles to go home, and this is an inconvenience that is often severely felt—indeed it is an inconvenience that is very injurious to farmers who are within a very few miles of the market. In London it is customary in some of the markets for the farmer to give his hay to a salesman to dispose of for him. The farmer has the cart or waggon so constructed that it will carry dung as well as hay, and when he takes a load of hay to market, he leaves it in charge of the salesman, under cover of a shed or tarpaulin, takes away his horses, puts them to an empty cart or waggon, which he has in town from the previous day, and takes home a load of manure. Hence no time is lost, and all is done in a business-like manner. The next market day he returns with a load of hay, leaves it in charge of the salesman, and takes the empty vehicle as before. The hay from being covered, receives no injury while in the market, or coming to it. The load is generally 36 trusses, weighing 56 lbs. each, or eighteen cwt. The same regulations might be established here—allowing, however, farmers to dispose of their hay if they wished to do so, but also allowing a salesman to act for any person giving him hay to dispose of, as in the London market. The salesman should of course have a horse or horses to take the hay to the purchasers. We think these regulations would serve both buyer and seller, and be a much more creditable way of doing business. Horses sent to market under the existing system, are so much abused from being kept out late, after standing all day in market, that they soon become of very little value, particularly if in the charge of hired men. If the market closed at a certain time, the men would have no excuse for remaining out too long. We recommend this subject to the city authorities, and we think the farmers are entitled to have their interests cared for, and such regulations made as would be fair and expedient for all parties.

It would be much for the farmers' credit and advantage that other produce as well as hay, should be disposed of by salesman, or that there should be houses opened in town for receiving produce in bulk from the farmer, and disposing of it at a reasonable commission or profit to the person who would sell. This would be much the best mode for disposing of vegetables, dairy, and some other produce, leaving it always in the power of the farmer who desired it, to sell his own produce. The valuable time that is wasted, of men and horses, at our markets, is a more serious evil than persons imagine. If we were to calculate the number of men and horses that stand in our markets during the week, it would be equal to a large proportion of the whole amount sold. Under better regulations all this waste might be avoided. Farmers' time ought to be of as much value as that of other classes. We believe it frequently happens that a farmer, and his horse, may lose a whole day, and more, in disposing of a few shillings' worth—and this man may, perhaps, have farm, stock, &c. worth several hundred pounds. Our whole system is defective, and requires great improvements in every part of it. We can only state the fact, however, not having it in our power to do more. The inhabitants of cities may gain some advantage by the existing system of peddling sales, but we are sure the country generally loses a great deal by it. It is lamentable that the best educated men will not give the benefit of their knowledge in this respect to advance the prosperity of the community to which they belong—and particularly when this might be done without injury to themselves. We know that the profits of Agriculture are wasted to a great extent in consequence of the causes we have stated in this article; certainly some of this waste to the farmers is the gain of other parties, though a loss to the country generally.

We think it rather strange that our laws or regulations in Canada, should allow the free importation of foreign produce for the supply of Her Majesty's troops here, while the other classes are not allowed the same privilege. The greatest evil of this system is, that it gives great latitude for smuggling, on pretence of supplying the troops—and this is an evil of great magnitude. It is in our judgment inconsistent that the government should be the only free traders, when the troops are paid from the general revenue of the Empire, to which we Canadians are contributing in proportion to our means. We contribute to the revenue so far as we purchase and pay for British goods that come to us charged with all the cost of production, including British revenue.

We have seen some most useful agricultural implements at Mr. Hearle's, Notre-Dame Street, near the Recollect Church, on the opposite side, sent out to him by the manufacturer, Mr. Hall, of Cambridge, England. They are of various sizes, well adapted for taking up small bushes with the roots, thistles, and other large weeds. They are termed the crab, or brush and weed extractor, and are very suitable for the purpose. We would recommend farmers to call on Mr. Hearle, and judge for themselves—as it will be better than any description we could give. They are sold at a moderate price, according to size. We wish that many more of the English implements of agriculture were imported here, particularly such as would be most useful for this country.

Guano is said not to produce much benefit to crops in a very dry season, but diluted with eight portions of water, and thus applied to the crops, it will produce surprising effects in either field or garden. It is probable that next year 300,000 tons of shipping will be employed by the British Isles in importing this manure alone. Importing it in such vast quantities must soon exhaust

the supply, unless it exists in greater quantities than we can well imagine it possible. The efforts that are being made in the British Isles to improve Agriculture are highly creditable to them, as the first Empire on earth, in real power, wealth, arts, and sciences, and in the production of all that can give comforts, and conveniences to mankind. We should be proud to be connected with such a country, and follow their example, and endeavour to make our agriculture like theirs, so far as it is possible for us to do so.

At a late meeting of the English Farmers' Club, a discussion took place as to the state of ripeness at which grain crops should be cut, and it was the general opinion that when the straw is white one foot from the ground, it is in a sufficient state of ripeness to cut.

It is said that the effects produced on the crop grown from seed that is, previous to sowing, steeped in Mr. Campbell's chemical steep, are very surprising. One acre of seed thus prepared was sown beside a similar breadth of unsteeped seed, and every plant was taller by three inches, the ears were longer, the herbage of a more intense green—and a marked difference and superiority might be discovered at a considerable distance from the field.

The following speech was delivered at a late agricultural meeting in England, and it will give some idea of the loss we sustain in this country in not saving and applying liquid manure to our crops both of grass and grain.

"Mr. Crompton said he had not been fully aware until the previous Sunday, when an intimation to that effect was made to him by Mr. Watson, that he was engaged to give any information on the subject of liquid manure. He thought if the subject was to be discussed at another meeting he might give some practical information which would be useful. He had, within the last ten years, made four tanks—three on his own estate, and the fourth he had superintended upon that of his brother. The first he made was a small one, and he would impress upon all making any hereafter to have them constructed large enough, and adequate to the quantity of manure made on their farms in a year. The first he made contained forty cubic yards of liquid, but he had enlarged it to 150; it was filled three times a year by the produce of his farm. He was satisfied from his experience that this was a very simple and saving mode of management, and thirty cubic yards of the liquid manure applied to one acre of land would cause it to produce as heavy a crop as any other manure which could be placed upon it. (*Hear, hear.*) He (Mr. Crompton) had first been led to make an experiment of the sort from seeing published in the Transactions of this Society an account of the experiments which had been made by the Noble Chairman with farm-yard manure and nitrate of soda. The Noble Lord had tried these on a plot of land of certain extent, and he (Mr. Crompton) had tried the liquid manure on a piece of land of the same extent; but the produce he derived from it was nearly double what his lordship had derived by applying the common manure. The expense to which his lordship had gone was, he understood, 35s.; but the expense to which he (Mr. Crompton) had been put was merely the services of a horse and cart for almost a whole day. With the manure which flowed into the tank on his farm he could manure twelve acres, and this land produced heavy crops of grass, which he had mowed three times, and then there was an abundance which he also mowed late in the season, and gave to his horses. (*Hear, hear.*) This he had found to be the case upon land which had not been pastured for nine years, but had always been mown. It had been urged against these tanks that they were unsightly and unhealthy, but in the course of his observations he had noticed nothing objectionable to them in that way; and though in hot weather if a person looked over the tank he would perceive an unpleasant vapour, yet if he stood a yard or two away from it he would no longer find the same sensation; showing that the effluvia rose straight from the tank into the air, and on no occasion, when his workmen had been engaged in pumping this manure, had he been aware that any of them had suffered from the injurious effects which arose from the properties of the liquid in the tank. He argued, therefore, that there was nothing affecting vitality in the deposits of these tanks. (*Hear, hear.*) He had tried the liquid manure two years on seeds. He had a tank in the middle of summer so full that he did not know where to put it. He, however, distributed it on grass in full meadow. The effect on the seeds was astonishing. In three weeks they were up perpendicular from the other seeds; it continued so to grow, and could not be kept down; next year the grass was very strong also, and this was on clayey land; so that the effect on a light soil would no doubt be more successful. (*Hear, hear.*) Mr. Crompton concluded by some suggestions as the improved mode of constructing the manure pump."

There is very little doubt that nearly one-half the manure we might have for Agricultural purposes is allowed to waste, and not directly applied to the crops.

This is the time for all farmers who have any manure to apply as top-dressing for meadows to do so, in order that the fall rains may wash it into the soil and about the roots of the grass. It is a great means of preserving meadows from the injurious effects of severe frosts, when not covered with snow. We believe that top dressing meadow or grass lands, is a very good mode of applying manure, particularly compost manure. It has been lately proved in England that spreading straw on meadows produces a good effect on the growth of grass. We recommend this season of the year as most suitable for carting manure on the land, because it being in a dry firm state, the cart-wheels will not be so likely to cut up the surface. Were it not for this cause perhaps the manure might be as profitably applied in the spring. In that season, however, all is hurry, and the land is very soft, and difficult to cart upon. A very slight dressing of compost manure put on now will produce a great improvement in the crop of grass next year, whether in pasture or meadow. We would wish to see this practice more generally introduced by farmers.

Several excellent letters on the management and application of manures, have appeared in the Mark

Lane Express, and from one of these in the last number of that journal, we copy a part:—

Guano has not been a sufficient length of time in use as a manure to enable any correct decision to be arrived at regarding the precise quantity which should be employed. Even with those who have had the greatest experience of its effects, very different quantities are recommended. The precise quantity should, of course, be regulated by the particular crop to be raised, as well as by the state of the soil; but, although the researches of scientific men have done much in the investigation of these circumstances, a wide field still remains for those of future aspirants, and much is still to be learned. Two cwt. are considered by many as a sufficient quantity to the acre, while others employ so much as five cwt. Perhaps the medium between these quantities is that which should be most appropriately applied. Wood-ashes, rich earth, or some other material, is combined with the guano before being applied, the quantity of such mixture being usually equal to that of the guano itself. When experiments are made with a view of testing the value of this substance as a manure, the results cannot be expected to be of much particular value, unless the precaution be adopted of not mixing a substance with it, before application, which is of itself a fertilizer. Thus, wood-ashes form a powerful manure in many cases; and, when applied in conjunction with guano, it may be a matter of uncertainty what proportion of the effects produced are fairly to be attributed to each. It is unfortunate that experimenters generally do not pay sufficient attention to the various circumstances connected with the experiments which they undertake. Generally speaking, such minute attention is not necessary in the ordinary course of farm management; it is only so when experiments are conducted with the view of ascertaining the value of any given course of proceeding, or of any specific manure, that it becomes absolutely necessary.

The analysis previously alluded to will show that guano is an exceedingly compound substance, and, therefore, capable of being applied with advantage under a great diversity of circumstances, both as regards soil and crop. It may be applied at the sowing of the seed, or afterwards as a top-dressing when the crop has made some progress. In the latter case, the farmer has the great advantage of being able to apportion the quantity applied to the wants of the crop. When employed in this manner, the application should, if possible, take place before rain, otherwise the manure may suffer much from exposure before any advantage has been derived from it. The nature of the season has, indeed, much effect in increasing or diminishing the fertilising properties of guano and other manures of the class to which it belongs. In very dry seasons, for example, they will not be so efficacious as in others, for reasons which do not require expanation.

It is not, perhaps, necessary to occupy much space in the detail of experiments of the resnlts of guano, as applied to different crops. No reliance can, indeed, be placed on the greater number of the experiments which have been reported on the ground stated in a preceding paragraph. By far the most valuable are those suggested and reported by Professor Johnson, from which the following are extracted. Some of these show the results of guano as compared with other manures, when applied to most of the usually cultivated crops. The results refer to the produce per acre:—

SWEDISH TURNIPS.

	Tons.	Cwt.
1. Farm-yard dung, 20 tons	18	11
Guano, 3 cwt	23	8
2. Farm-yard dung, 20 tons	16	18
Guano* 2 ½ cwt	17	4
Bones, 32 bush	15	17

YELLOW TURNIPS.

Guano†, 5 cwt	32	2
Rape-dust, 15 cwt	24	11
Bone-dust, 30 bush	17	2

POTATOES.

1. Guano, 3 cwt	18	9
Rape-dust, 1 ton	12	6
2. Guano, 4 cwt	14	6
Rape-dust, 1 ton	10	0
Bone-dust, 45 bush	9	15
3. Guano, 4 cwt	13	14
Rape-dust, 1 ton	13	0
Bone-dust, 45 bush.	13	14½

WHEAT.

	Bush.	Lbs
1. Guano, 1 cwt	48	0
Rape-dust, 16 cwt	51	0
Undressed	47	30
2. Guano, 3 cwt	30	40
Undressed	24	56
3. Guano, 2 cwt	32	20
Undressed	31	31
4. Guano, 1 cwt	46	15
Nitrate of soda, 1 cwt	54	18
Undressed	44	4
5. Guano, 1¼ cwt	45	0
Nitrate of soda, 1¼ cwt	41	0
Undressed	39	0

BARLEY.

Guano, 3 cwt	64	0
Undressed	47	15

OATS.

1. Guano, 1 cwt	70	0
Undressed	52	0
2. Guano, 1 cwt	48	16
Nitrate of soda, 1 cwt	50	0
Undressed	49	0

BEANS.

Guano, 2 cwt	33⅓
Rape-dust, 16 cwt	35
Nitrate of soda, 1 cwt	33
Undressed	29¾

HAY.

	Tons.	Cwt.
1. Guano, 1½ cwt	1	18
Nitrate of soda, ½ cwt	2	10
Undressed	1	8
2. Guano, 1½ cwt	2	2
Nitrate of soda, 1½ cwt	1	17
Undressed	1	10

The above experiments were conducted on soils of different qualities, and in different parts of the kingdom. The learned Professor remarks that the results obtained appear to indicate that guano is more *uni-*

* The guano in this experiment was mixed with 1 cwt. of charcoal powder.

† The guano was here mixed with 20 bushels of wood ashes.

‡ In each of the foregoing experiment with potatoes, the manures were put in along with the sets, no other manure being afterwards added.

§ The quality of the grain in this and the *succeeding* experiments was inferior to that in the others.

formly successful with root crops than when applied as a top-dressing to corn and grass; and, further, that certain experiments seem to indicate that its favouable influence does not cease with the first season. If the phosphate of lime, so abundant in the constitution of bones operate in any way in prolonging their beneficial effects, the large though variable quantity of that substance present in guano should render it also capable of permanently improving the soil.

The analysis of guano at once shows its composition; and, the quantity of each ingredient being known, it follows that a combination of these substances in the same proportions as existing in imported articles would form an artificial guano little if at all inferior to the article imitated. The coast of these several ingredients when procured separatly being also known, little difficulty will be experienced in ascertaining the price at which the original article, according to such a calculation should be sold. It has been already stated that, after its first introduction, guano, for a length of time, sold at 25s. ber cwt,; but Professor Johnston's suggestions for the formation of this artificial substitute contributed more than anything else to induce the importers to lower their prices; and it may, at the present time, be obtained at rather less than one-half of this sum. It is also not a little singular that the price to which it is now reduced is precisely that which the Professor states a substitute could be formed. The composition of this artificial guano is as follows:—

lbs.	£	*s*	*d*
315 (7 bush.) of bone dust, at 2s. 6d. per bush.,	0	17	6
100 of sulphate of ammonia, containing 34 lbs. ammonia,	0	15	0
5 of pearl ash,	0	0	10
100 of common salt,	0	2	0
10 of dry sulphate of soda,	*0*	*0*	*10*
530 equal, at least, to 4 cwt. of guano,	£1	15	2

However abundant the supply of guano may be at present, its permanence cannot be confidently calculated on, as, in addition to the supply becoming diminished, it is probable that obstructions will be thrown in the way of the continuance of the trade by the governments of the countries from which it is now obtained; so that it is well that the attention of the British farmers should be directed to procuring a home supply. The artificial substance will also have this advantage, that its qualiy will be uniform, the quantity of each of the componet ingredients employed being constant, and its effects can, therefore, be calculated on with greater certainty. The foregoing ingredients are selected as those most likely to answer, but further experiece may suggest the addition of other substaces, or their substitution either in whole or in part for those already enumerated.

THE SCIENTIFIC PHENOMENA OF DOMESTIC LIFE, as they are presented in the House, or in a Walk in the Fields, familiarly explained by CHARLES FOOTE GOWER, Esq.

London: J. Ridgway. pp. 90.

Some time has certainly elapsed since we have read any work which has afforded us so much pleasure as the little volume we are now reviewing; it is a production which will be read with pleasure and advantage by every one who may have the good fortune to meet with it; for its style is good, its objects excellent, and its language plain and intelligible to the poorest capacity. These objects are thus stated by Mr. Gower:—

"In these days of education and of the march of intellect, we commonly teach our children every art, every science, and every accomplishment that the mind of man can suggest; but it is too often that we forget to teach them that which would turn all these to good effect. We forget to teach them to think, to reason, to observe. It is for this purpose that this little book has been written; it is to illustrate the great book of Nature; for in it the child who has been taught to reflect will be furnished with an inexhaustible fund of amusement and instruction; and what to others is blank, to such a youth will be replete with food for thought."

It is with such a spirit that the work is conducted, a production which we heartily commend to the perusal of our readers. We stop but to make one extract; it is that portion of the work which explains the origin of fogs:—

"The very common but mistaken idea, that the fog which we see of an evening hanging over low meadows, and by the sides of streams, is *ascending*, arises very naturally from our first observing it in low places, and as the cool of the evening advances, remarking that it ascends to higher land; the fact is, however, not that the damp is ascending, but that from the coldness of those situations they are the first places which condense the before invisible vapour, and as the cold of the evening advances this condensation takes place at a higher level. A large portion of the vapour ascends to the upper regions of the atmosphere, where it cools, and becomes visible to us in the form of clouds, and increasing in density by cooling, they gradually descend nearer to the earth, until at last becoming too condensed by the loss of heat, they fall in rain, to be again returned in endless succession.

"Evaporation always produces cold, because the heat which is required to convert water into steam must be withdrawn from the surrounding medium; hence, wet summers are often succeeded by cold winters, the greater evaporation produced from the excessive moisture having reduced the temperature of the earth. That evaporation produces cold, may be immediately proved by moistening the palm of the hand and exposing it to the wind, thus causing evaporation, when cold will be very sensibly felt, and the more so if we use a volatile fluid, and if such as sal volatile or spirit of wine, the greater rapidity with which they evoporate producing a greater degree of cold. It is from this reason that remaining in wet clothes is so dangerous; the evaporation that takes place during the time they are drying, carries away so large a portion of heat from the body, as almost certainly to induce cold, and all the thousand diseases which follow in its train. When a person is obliged to remain in wet clothes, the best method to adopt is to prevent evaporation by covering them with mackintosh, or any other garment which will best keep the moisture in; and if this is effectually done, the person will feel little inconvenience from his damp clothes; the warmth of the body will soon communicate itself to the damp garments under the mackintosh, and as the steam cannot escape through it,

there is nothing to produce a greater degree of cold than if the garments had been dry."

A DAY IN AUTUMN.

BY LORD LEIGH.

"Heaven speed the plough! Oh, on his natal soil
May the bold husbandman ne'er vainly toil:
Long may the cheering voice of praise impel,
His work with honest pride his bosom swell.
All charms with which our social life is graced,
Varied enjoyments, to the plough are traced.
Homaged by science, Ceres waves her wand.
And lo! exuberant crops adorn the land.
Her foison to increase, inventive skill
Creates improvements yearly—ever will;
And learned chemists generously impart
To tillers of the earth their secret art;
In what proportion clay with sand to mix,
And how ammonia volatile to fix.

Now statesmen strive each other to surpass
In speaking on guano, stock, and grass;
And tell you, with their calculations sure,
What weight of turnips gives some pet manure.
And farmers wonder how that minds immersed
In state affairs, in farm-craft are so versed."

SONG OF THE BRITISH FARMER.

(The following song, just published, is written by Mr. Carpenter, and composed by David Lee.)

Here's a song for the British farmer bold,
With his golden grain and his cattle fold:
A loftier theme perchance may be,
But here's power and wealth to his old roof tree!
The sailor may honour the rolling seas,
The soldier may boast of his victories;
But they fight for the land, and stand or fall,
For the tillage and plough, that give health to all!
Chorus—Here's a song, &c.
All titles and honours and powers must yield
To him who rules in the harvest field:
For kings of the soil are the good and the brave,
Who till the land where the corn-fields wave,
Whose flocks are fed on her herbage green,
Whose countless herds in the vales are seen,
Whose home is content, and whose blessing is health,
And whose labour gives to our isle its wealth!
Chorus—Here's a song, &c.

Affection for the dead is the memory of the heart.

Courage to think is infinitely more rare than courage to act.

Whoever finds pleasure in vice, and pain in virtue, is a novice in both.

A curse is a stone flung up to the heavens, to return on the head of him that sent it.

Strong passions work wonders when there is a greater strength of reason to curb them.

The absentee tax in Russia for a family of three persons amounts to 240*l.* per annum.

We are all complaining that our days are few, yet acting as though there would be no end to them.

We all complain of the shortness of time, and yet we have much more than we know what to do with.

Why did Adam, when alone, find the day very long? —Because twas always morning without Eve.

Why did Jupiter descend to Danae in a shower of gold? To prove that he was one of the reigning sovereigns.

A false friend is like a shadow on a dial, which appears in fine weather, but vanishes at the approach of a cloud.

MONTREAL MARKET PRICES.

CORRECTED BY THE CLERK OF THE MARKET.

New Market, October 1.

Wheat,.....per minot,.....		5/0 @ 5/6
Oats,.....	do	1/0 @ 1/3
Barley,.....	do	2/0 @ 2/5
Peas,.....	do	2/0 @ 2/9
Buckwheat,	do	1/8 @ 2/0
Rye,.....	do	2/6 @ 2/9
Flaxseed,...	do	4/0 @ 4/6
Potatoes, New,	do	1/0 @ 1/3
Beans, American, per bushel,.....		4/0 @ 4/6
Do. Canada,....	do	6/0 @ 6/8
Honey, per lb,.....		0/4½ @ 0/6
Beef,...	do	0/1½ @ 0/4
Mutton, per qr.....		1/3 @ 4/4
Lamb,...	do	1/3 @ 2/6
Veal,.....	do	2/0 @ 10/
Pork,.....per lb,.....		0/3 @ 0/5
Butter, Fresh,	do	0/9 @ /10
Do. Salt,	do	0/5 @ 0/6½
Cheese,.....	do	0/3 @ 0/4½
Lard,.....	do	0/5 @ 0/6
Maple Sugar,	do	0/4½ @ 0/5½
Eggs, per dozen, fresh,.....		0/5 @ 0/6
Turkeys, (old), per couple,.....		5/0 @ 6/0
Do. (young)	do	2/0 @ 2/9
Geese,.....	do	2/6 @ 4/0
Ducks,.....	do	1/8 @ 2/6
Fowls,.....	do	1/3 @ 1/8
Chickens,.....	do	0/7½ @ 1/3
Partridges,.....	do	2/0 @ 2/6
Hares,.....	do	0/7½ @ /10
Apples, American, per barrel,.....		6/0 @ 8/0
Do. Canada,...	do	7/6 @ 10/
Flour, per quintal, ...		12/6 @ 13/4
Beef, per 100 lbs.,.....		20/0 @ 30/0
Pork, Fresh, do		22/6 @ 27/6
Hay, per 100 bundles,.....		20/0 @ 27/6
Straw, per 1200 lbs.,.....		12/6 @ 17/6
Woodcock, per brace,.....		1/6 @ 1/8
Peaches, half b rrels,.....		15/0 @ 24/6

The Canadian Agricultural Journal,

PUBLISHED MONTHLY,

AT ONE DOLLAR PER ANNUM,

PAYABLE IN ADVANCE.

Any Post Master or other individual who obtains six subscribers, to be entitled to one copy, gratis.

As the object of this Journal is to improve Canadian Husbandry, by the dissemination of the best and cheapest Agricultural information, the charge for it will be simply sufficient to cover the necessary expense. The subscription price will therefore be Five Shillings per annum, to single Subscribers. Societies or clubs will be furnished at the following rates:—

50 copies for.....	$30
20 copies for.....	15
10 copies for.....	8

Payable always in advance.

WILLIAM EVANS, EDITOR AND PROPRIETOR.

LOVELL AND GIBSON, PUBLISHERS.