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THE

CANADIAN AGRICULTURAL JOURNAL.

VOL. I.

MONTREAL, FEBRUARY 1, 1844.

No. 2.

OUR JOURNAL.

Though we are as anxious to obtain Subscribers to this Periodical as any proprietor of a public Journal can be, aware that such support is necessary, as well to its usefulness, as for its very existence, yet we do not intend to occupy our columns in setting forth our claims to public patronage, but rather endeavour to fill our columns with such matter as will entitle us to expect to be supported by subscribers. If we are not able to make this Periodical useful or interesting we would have no just claim to support, and should discontinue it. We believe there are many friends who would subscribe to it, though they might not, perhaps, read a page of it, and to these friends we shall ever be grateful. With the generality of subscribers, however we would only expect, they would pay us an annual subscription of one dollar, if they found that our Journal would furnish them with useful, and interesting matter, which they consider worth that amount. It would be only a useless expenditure of time and money, to publish this Journal, if it was not read, or considered worth subscribing for. We should be sorry to tax our friends or the public with the support of this Periodical, if it was not likely to forward the object for which it is published—namely—to promote agricultural improvement—to benefit those engaged in husbandry—and to advance the general interest of this country. This is our object now, as it ever has been hitherto, and all we have published. We think it best candidly to state our pretensions to favour. We shall do all in our power to forward the objects which, we declare we have in view in publishing this Journal, but if it should prove to disappoint our friends, and not give satisfaction to our subscribers, we shall give up all pretensions to favour or support, from any quarter. Publishing a Journal should, be like any other plain matter of business. It must cost the proprietor something to produce it, and it should sell for what it would be worth, and be paid for as any other article that is purchased for its actual usefulness, or for any other value that the purchaser attaches to it. These are the grounds upon which we wish to stand, with our friends, and subscribers. We promise them that we shall do all in our power to give value for what we receive. We shall be most anxious that each number of our Journal shall be more valuable and interesting than the one that preceded it. It will be our pride to do this, and upon the fulfilment of our promise, we respectfully found our claim to public support. There are only two Agricultural Journals published in United Canada, and each will have abundant opportunity of usefulness, without interfering with each other. There is much more useful in-

formation in circulation regarding agriculture, than both Journals can publish, though each one should never publish any matter which would appear in the other.

The necessity of Agricultural improvement to Canadian prosperity, must be so manifest to any one acquainted with the country, and its resources, that we have often flattered ourselves, that we would have the support and countenance of the educated classes, and all those who wished the country well, in our humble endeavours to forward this improvement, but we regret to have to say, that, with a few exceptions, whom we honour, we have been generally disappointed. Our exertions may have been looked upon as undeserving of attention or encouragement, or perhaps they would have obtained an ample share of both. Many bad servants, however, have been well paid. But if our endeavours were useless, and of no value, we can truly say we derived no profit from them, but on the contrary considerable loss, in time, and money. We do not make this a matter of complaint, because we have acted voluntarily throughout—but we state it as a fact to prove how much the improvement and prosperity of agriculture have been disregarded in Canada, up to a very late period. Our exertions would have been much more successful, we believe, could we have had the confidence, which the support, and countenance of the higher classes would have given us. But conscious of the want of this, we always felt to be exceedingly discouraging, and we only wonder now how we could have persevered so long. To the newspaper press of Montreal, and throughout Canada, we beg to offer our most grateful acknowledgments, for the invariable kindness and support we have received from them; indeed, were it not for this support, we should have long since discontinued our communications on Agriculture.

We are most anxious that this Journal should be translated and published in the French Language, but we cannot undertake to incur so great an expense, unless we are secured against loss. It is scarcely possible to conceive, that in Montreal alone, where there are so many wealthy and respectable Canadian proprietors, there should be any difficulty in securing us against loss in publishing in French. After this year the publication we are sure would support itself. We anxiously wait the commands of the wealthy and educated Canadians in this matter, and will do all in our power to meet their views in the future conduct of this Journal, always carefully excluding all party politics, and endeavouring to direct the minds of our readers into those channels which are certain to be most profitable to them, by instructing them in what manner they may increase the productiveness of their lands.

MEANS OF INCREASING THE PRODUCTIVE POWERS OF SOILS.

The means at our command of increasing the productive powers of soils may be comprehended under the following general heads:—

1. Supplying to the soil those organic and earthy substances which may be required.
2. Altering its texture, depth, and properties, by tillage and other means.
3. Changing its relation with respect to moisture.
4. Changing its relation with respect to temperature.

Vegetable and animal matters, in a decomposing state, appear to act in various ways in increasing the productive powers of the soil. They improve its texture, and they may be supposed to increase its power to absorb and retain moisture; but above all, they supply that matter, which, in whatever form conveyed to the organs of plants, tends to nourish them. This matter being absorbed by the roots of the plants, it must be supplied when exhausted.

Experience has in every age accordingly taught the husbandman to supply those substances to the soil; and the doing so forms one of the most important means at his command of maintaining or increasing its fertility.

Besides the animal and vegetable matter which is mixed or combined with the mineral part of the soil, and is essential to its productiveness, the mineral parts themselves, it has been seen, require to be mixed together in certain proportions, and in certain states of division, in order to produce the greatest degree of fertility.

Silica and alumina form the principal mineral part of the soil. If one or other of these earths be in excess, the soil is defective in its composition. If the alumina prevail, the soil is too adhesive; if the silica prevail, it is too loose. A medium is seen to be the best; and although the precise proportions in which the alumina and silica should exist have not been determined, it is safer that there be a tendency to an excess of alumina than of silica. Further, the fertility of the soil depends on the state of mechanical division of these minerals.

It would appear, then, to be a mean of improving the composition of a soil, to add to it siliceous matter when it is found to be too stiff, and aluminous matter when it is found to be too loose; and, further, to reduce these substances to their greatest degree of mechanical division.

Sometimes, accordingly, we have the means of improving the constitution of soils, by mixing sand with clay, or clay with sand. But in practice, the direct mixing of these two substances for the purpose of producing a soil of better texture is rare; *first*, because the expense of this species of improvement is considerable; and *second*, because, in the state in which sand and clay are usually available for this purpose, it seldom happens that the aluminous matter of the one, or the siliceous matter of the other, is in that state of minute division which is favourable to fertility.

It is otherwise with the earth lime. This can, in all cases be reduced by heat to that state of minute division which is favourable to the productiveness of soils; and hence it can always be applied with benefit to those soils in which it is wanting.

Lime is sometimes mixed, in its natural state, with aluminous and siliceous matter. It then forms marl, a substance which is frequently applied to soils to improve them. It is chiefly to the lighter soils that marl is suited; for then, not only is lime supplied, but alumina, which improves the texture of the soil. It is

by means of this mixture that some of the greatest improvements on siliceous sands that have taken place in Europe have been effected.

There are cases in which even calcareous matter is in excess in soils. This occurs especially in districts where the chalk formation exists. When the earthy stratum resting upon the chalk is very thin, the chalky matter becomes mixed with it, and being then in excess, forms a barren soil.

An obvious method of amending the composition of a soil of this kind is by adding any of the other earths, whether siliceous or aluminous. We need not here scruple to apply them, because the clay is coarse or the sand gritty. We may add them in almost any form in which they can be conveniently procured; for the effect will be to improve the composition of the soil.

There is another case in which, in like manner, siliceous and aluminous matter may be applied directly in almost any state in which the can be found. This is in the case of peat. Here the vegetable matter is in excess, and the addition accordingly of any of the earths is an amendment of the composition of the soil.

We see, then, that the composition of soils may be improved by the addition of animal and vegetable matter, and also, in many cases, by the addition of those earths in which they may be deficient, and, in an especial degree, of lime, which we can always apply in the form of minute division best suited to improve the composition of the soil. This is the first of the means referred to of adding to the productive powers of soils, and will be considered in detail under the head of Manures, and other branches of the management of the farm.

The *second* mode referred to of increasing the productive powers of soils, is that of altering their texture, depth, and properties, by tillage and other means.

The mere effect of that comminution of the parts of the soil which it undergoes in the common operations of tillage, is seen to have a beneficial influence on the productive powers of the soil. Whether the soil imbibes from the atmosphere anything besides aqueous vapour or not, it is known that the exposure of the matter of the soil to the atmosphere, and the comminuting of its parts by tillage, add permanently to its fertility. Thus we learn from experience the good effects of tilling lands well. Soils once tilled are rendered for the most part more productive by the process. Peaty turf, if suffered to remain in its original state, may continue to produce nothing but heath and the most useless plants; but, if merely ploughed, and exposed to the influence of the atmosphere; it will at once tend to produce grasses of a better kind, and of greater variety; and, again, if a subsoil of coarse clay be exposed to the atmosphere, it is generally at first very unproductive; and it is not until after long exposure, that it becomes productive. This is most remarkable in the case of clay-marl, a substance in itself containing the materials of a fertile soil, but which is often barren, until after pulverization and the influence of the atmosphere.

It is, indeed, conformable to analogy, as well as to experience, that soils should be improved by pulverization and exposure to the atmosphere. In our examination of the constituent parts of soils, we have seen that their fertility is in a great degree indicated by the proportion of minutely divided earthy matter which they contain. The effect of tillage, therefore, may be reasonably supposed to promote this division, both by the mechanical action of our instruments, and by exposing the particles of the soil to the action of the air.

Another purpose sometimes promoted by tillage,

and subservient to the amendment of the soil, is the deepening of the upper stratum.

The subsoil, it has been seen, is distinguished from the soil properly so called, by the former containing less vegetable and animal matter, and so being less suited to the nourishment of plants; and in certain cases it is even found to be injurious to vegetation. It is generally important, however, that there be a good depth of soil; and thus it is often expedient for the effecting of a permanent improvement of the surface, to plough up and mix with it a portion of the subsoil, even though that subsoil should be in itself infertile.

These, then, are the principal mechanical means by which we can improve the soil, and they will be considered in detail under the various heads which relate to the operations of tillage.

Another mean, indeed, of changing the composition of soils, is incineration, commonly called *paring and burning*. This process will be described as connected with the operations of tillage, and may be considered as one of the means possessed by us of adding to the productiveness of soils.

The *third* mode referred to of increasing the productive powers of soils, is changing their relation with respect to moisture.

In warmer countries the soil is comparatively little injured by an excess of water, and more frequently suffers from the insufficiency of it. In climates like that of Britain, however, the operation of conveying away the water which is in excess is an essential one, and, if neglected, the best-devised scheme of improvement may fail. The superfluous water is either stagnant upon the surface, or percolates below it. The freeing of cultivated land from water upon the surface gives rise to the formation of land into ridges, by which the water escapes without stagnating upon the ground or sinking into the subsoil below. This is an object necessarily connected with tillage, and will be described when the manner of cultivating land is treated of.

The freeing of the soil again from that superfluous water which is contained below the surface, forms a peculiar branch of agricultural improvement, and will be described under the head *Draining*.

As draining is more required in the colder countries, so irrigation, or the watering of land, is less required there than in those countries where the heat and evaporation are greater. Irrigation, however, is a curious and interesting branch of rural economy, derived by us from very ancient times. In this country it is chiefly employed in the watering of lands in grass during the months of winter and spring, and will be described when treating of the *Management of Grass-Land*.

The *last* of the means referred to of increasing the productive powers of soils, is by changing the relation with respect to temperature.

This mode of adding to the productive powers of soils, is less within our control than any of the others. It is only by slow degrees that we can improve the climate of a country. It is chiefly by draining, and by the rearing of hedges and wood; all of these, accordingly, form important objects of rural economy, and will be partially treated of in this work.—*Low's Agriculture*.

THE GARDEN OF PLANTS.

A LEAF FROM A JOURNAL

I did not quit Paris without visiting the "Garden of Plants." It is the richest collection in the world of natural curiosities, and besides its admirable clas-

sification, it is arranged for the most imposing effect. The mountain and the morass, prairie and jungle, ocean and the river, the mines and the atmosphere, have been ransacked to furnish whatever was rich and rare, types of each class of beings, Nature's "proof impressions," to render account of her three kingdoms to the keen insatiable eye of French science. In spacious grounds, skillfully laid out and shaded with fine groves and shrubberies, you walk among the animals of every country, each in his own paddock, with his mate and young, supplied with his appropriate food, and his habits consulted in his accommodation. The tall camelopard's promenade and breakfast daily draw as much attention as the king's. He browses on the boughs of trees above him, nearly twenty feet from the ground. When this stately creature came to Paris, a caricature appeared in the print shops, in which Giraffe is exclaiming to the citizens, "*Eh bien; Messieurs, il n'y a qu'une bête de plus.*" Lions from Algiers and Asia; elephants from Siam, whose dignified bath is attended with loud applause by the boys; our compatriots, the buffalo and the bear, from New Hampshire and Labrador; all sizes and all stripes of tigers, hyenas, and jackals; a herd of monkeys; and indefinite numbers and species of sheep, goats, llamas, and zebras, sleep, browse, or ruminant in their several country fashions, each as much at ease as in his own wilds, for the amusement of the whole world, in the heart of the capital of France. Through this lively park, and its congress of beasts, you arrive at the Botanical Cabinet, an inclosed garden-plot, where grows a grammar of botany; where the plant rises each in its class, order, and genus (as nearly as their habits, in reference to soils, will permit), arranged by the hand of Jussieu himself. If you have read *De Cardolle*, with engravings, or with a *hortus siccus*, you will conceive how much more exciting and intelligible is this natural alphabet, this green, yellow, and crimson dictionary on which the sun shines, and rains and dews fall. Passing the Aviary, which is full of song and animation, you come to a large stone edifice in the centre of the grounds, which is called the Cabinet of Natural History. Here there is no life, but here is abundant food for pleasure and wonder. It is a prodigality to visit in one morning's walk all the chambers in this great repository. The ornithological rooms deserve a separate day, for who would mix and confound so fine and delicate sensations and presentiments as these objects awaken? This silent aviary is a finer picture-gallery than the Louvre. The whole air is flushed with the rich plumage and airy forms of the birds. The fancy-coloured vests of those elegant animals make me as pensive as the hues and forms of shells have long since done, whether in the cabinet of a collector, or lining like sea-flowers the Anastasia beach near St. Augustine. The fancy is stimulated, and the mind is filled with calm and genial thought. Many of the birds have a fabulous beauty, more appropriate to some Sultan's garden in Scheherzade's story, than to a scientific cabinet. Here are the favourites of nature, creatures in whose form and coat appears a transcendent finish. * * The cabinet of birds was a single and even small part of that magazine of natural wonders. Not less complete, if somewhat less attractive, is the collection of stuffed beasts, prepared with great skill, to represent the forms and native attitudes of the quadrupeds. Then follow insects, reptiles, fishes, and, last of all, minerals. In adjoining apartments is the collection of comparative anatomy, a perfect series, from the fossil trilobite, the great-grandfather of us all, up through the skeleton of the balæna, which reminds one of the frame of a schooner, to the upright form and proud skull of the Caucasian man,

The eye is satisfied with seeing, and strange thoughts are stirred in us, amidst this repository of nature's archives, this presence-chamber of the secrets of animal and chemical creation. Natural history! Is this indeed history? These organic and these inorganic remains—are they the statues of our ancestors, which we, the youngest born of the world, may piously behold? Here are scorix from the bowels of the earth, and stones supposed to have fallen from the moon. Transparent lumps of amber, with gnats and flies within; radiant spar, and stalactites: huge blocks of quartz; native gold in all its forms of crystallization and combination; gold in threads, in plates, in crystals, in dust; and silver taken from the earth molten by fire. We are impressed by the inexhaustible gigantic riches of nature. The limits of the possible are enlarged, and the real is stranger than the imaginary. The universe is a wilder puzzle than ever, as you look along this stark series of once animated forms,—the hazy butterflies, the carved shells, the bird, beast, worm, snake and fish, and the upheaving principle of life every where incipient, in the very rock, aping organized forms. Whilst I stood there, I yielded to a singular conviction, that in all these rich groups of natural productions which surrounded me, and in all the vast system which they represented, not a form so grotesque, so savage, so beautiful, but is an expression of some property in man the observer. I felt that there is an occult relation between the crawling scorpion, the flowering zoophyte, and man. I was moved by strange sympathies. I said, I will listen to this invitation. I also am a naturalist.—*R. W. Emerson.*

THE GOLD WATCH AN EMBLEM OF SOCIETY.—I have now in my hands a gold watch, which combines embellishments and utility in proportions, and is usually considered a very valuable appendage to the person of a gentleman. Its hands, face, chain, and case, are of chased and burnished gold. Its gold seals sparkle with the ruby, the topaz, the sapphire and the emerald. I open it, and find that the works—without which this elegant case would be a mere shell, those hands motionless, and those figures without meaning—are made of brass. I investigate further, and ask, what is the spring, by which all these are put in motion, made of? I am told it is made of steel. I ask, what is steel? The reply is, that it is iron that has undergone a certain process. So then I find the main-spring, without which the watch would be motionless, and its hands, figures and embellishment but toys, is not of gold—that is not sufficiently good; nor brass—that would not do; but of iron. Iron is, therefore, a very precious metal; and this watch an apt emblem of society. Its hands and figures which tell the hour, resemble the master spirits of the age, to whose movements every eye is directed. Its useless but sparkling seals, sapphires, rubies, topaz, and embellishments, represent the aristocracy. Its works of brass, the middle class, by the increasing intelligence and power of which the master-spirits of the age are moved—and its mainspring, shut up in a box, always at work, but never thought of, except when disordered, broke, or wants winding up, symbolically the laboring classes—which, like the mainspring, we wind up by the payment of wages; and which classes are shut up in obscurity, and though constantly at work, and absolutely as necessary to the movement of society as the iron mainspring is to the gold watch, are never thought of, except when they require their wages, or are in some want or disorder of some kind or other.—*Edward Everett.*

OF THE NATURE OF EARTHS, AND THEIR ACTION UPON VEGETATION.—Nearly all vegetables derive their support from the earth. There are, however, some, the seeds of which, being deposited upon trees by birds or by the winds, germinate and grow, appearing to be in the situation designed for them by nature; such are the mistletoe, the mosses, &c. There are others that float upon the water, or fasten themselves upon dry rocks, upon slates, or tiles; of the last kind are the fleshy plants. As the earth furnishes the greatest number of plants, and all those which are of the most importance to man, its influence upon vegetation is of the greatest consequence, and at the same time one of the most difficult things of which we can treat.

Plants are not, like animals, endowed with powers of locomotion; but are always fixed to a limited portion of the soil. They depend upon the small space which they occupy for the supply of their wants; they can place under contribution only those portions of the surrounding air, earth, and water that come in contact with them; it is necessary, then, that they should find immediately around them the nutritive principles requisite for their growth, and for the exercise of their functions; it is necessary that they should be able to extend their roots, in order to draw from the soil its nourishing juices; and to fasten themselves in the earth, so as to be secure from being dried up by heat or uprooted by the winds.

As all the qualities required by a vigorous vegetation cannot always be found united in land appropriated to cultivation, we are led to examine the nature of earths; and the differences which exist among them.

OF MOULD.—All plants, when dead, are more or less readily decomposed; and in undergoing these changes, which are greatly facilitated by air and heat, they form products with which it is of importance for us to be acquainted; as the principal aliments of living plants are furnished by those that are dead. Decomposition is most rapid in succulent vegetables, and in those which are collected in heaps; but a high degree of atmospheric temperature and the humidity of plants contribute powerfully to accelerate it. During decomposition much carbonic acid is given out; a part of this exists in combination with the constituent principles of the plant, and a part of it is produced by the action of the oxygen of the atmosphere upon the carbon of the plant; hydrogen, which is probably furnished by the decomposition of the watery particles, and is generally carburetted, is likewise exhaled, as also ammoniacal gas when its elements exist in the plant. When large masses of vegetables are in a state of fermentation, heat is always produced; but if they have been dried, it is necessary to collect them into heaps, and moisten them slightly in order to determine their fermentation and decomposition; in this case the heat produced is sometimes so great as to cause the combustion of the mass; a phenomenon which occurs when hay is stacked without being sufficiently dry, or when ropes, hemp, or flax are piled up wet.

When all the parts of a plant are decomposed, there is produced an earthy residuum of a brown color, which is called *mould*. In this, besides the salts and the earths which it contains, are found some oils and extractive principles which escape decomposition.

The distillation of mould in a retort, produces much carburetted hydrogen, some carbonic acid, a bituminous empyreumatic oil, and some water holding in solution pyroligneous acid and carbonate of ammonia.—*Chaptal.*

HINT TO LOVERS OF FLOWERS.—A most beautiful and easily attained show of evergreens in winter may be had by a very simple plan, which has been found to answer remarkably well on a small scale. If geranium leaves (branches?) are taken from healthy and luxuriant trees, just before the winter sets in, cut as for slips, and immersed in soap and water, they will, after drooping for a few days, shed their leaves; put forth fresh ones, and continue in the finest vigour all the winter. By placing a number of bottles thus filled in flower-baskets, with moss to conceal the bottles, a show of evergreens is easily insured for a whole season. They require no fresh water.

RICHMONDSHIRE FARMER'S CLUB.

The following have been the subjects discussed during the year 1843, and the decisions respectively recorded thereon:—

On Thursday, the 16th of March, the subject was, "The best method of managing Ewes, especially during the lambing season." **THE DECISION**—"That at all seasons of the year, the greatest care should be taken that the ewes are depastured on the soundest land; that for a few weeks previous to the rams being put amongst them, and during the time that he is with them, they should be extremely well kept; that, when the flock is extensive and the blood valuable, it is desirable to employ a teaser, as by this means the services of the ram may be made more available (some breeders having used the same ram successfully for 120 ewes in one season,) and a better crop of lambs is ensured; that at the time of lambing great attention is necessary, but at the same time great caution should be used by the shepherd in rendering any assistance, (upon which point several valuable remarks were made by the medical men present;) and that for the first few days, shelter is of much benefit. Quiet and retired pastures were much recommended for them whilst in lamb, and hay and corn to be given in preference to turnips as extra food." There was some difference of opinion as to whether any extra food should be given, prior to their producing their young; but, if any was given, that dry food was preferable to green. A very good plan was suggested by a member for numbering the ewes previous to the ram being used, and having the date of each ewe placed opposite to her No. in a book; by which means the flock may be afterwards divided, and their food given at the discretion of the owner. It was stated that the interval between the ewes being in use, was from fourteen to seventeen days; and that it continued for two days.—Introduced by Mr. James Bell.

On Thursday, the 18th of April, the subject was, "The properties and application of Lime." Upon this subject there was apparently much difference of opinion, and many contradictory statements were made by the members present; but which a change of locality, and a better knowledge of cause and effect, would most probably have cleared up. On the whole it seemed to be the general opinion of the meeting, that by discretion in the time and mode of application, and by previously ascertaining the qualities of the lime, and the wants of the land, to which it is to be applied, lime may be used very beneficially as a fertilizer; that this information is of the more consequence when applied to arable land, where very general disappointment arises by applying the lime too near to the time of sowing. On grass lands the application of lime seldom fails in its effect, by improving the quality of the herbage, if it does not much increase the quantity.—Introduced by Mr. T. Smurthwaite, of Holme House.

On Thursday, the 8th of June, the subject was, "The prevention and treatment of the Foul and Foot-rot in Cattle or Sheep." **THE DECISION**: "That foot-rot is in a great measure prevented by not confining sheep to rich, damp pastures; and that a cure is effected by a free use of the knife, and an application of nitric acid, antimony, or blue vitriol, diluted with water." Aperient medicine was recommended. The meeting was divided in opinion, whether lambs or old sheep were more liable to foot-rot, and it was agreed that sheep having been once infected, are more liable to a return of it. In case of foul, it was recommended to wash the feet affected perfectly clean, and apply tar and salt, or the antimony, &c., as in cases of foot-rot.—Introduced by Mr. J. Fryer, of Kirby Fleetham.

On Thursday, the 6th of July, the subject was, "The best method of making Hay." **THE DECISION**: that, if grass should be cut before the seed is ripe; that, the weather be fine, it should be strewed immediately—but that it takes less harm in swath in bad weather; that on all occasions lap-cocking is recommended, and that great care is to be taken in making them hollow in the middle; that clover should be rucked, but that it should be half-dry prior to the operation." Hay barns are exten-

sively used, in some districts they are recommended, and in certain localities indispensable.—Introduced by Mr. Jno. Outhwaite.

On Thursday, the 7th of December, the subject was, "The best method of managing Farm-yard Manure."—**THE DECISION**: "That, in order to secure the greatest quantity of this indispensable article to the farmer, animal and vegetable substances of every description shall be collected and deposited at the bottom of the fold-yard, or other proposed situation for the dung-hill; that the urine or liquid constantly escaping from the heap, if not preserved in tanks for particular use, should be collected in trenches, or other temporary contrivances, near to the dung-hill, and regularly thrown over them. That in leading out manure from the folds into the fields, a ploughing field should be selected for the pie; and if not wanted for application during the space of three months, that it be placed together in as solid a state as possible, (some gentlemen even recommended carting over the heap,) and covered over with soil, in order to keep in the gases and salts, supposed to be the most valuable portions of the manure. And that, in forming the pies or heaps the manure from the different folds, and from animals living in different ways, should be carefully mixed and blended together."—Introduced by Mr. Turner.

FACTS ON BUTTER AND CHEESE.—The mixture of the azotised and non-azotised compounds (gluten and starch) that exists in wheat flour, seems to be that which is most useful to men; and hence we see the explanation of the fact that, from very early ages, bread has been regarded as the "staff of life." In regard to the nutritious properties of different articles of vegetable food, these may be generally measured by the proportion of the azote they contain, which is in almost every instance less than that which exists in good wheat flour. But it must not be forgotten that owing to the varieties of constitution which have been pointed among different animals, the power of particular substances to nourish men and cattle is not the same, the latter requiring a larger proportion of the saccharine and oleaginous compounds than is beneficial to him, especially when it is an object to cause a large quantity of fatty matter to be deposited in their tissues, or to be exerted in milk. Thus potatoes are found to increase the proportion of butter in the milk of a cow that feeds upon them; their starch being probably converted into fatty matter. It has also been shown by recent experiments, the proportion of butter in the milk of a cow allowed to feed during the day in a pasture, and shut up at night in a warm stall, was much greater in the morning milk than in the evening; the former containing 5-6 parts of butter in 100, and the latter only 2-7 parts: this was evidently due to the diminished demand for the materials of respiration during the night, when the body was at rest and the skin kept warm. The experiment was then tried of keeping the cow in a shed during the day; and feeding her with the same grass, and the proportion of butter in her evening milk then rose to 51 parts in 200. But this plan diminished the proportion of casein or cheesy matter in the milk; which was increased by allowing the cow to pasture in the open field. Hence it appears that stall-feeding is most favourable to the production of butter, and pasturing to that of cheese.—*Carpenter's An. Phil.*

CHEESE-MAKING.—Mr. Arkwright having had a series of observations instituted in his dairy at Sutton, on the conditions under which the process of making cheese is most favourably conducted, and of the changing circumstances of stock, pasture, temperature, and weather affecting the quality and amount of cheese produced, had found that a certain combination of such circumstances induced in their occurrence almost an invariable result. On the completion of the enquiries he would communicate the details to the Society, presenting to the Council in the meantime the tabulated observations of the past year, which were received with thanks and referred to the Journal Committee.

STRONG CEMENT FOR GLASS, WOOD, &c.—Steep isinglass twenty-four hours in common white brandy; then gently boil and keep stirring until the composition is well mixed, and a drop, if cooled, will become a strong jelly. Then strain it through a clean linen cloth, into a vessel, to be kept closely stopped. A gentle heat will dissolve this glue into a colorless fluid. Dishes of wood, glass, or earthen, if united with this cement, will break elsewhere rather than separate in the old break. In applying the cement, rub the edges which are to be united, then place them together and hold them for two minutes, and the work is done.—*Selected.*

SPAVINS IN HORSES.—There are three sorts of spavins. First, the bone spavin: this is a bony excrecence formed in the joint, which impedes the motion of the joint, and is seldom curable. Secondly, the wind spavin: it commonly comes in the horse's ham. Prick the swelling with a phlegm knife, but take especial care not to injure the nervous cords, for this will often bring on the lock-jaw. Upon opening the swelling, you will often find a gelatinous humor to issue from the opening; apply a turpentine poultice for a few days, to draw out the humor; then strengthen the part by bathing it with brandy.

Thirdly, the blood spavin. The coats of the vein being ruptured, the blood extravasates, and forms a protuberance in the vein.

CURE.—Take up the vein with a crooked needle, and tie it above the swelling; then let blood below it, and apply cow-dung fried in goose grease and vinegar by way of poultice.—*Selected.*

SETTLEMENT OF HONGKONG.—According to the last accounts from China, this place appears to be advancing in importance. But three years ago, there was scarcely a hut upon the island, and the only inhabitants visible were fishermen, who chiefly lived in boats. The place is now covered with buildings, chiefly of stone, and inhabited by officers, merchants, clerks, &c. and the Chinese, acquiring confidence in the English, are so rapidly adding their own number to the population, that two thousand huts are to be seen in the quarter selected for their residence. The town formed by the European and Chinese residents has been named Victoria, and the public buildings therein are erected under the superintendence of an experienced officer of the Royal Engineers. Every description of article in common use in England, among the families of respectability, may be had at Hongkong, at reasonable rates. The advertisements in the Hongkong newspapers give very evidence of a thriving, busy population of enterprising individuals. Ships are advertised for England and elsewhere; cheap hats are to be sold; one individual has received a cargo of fine cheese and bottled porter; and another promises to cut coats, vests and pantaloons after the newest London and Parisian fashions; while we have states of the market, partnerships dissolved, new firms formed, and a hundred other matters of similar nature and import.—*London paper.*

INDULGE THE CURIOSITY OF CHILDREN.—Suppress not their curiosity or inquisitiveness. It is no failing in and of itself. It is rather one of the strongest incentives and the most prominent means to become learned and wise. It is generally from ignorance, indifference, or a peevish disposition, that a man commands his children to be silent, or reproaches them for an improper and reprehensible curiosity, when they inquire about something, and are not satisfied with the first answer given them. They must indeed learn to use prudence and discretion in the company of strangers. But parents and teachers would neglect the best opportunity of their instruction if they continually require of them to be only mute hearers. No—it is their duty, and if they love their children or pupils, it will be a pleasure to answer their questions, not with a dry yes or no, but in such a manner as will convey the information they desire.—*Exchange paper.*

For poison by ivy, apply weak solutions of potash or pearlash.

INJURIOUS EFFECTS OF BEARING-REINS.—TO THE EDITOR OF THE MORNING HERALD.—SIR,—If you will have the kindness to admit into your paper the following remarks on the injurious effects produced by the fixed bridle or bridle or bearing-rein, they may attract the attention of your readers; and as the opinion of a person of great practical experience may lead them to give the matter that consideration which I feel convinced is, in many cases, all that is required to induce them to discontinue a part of the harness which is more than useless, and is a source of infinite torment and suffering to the noble animals upon which so many of our comforts and pleasures depend. An old experienced coachman says:—I have entirely abolished the use of bearing-reins, from a conviction that they are not only destructive of ease, and generally useless, but because they are a positive hindrance to animals in the full exercise of their strength. I would draw the attention of all who have the control of draught-horses, which are in harness for hours together, to the cruelty of using bearing-reins. This unnecessary punishment inflicted on the patient animal can but be estimated by those who, abolishing the use of these reins, will notice the ease and comfort bestowed, particularly in ascending hills. Bearing-reins are not only unnecessary, but they are a source of continual torment and the cause of many falls, by keeping the heads of the horses in a stiff unnatural position, preventing them from seeing the road, and impeding the free exercise of their strength and agility. When a carriage is stopped the poor horses are seen tossing their heads, drawing them round to their sides, and indicating by these and other signs their distress and uneasiness. Without bearing-reins they would soon recover their breath, and enjoy relaxation at every stoppage." The correctness of the opinion expressed in the preceding remarks may be easily ascertained by a trial. The uniform advocacy in the *Morning Herald* of everything which tends to diminish suffering, induces me to hope, that you will give insertion to this communication.—I have the honour to be, Sir, your very obedient servant, G. M.—*Dec. 12.*

NEW DISCOVERY IN NATURAL HISTORY.—The indefatigable naturalist, Mr. Audubon, has lately discovered a new animal, that not only adds one more to the list of quadrupeds, but one that is exceedingly likely to prove highly serviceable to man; as it is capable of being reclaimed, is easily supported—living upon grass, herbs, and foliage—and its flesh forms most delicious food, whilst its bulk is immense, as it often attains as much as 600lbs. The first specimen Mr. Audubon met with, he succeeded in shooting; and having partaken of it afterwards, he speaks in the highest terms of its culinary excellence. The locality where he fell in with it was somewhere about 110 miles above Port Union, in latitude 49° 10' N.; and in the woods in that quarter he afterwards met great numbers of them. He also found some in the villages of the Indians in those parts, that had been perfectly reclaimed, in which state they also bred; and he succeeded in obtaining two young specimens from them, which he promises to forward to the fort on the first opportunity. He describes the animal as bearing some resemblance to the kinkaroo sitting on its hind legs, its fore legs or arms being short like that animal. Its progressive motion is with a series of bounds with its hind legs. The length of the animal he killed, from the top of the head to the end of the tail—the latter of which was about ten inches long, resembling that of a sheep—was nine feet four inches, which he states to be the usual size of the adults of the species. The usual weight is about 600lbs. The head is shaped like that of a deer, and is furnished with the same kind of horns, but much smaller in proportion to its bulk, as they do not exceed eighteen inches in length. The animal is also armed with sharp claws. One very remarkable property consists in a ring of flesh, about 12 inches wide and 8 inches thick, in the middle of the body. The coat is formed of a beautiful fur, of a dark brown colour. Its flesh—which he states to be delicious—is white, and tender in flavour, bearing a strong resemblance to veal; but the ring on the body, it seems, is not eatable, producing nothing but oil. The Indians call this animal *ka-ko-ha-hi*, or the jumper.

STEAM PLOUGH ON LOCHAR MOSS.—This machine, which has occupied so much public attention in Dumfries for twelve months past, is now completed, under Mr. W. J. Curtis's management, and fully realizes all that was expected from it. The plough, governed by the peculiar apparatus invented by Mr. Curtis, turns over the soil in the most perfect manner; and the ploughman or steerman, seated on the plough, draws a furrow so straight that no ploughman, on the most favourable soil, could surpass it. The moss is exceedingly soft, and full of holes and hillocks alternately; but notwithstanding this the plough passes over the surface as majestically as a ship through the water. This result is likewise due to an improvement made in the figure of the plough by Mr. Curtis. A beautiful contrivance, also the invention of Mr. Curtis, is employed for reeling the wire rope upon the drum, by which the rope, although weighing on the aggregate upwards of a ton weight, is coiled up as evenly and easily as a skein of silk for a lady's work-box. The next step in the progress of reclaiming moss lands, viz., laying the subsoil upon the surface of the ploughed and levelled moss—an idea due to the intelligence of Mr. Curtis—will be next proceeded with; when the county of Dumfries, as well as the kingdom generally, will have reason to congratulate itself upon one of the most beneficent and useful applications of mechanics to the wants of society which the history of science can furnish.—*Correspondent of the Dumfries Herald.*

WINDS IN THE SUMMERS OF 1841, 1842, AND 1843.—In the quarterly tables of mortality, just issued by the registrar-general, we find the following table:—

Winds in the Summers 1841-3.

	Days in			
	1841.	1842.	1843.	Mean.
N.....	5	16	10	10
N. E.....	1	3	4	3
N. N. E.....	1	3	1	2
N. W.....	9	7	11	9
N. N. W..	1	3	4	3
E.....	6	11	10	9
E. N. E.....	3	2	2	2
E. S. E.....	..	3	..	1
S.....	18	16	25	25
S. E.....	2	3	1	2
S. S. E.....	3	5	2	3
S. W.....	8	5	4	6
S. S. W...	1	1	1	1
W.....	27	11	16	18
W. N. W..	3	2	..	2
W. S. W.	4	1	1	2

THE PLEASURES OF MEMORY.—When the act of reflection takes place in the mind, when we look at ourselves in the light of thought, we discover that our life is embosomed in beauty. Behind us, as we go, all things assume pleasing forms, as clouds do far off. Not only things familiar and stale, but even the tragic and terrible are comely, as they take their place in the pictures of memory. The river bank, the weed at the water-side, the old house, the foolish person,—however neglected in the passing,—have a grace in the past. Even the corpse that has lain in the chambers, has added a solemn ornament to the house. The soul will not know either deformity or pain. If in the hours of clear reason we should speak the severest truth, we should say that we never had made a sacrifice. In these hours the mind seems so great, that nothing can be taken from us that seems much. All loss, all pain, is particular; the universe remains to the heart unhurt. Distress never, trifles never abate, our trust.—*R. W. Emerson.*

A GOOD LEAP.—On Friday last, during a trial in some fields near the terminus of the Great Western Railway, the steeple-chase horse Pilot cleared a space of 30 feet 10 inches, in a leap over a brook, with a high bank and rail on one side of it, carrying a groom of 12 stone, besides the saddle, &c.

GOOD AND BAD ROADS.—The following table will show the occupiers of land, who, by their teams and in their gigs, are the most frequent travellers along the cross roads, how very expensive bad roads are to them, and how much it is to their interest to endeavour to improve them, to which frequent gates are the greatest obstacles. Force required to draw a loaded cart, weighing 1,000 lbs. :—

Turnpike road hard and dry.....	30½ lbs.
Ditto dirty.....	39
Hard compact loam.....	53
Ordinary bye-road.....	106
Turnpike-road newly gravelled.....	143
Loose sandy road.....	204

From this it appears that there is more than threetimes as much force required in draught on a middling bye-road as on a hard turnpike-road. No farmer makes money now-a-days by cart-horses; he ought not therefore to wish to keep more than necessary, and good roads would enable him to turn the keep of a cart-horse into the more profitable animal—a cow, or some sheep.

THE UNITED STATES AND CANADIAN PROVISION TRADE.—On Thursday last a large sale of American and Canadian provisions took place in Liverpool, and as this is altogether a new trade, and one chiefly created by the new tariff, it will be interesting to many of our readers to know the result. Of American cheese there were offered 7,160 cases, weighing together about 260 tons. The quality of this cheese was in general good, but it was most of it out of condition, and did not bring more than from 34s. to 38s. per cwt. Not more than the eighth part was sold in the sale room. Of salt butter, principally Canadian, 240 casks were offered. It fetched 53s. to 55s. per cwt. The quality was good, superior to any Irish butter to be bought at the same price. Of hams there were 1,500 offered. They sold at from 58s. to 60s. per cwt. The quality was good, and the prices the same. Of beef 200 tierces were offered, but none was sold. Of lard 1000 barrels (about 100 tons) were offered. It was taken in at 35s. to 36s. and 6d., and a considerable part of it has been since sold at those prices. The arrivals of American provisions from the United States, from the 1st to the 30th of November, were as follows:—Beef, 583 tierces and 303 barrels; ham, 7,650; lard, 3,337 barrels, 1,378 kegs; butter, 776 casks; cheese, 954 casks, 2,486 boxes; wheat, 2,561 quarters; and flour, 36,603. This is independent of the supplies from Canada. Since the commencement of the present month, the supplies have also been very large. The American ships Virginia and Republic, which arrived here yesterday, and the Compton, from Canada, which arrived on Sunday, are almost full of provisions. The two American vessels are said to bring 1,000 tierces of beef, besides other kinds of provisions.—*Liverpool Times.*

BELVOIR CASTLE.—The following statement will give some idea of the extent of the magnificent hospitality which on ordinary occasions prevails at the princely establishment of the Duke of Rutland :—“ During eighteen weeks, in 1840, there dined at his Grace's table, 1,997 persons; in the steward's room, 2,421; in the servants' hall, nursery, and kitchen department, including comers and goers, 11,312 persons. Of loaves of bread there were consumed, 3,333, and of meat 22,993lbs., exclusive of game.”

GLANDERS IN MAN AND IN THE HORSE.—Glanders and farcy are essentially contagious diseases, whether developed in man or the quadruped. They are, moreover, decidedly infectious as well as contagious in the latter class of animals, i. e. the contagious principle may be transmitted through the medium of the atmosphere, as well as by actual contact, from one animal to another. I have known several instances in which there was no possibility of contact with glanderous matter, and yet the disease was developed in healthy horses. A gentleman of fortune in the west of Ireland had had his stud infected with glanders; every particle of wood-work in the stables, including stalls, racks, manger, &c., was taken down and replaced

with new materials; the plastering on the walls was completely removed, and the pavement ripped up, and all was replaced with entirely new work; but the first horses that were again put into those stables became infected, and they were ultimately razed to the ground. It would even appear that the contagious principle remains for a long period, sometimes for years, in any stable or shed where glanders or farcy may happen to have been developed.—*Dr. Burgess's Manual of Diseases of the Skin.*

The Canadian Agricultural Journal.

MONTREAL, FEBRUARY 1, 1844.

There appears to be a general impression entertained that the English system of Agriculture could not be successfully introduced in Canada. We are, however, of a very different opinion. We are perfectly convinced, that better crops, of almost every species, can be produced here, by cultivating the soil for them as in England, than by any other mode of cultivation generally practised here, that is not English. To commence with root, or green crops. The English mode of preparing the land for the potatoe or turnip crop, is in every particular the best, and most suitable for the same crops in Canada. Their after culture should be also the same. The cultivation of carrots parsnips, or beets, should be the same as in England and the soil most suitable for all those crops is exactly similar to that which answers best for them in Britain—peas, and beans, may be cultivated here as in the old country, and on the same quality of soil. Vetches or tares, will, if sown in spring, be as good a crop as in England, if they are managed in the same way. We may next refer to crops of grain. Any man acquainted with the English cultivation for wheat, must be well aware, that the same cultivation of land for wheat in this country will produce the best crop. It may not produce so good a crop here as in England, in consequence of some other causes, but we take leave to say, that the English mode of cultivating and preparing the soil for wheat, would be the very best that could be adopted for the same grain in Canada. The same rule exactly applies to barley—and certainly the cultivation of this latter grain comes nearer to the English mode, than that for any other grain, and the consequence is, that we raise crops of barley here, that come nearer to the produce of the same grain in England, than any other we cultivate. Oats, if cultivated on suitable soil and sown early, will come very near the English crops of the same grain, but not unless they are sown upon soil that is sufficiently fertile, and in proper time.

If any farmer doubts the correctness of what we advance, he will confer a favour upon us, and greatly benefit his class, by showing what better system of cultivation can be adopted here than that of England. We do not say that the English system of cultivation can be generally and profitably adopted, but we say it will produce the best crops; if that be desirable, and if the system was more generally introduced, labourers

employed would soon become perfectly acquainted with it, and be able to execute the work in less time, and at much less expence. We could not afford to pay twenty dollars for the cultivation of an acre of land, if the crop would only produce ten dollars. This would not be a useful or desirable improvement. There can be no doubt, however, that we may introduce all that will be practicable of the English system, to very great advantage, and if we do this, we shall soon see a vast improvement in the produce and value of Canadian Agriculture. Meadows, and pastures, may be managed as in England—and the horses, cattle and sheep, that feed upon them. The long winters are so far an injury to farmers, as to put a stop to work in the fields during all that period—but in other respects our cold winters are much better for us than soft winters, such as they have in England, would be. It would be impossible we could have more suitable winters for our situation and circumstances, than those which the Creator has given us. It gives us good roads, good bridges, and without the expense of making them, and to all parts of a country of immense extent. These are advantages more than equal to the drawbacks we may have in other things. As to our having to feed cattle during a long winter, they have to do so in England, for nearly as many days and months as we have. If the cattle, and sheep, in England were to depend upon the grass they might gather in the fields in winter, they would soon be a poor stock. There is no just ground of complaint against the country or climate of Canada for agriculture. We can grow as heavy crops of hay here as in England with not more trouble in cultivating the soil, and with less in saving of the crop of hay. The great mistake appears to be, that we expect crops of every kind here, equal to those in England, while we do not adopt anything like the mode of careful cultivation they have in that country. It is the same case as regards pastures—cattle, sheep—and the dairy produce. We wonder we have not all those things in equal perfection, and value as those in England, though we pay nothing like the same attention to have them so. We admit that the low prices we have had in Canada for some time past, did not encourage a better system, or greater degree of attention. It is not so now, however. We have the English markets open to us on most favourable terms, and we have a certain extent of protection from foreign competition, which should give us ample encouragement to exertion, and make our country something like our Father-land in its abundant, and valuable productions. We are unworthy the advantages we are favoured with, if we do not improve them to the full extent they are capable of. Now is the favourable time to commence in earnest a better system of Agriculture in every branch, and in every way. In all parts of the world the inhabitants are endeavouring to improve their condition, and why should Canada, that is equal, if not superior to most of them, in the natural fertility of its soil, and in many other

peculiar advantages, be behind other countries? Her inhabitants are equal, if not superior to those of most countries we know, or hear of—as an Agricultural population, hardy, and capable of great exertion, early and late. There is not any cause that we should not have an improving and prosperous Agriculture, if we only are unanimous in determining that it shall be so. The backward state of education may be some check, but that is in our power to remedy also. We submit these observations very respectfully, in order that we may endeavour to understand the true circumstances of the land we live in—and not blame the country for evils that do not naturally belong to it, but that result from our own neglect of adopting a better and more judicious system of husbandry, many years before this time.

We perceive by the late advices from England that the character of Canadian beef and butter is much better now than at the period of previous advices, and we expect it to become more favourable every day. We are perfectly convinced that there is no cause to prevent us raising good beef, and making good butter, if we determine to adopt the means that are in our power to do so—good pastures, and a suitable stock of cattle, will ensure good beef, to be slaughtered in the fall, and exported. A good dairy stock—good pastures—a dairy of proper temperature—suitable utensils—and judicious management of the milk, cream, and butter, will ensure a quality of butter that will sell in the English markets at a fair price. It will be in the farmer's own power to make this part of his business profitable or otherwise. If he brings cattle to market that are not fat, he cannot expect to receive a price for them that will pay him. If, on the contrary, they are fat, he will find purchasers that will pay a fair price, because it will always be more profitable for a merchant to send home good beef than bills of exchange. It is the same case as regards butter. If the farmer makes a good article, and puts it up in casks that will be fit for exportation, he will get a price for it in due proportion to the price in England. But if he does not have a good article, of uniform colour and saltness, and in suitable casks, he will have to sell it in Montreal at a very low price, to persons, who remake it, mix it, and pack in proper casks; and thus, for want of due attention, he sacrifices his produce to others who make a large profit of his ignorance and inattention. If a farmer had not sufficient butter at one churning to fill a cask of 56 lbs. weight, which is the proper size, he might keep over the butter to the next churning, putting some salt to it, and when the next churning was nearly finished, the butter kept over from the previous churning might be broken into the churn, and churned until it would be perfectly mixed. This would ensure butter of the same colour and quality in the same cask, and it certainly would not be any great trouble to do this. If the butter-milk was a little salt, it would do it no injury for the swine.

We shall in the future numbers of this Journal give every information in our power on the subject of dairy management, and its produce. Professor Low, in his "Practical Agriculture," states: "On a well managed dairy-farm, where a proper breed of dairy-cows exist, and where the cows are fed on herbage, and green forage in summer, and stall-fed in winter, (on potatoes, cabbages, carrots, &c.) the average yearly produce may be reckoned at from 600 to 800 gallons for each cow. Something more than two gallons of milk will yield about 1 lb. of butter, and about one gallon of milk will yield 1 lb. of cheese." We have made experiments in Canada, and on good pasture, found about the same results from milk, in the quantity of butter, and cheese. Both the description of the stock, and the quality of the pasture will have a great influence upon the quality and quantity of butter or cheese. We have invariably found the richest milk from the Canadian breed of cows, and on limestone pastures—but limestone pastures are not the most healthy for stock here in the hot months of summer; when the grass becomes very dry and parched, cattle are very liable to inflammation of the intestines. Abundance of water, and giving them salt at regular periods, and occasionally mixing with the salt a small quantity of saltpetre or nitre will be a great means of preserving them in health. The same author, Professor Low, gives the following description of a dairy-cow: "A dairy-cow, like a fattening animal, should have a skin soft and mellow to the touch,—should have the back straight and the loins broad, the extremities small and delicate; but she need not, as is the case of the feeding animal, have the chest broad and prominent before. She should rather have the fore-quarters tight, and the hind-quarters relatively broad, capacious, and deep; and she should have a large well formed udder. There should be no breeding *in-and-in*, as in the case of a feeding stock. The purpose of rearing cows for the dairy is not to produce animals that will arrive at premature age, but such as are hardy and of good constitution." He recommends the Ayrshire cows as very suitable for the dairy, and so they are. We would recommend a good selection of the Canadian breed that might be improved as the most profitable of dairy-cows. They are very hardy and of good constitution; and if well selected, will, we believe, prove to be as profitable a dairy stock throughout the year, as any other breed of cattle. By profit we wish to be understood, that this breed of cattle will yield as much produce for what they consume, as any other, and more. We have had ourselves, and we have frequently seen as perfectly formed cows of the pure Canadian breed, as could be desired. There never has been due attention given to the improvement of this breed, and if there had, they would be a valuable dairy stock for this country—every way suitable.

THE SEASON.—The weather since our last, has been excessively cold, almost every day, many degrees below

zero—such weather is very favourable for forming our ice bridges, and for good roads, but it will occasion a large expenditure of the food of cattle, as they require much more in very cold weather. It will also be severely felt by the poor who have not good clothes, and sufficient shelter, as they will require more food, and fuel, to keep them in any degree of comfortable existence, than if the season was more moderate. We are happy to have to report, that a portion of the labourers, both in town, and at Lachine, are now employed, with a prospect that many more will soon find constant work at the Lachine Canal. We had a conversation lately, with a gentleman resident at Lachine, who expressed much satisfaction with the orderly conduct of the labourers assembled there, though he knew many of them to be suffering severe privations. He said that with the exception of taking a little wood for firing, he did not know of any act of misconduct on their part. To prevent trespass on firewood, and fences, in the neighbourhood of the Canal during the progress of the work, will be impossible, and could not be expected, where so many persons, men, women, and children, will be congregated together, without sufficient shelter.

WINTER ROADS.—It is one of the greatest advantages to the inhabitants of this country generally, to have good winter roads, and after all that has been said against the Sleigh Ordinance, it is manifest now that if the Law was strictly enforced we would be sure to have good roads in winter. We were always perfectly certain that from the peculiar construction of the common train, cariole, and berlin, they must necessarily form an uneven surface on snow immediately after falling because the runners and shafts of these carriages in passing over deep snow collected it into heaps. We were equally satisfied that properly constructed sleighs, drawn by two horses abreast, could not form bad roads, but must make good roads on any even surface. There is now abundant proof, that with properly constructed winter carriages, and a large proportion of them drawn by two horses abreast, we shall have good winter roads. The use of the snow-plough upon the roads is a great advantage, and should be always put upon them after a fall of snow. The greatest difficulty at present is, that the roads are generally too narrow for double sleighs to pass each other with ease. This is a great check to the more general use of double sleighs. It would also be a great improvement if the fences were taken down on all the public roads, or that the roads should be made in the open fields. The fences are a great injury to winter roads, particularly where they are narrow, and hollow, or sheltered. The snow collects in them to a great depth, and they become very difficult to travel upon. Wide, open, unsheltered roads,—situated when possible upon an even surface, with the use of the snow plough, and with suitable winter carriages that are now coming into so general use, would be a

great means of insuring good roads at very trifling expense.

Though work in the fields is suspended for the present, the farmer will have abundance of employment in carrying manure to his fields, in providing fence and firewood, and in attention to his cattle, in thrashing, and the disposing of his produce. By having all these works as forward as possible in winter, it will enable them to give all their attention to field works in the spring. The winter is much the best time for taking manure to the fields, while good roads may be had in every direction. The manure will waste less in the fields if put up properly, than it would in most yards, where generally a large quantity of snow accumulates. It would be a very great means of preserving manure from waste if it could be under cover while in the farm yard. In the Netherlands, manure is generally collected in vaulted cellars, or cisterns, under the stables, and in this way the urine is preserved, and mixed with the other manure.

In England, it is said that 28 lbs. of second flour will take six quarts of warm water in winter, and half a pint of good white, washed yeast, and will yield generally 38 lbs. of good perfect bread. Is the yield of bread the same from fine flour in Canada?

We beg to remind our friends, and subscribers, that we wish this Journal to be the medium for conveying useful, and practical information, on any subject connected with the improvement and prosperity of Canadian Agriculture—and we earnestly invite all those who may have such information, to communicate with us, and they may rest assured they will meet every attention. We do not promise to give insertion to all communications addressed to us on the subject, but we shall give any that we believe would be useful, or assist in promoting the object we have in view. If we should unfortunately err in our estimate of communications addressed to us, and decline to insert them, we shall be willing to return them, and if the authors may think they would be useful to the public, they can procure their publication in some other Journal. We shall invariably expect the names of the individuals who may send us communications to be made known to us; otherwise we shall not insert their articles.

SCALDING MILK FOR BUTTER.—In the Boston Ploughman, we notice that Mr. Johnson, of Framingham, scalds his milk during the winter season, after drawing it from the cow, and then sets it away in the usual manner. The butter made from the cream is as yellow, sweet, and solid, as if made in June. The same thing is done by all good butter-makers in this vicinity, with the same effects as detailed by Mr. Johnson.—*American Agriculturist.*

We would strongly recommend this plan to our Canadian farmers, from our own experience. It is in this way the famous Devonshire butter is made, both in summer and winter.

The following notice is selected from a late English newspaper, and we only wish it was in our power to give a similar notice, of proceedings in Canada for the same object. The establishment of such a seminary, or school for the advancement or agricultural improvement, would give some appearance that it was considered by those in authority to be really a matter of importance to the inhabitants of the country. It is in consequence of the total neglect of the higher classes of this community to the subject of agriculture that it is now in such a backward state. The farmers think because the subject is of no interest with those better educated than themselves, it must not in reality be a matter deserving their attention, and they neglect it, following the example of the better informed:

A seminary is now being established in the county of Northampton, where the rudiments of agriculture and of agricultural chemistry, as propounded by Liebig, Playfair, and others, are to be taught, combined with a classical education.

It may be interesting to our subscribers to hear of the great "Smithfield Cattle Show" held in London in December last. The *Mark-Lane-Express* observes:—"We are happy to state that the Show of the Smithfield Cattle Club continues to improve both in cattle and agricultural implements." We give a short extract from the same Journal, descriptive of the Show:—

THE CHRISTMAS SHOW OF CATTLE.—This great national exhibition—the greatest of its kind in the world—was opened to the public at an early hour on Wednesday morning, and attended throughout the day by a much larger number of visitors than has been known to have attended upon any previous occasion. It might be fairly supposed that the inspection of fat stock would be interesting only to even a portion of the male sex, but it is a remarkable fact that this exhibition has become attractive to ladies of the highest rank. Indeed a large proportion of the visitors at the bazaar were females, who contemplated the different specimens of animal beauty with a mixed feeling of curiosity and admiration.

The collection of animals this year is not only more numerous, but of a more varied description, than at any previous exhibition. It will be found, on reference to the award of prizes by the judges, that the competition has not, as heretofore, been limited to districts adjacent to the metropolis, but that it has taken a much wider scope, extending to the more remote parts of the kingdom. This may be accounted for in part by the facility of transit afforded by railways, but is in a greater degree attributable to the encouragement held out by the Smithfield Cattle Club and the Royal Agricultural Society of England, which has induced cattle breeders to abandon their old-fashioned treatment of animals, and to adopt such of the newly-discovered scientific principles as had met with the sanction of competent judges and practical graziers. The consequence of this overthrow of old prejudices is evident in the large number of new competitors from parts of the kingdom in which the idea of fattening an animal for the Smithfield Cattle Show was never entertained.

The local agricultural associations, it must be confessed, have had no inconsiderable influence in promoting this spirit of emulation. Many members of

these bodies, although good practical farmers, and thoroughly conversant with the treatment of stock, would have deemed it presumptuous to enter the lists against noblemen and gentlemen of condition, were it not that at the meetings of the local associations they have been invited and stimulated to do so.

The principal contributors to the present exhibition are Lord Spencer, president of the Club, the Duke of Richmond, vice-president, the Duke of Bedford, the Earl of Warwick, Sir William Wake, Lord Western, the Earl of Hardwicke, the Earl of Radnor, Sir Charles Tempest, the Marquis of Exeter, the Duke of Manchester, the Hon. W. Wilson, and Mr. Fisher Hobbs.

The appearance of his Royal Highness Prince Albert as a competitor for prizes at this annual exhibition will not fail to raise the character of the Smithfield Club still higher in the estimation of the agricultural community. The Prince has been unsuccessful this year, but it should not be forgotten that his royal highness has only recently turned his attention to those practically useful pursuits, and that this is the first time he has entered the field. His royal highness exhibited two Scotch oxen, and three Suffolk pigs, all of which have been bred and fattened at his royal highness's farm near Windsor, under his own immediate superintendence. Although not considered by the judges entitled to prizes, the animals were much commended by all who saw them. These specimens attracted a great deal of curiosity throughout the day.

There was never, perhaps, a fuller attendance of agriculturists in the metropolis on any similar occasion than at present. Besides the annual exhibition of the Smithfield Cattle Club, the Royal Agricultural Society of England holds its *soirées* in Hanover-square: and Professor Brande delivers two lectures on the application of chemistry in connection with agriculture, in the theatre of the Royal Society, Albemarle-street; and the Farmers' Club, recently established, holds its meetings at Radley's Hotel, Bridge-street, Blackfriars. These friendly *reunions* are in every respect desirable, as they must necessarily tend to the diffusion of knowledge upon various points essential to the well-being of that important body.

After the show, about 200 gentlemen dined together at the Club-house, when several interesting speeches were made by some of the members.

The General Meeting of the "Royal English Agricultural Society" took place at the Society's House in Hanover-Square on the 9th December, when a very interesting Report was made by the Council. It appears that at the last year's great Show at Derby, the Show-yard occupied twice the space of that of either Oxford or Cambridge, and contained nearly four times the number of animals, and more than seven times the number of implements, that were exhibited at Oxford. There were exhibited at the Derby Meeting in July last no less than 878 head of Cattle, and 700 distinct agricultural implements; and it should be recollected that only one animal is allowed to be exhibited by the same individual in the same class. The number of members is now 6863, as follows 108:—Life Governors, 193 Governors, 434 Life Members 6115 Members, and 13 Hon. Members. There are besides this great Society more than 300 local Societies and Farmers' Clubs in England, all instituted with the view of forwarding the improvement of Agri-

culture. We in Canada should go and do likewise, for certainly we require improvement here as much and a thousand times more, than they do in that country.

It is becoming a very general practice in England for Agricultural Societies, and Farmers' Clubs, to offer premiums for essay, on different subjects connected with the improvement of agriculture, and to have monthly discussions at their meetings with the same object. This plan cannot fail to prove highly useful, and might be introduced here to great advantage. We select the following subjects for discussion for one of these Clubs, for the year 1844. We only give those of which might be suitable for Canadian Agriculture.

JANUARY 1st.—"On the most economical mode of keeping and using Cart Horses." This subject includes the consideration of the best food adapted for such horses; draught, or the number required to draw each waggon, cart, and plough; the manner of using them, whether single or abreast, and the number necessary to be advantageously employed for the size of each farm.

FEBRUARY 5th.—"On the relative advantages of different manures, both natural and artificial." This includes the consideration of the cost and value of the application of farm yard manure, heaps of compost and urine collected in tanks as applied to the land; as to its immediate or permanent effect, compared with the introduction of guano, gypsum, nitrate of soda, &c. and other manures purchased and brought from a distance; and whether applied separately or mixed.

MARCH 4th.—"On the advantages of mixing and deepening Soils, by subsoil ploughing and trenching." Subjects to be considered are the proper depth to be tried; the relative expenses incurred by each method; and the profit to be derived from them, at the time required, when a return may be expected for the capital expended; the nature of the soil so treated; and the crops to be grown to produce a remuneration for the money expended.

MAY 6th.—"On the management of Grass Land and the best rotation of Green Crops." Subjects to be considered: The time of putting up meadows intended for hay; the time of making hay, and its relative value, whether grown and made early or late; the use of aftermarth; the time meadows ought to be left cleared; the artificial green food required to allow meadows to be so treated, such as turnips, vetches, Italian rye grass, clover, &c.

JUNE 3rd.—"On the management of Sheep." Subjects to be considered:—The sort best adapted for different soils; the average number to be kept per acre; the relative profits between a breeding and a fattening stock; the best mode of treatment, and the nature of food, with reference to the benefit to be derived from it, both by the animal and the land.

JULY 1st.—"On the best method of Harvesting Corn." Subjects to be considered:—The state of cutting; whether ripe, or not quite ripe; the manner of cutting, whether with scythe or sickle; the best waggon adapted for carriage; the best place for making ricks, whether in the field or rickyard.

SEPTEMBER 2nd.—"On the advantages of Draining." Subjects to be considered:—The cheapest and best mode of draining different qualities of soils; the capital required per acre, and the return to be expected therefrom.

OCTOBER 7th.—"On the best mode of keeping Farm Accounts." Subjects for consideration:—Number and division of entries to be made: division of live and dead stock; stock; interest to be charged on capital sunk in making improvements and purchase of implements; number of years required to bring back capital.

We give the following Report of the Smithfield Cattle Market, in order to show the estimation in which the several different breeds of cattle and sheep,

are held in England. It appears from this report that the Hereford and Devon breeds of cattle, and Devon breed of sheep are the favourites. A cart-horse, five years old, exhibited at the Smithfield Show, was nineteen hands high.

SMITHFIELD CATTLE MARKET.

MONDAY, DEC. 11.—The great Christmas Show having been appointed to be held to-day, the market this morning exhibited a degree of animation and bustle seldom or never before witnessed in this or any other similar place of business in the United Kingdom. Not only was the attendance of London and country butchers large, but the market was crowded throughout the day by agricultural and other visitors, who expressed themselves highly gratified with the stock brought forward.

In particularizing the stock, we shall commence with the beasts, as is our usual custom. In taking a comparative view of it, we may safely venture to intimate that a finer, more symmetrical, a heavier, or better conditioned supply of those animals was never witnessed by the oldest grazier living. In many respects, it was decidedly superior to that exhibited at the corresponding period in 1842; while, if we take its average quality, we must give our opinion in favour of this day's Show. For a series of years the Hereford breeds have held the first position on these interesting occasions; and we have to observe that that position was never before so marked as to-day: in fact, without detracting from the merits of some of the Herefords shown in the yard at Baker-street, and which carried off prizes, we cannot but express our surprise and regret that some of these beasts should not have been entered in the lists for competition at the Smithfield Club's show. Take, for instance, the 25 pure Herefords and Sussex beasts brought to this morning's market, by Mr. Senior, of Broughton House, near Aylesbury. These wonderful creatures—5 years old—were estimated to weigh, on the average, 250 stones each. For weight of fat, and symmetry, these, we unhesitatingly affirm, were never before excelled by any grazier in the kingdom; hence worthy of our especial notice. Even these, however, we do not consider the prodigies of the Show, as we accord that honour to Mr. Terry's seven Hereford Steers, bred and fed by that gentleman, on his farm, near Aylesbury. These beasts were wonderful indeed—showing, in our judgment, the greatest weight, in the same compass, ever observed in any similar breed in the world. And this, by the way, is not saying too much for them; therefore, we place them as the *first* and most valuable beasts—in other words, as the wonder of the market. The next, in point of excellence, we consider the twenty superior Devons shown by Mr. Chancelin. The twenty-six Devons, the property of Mr. John Somers, of Saltmoor House, near Bridgewater, were very wonderful animals, as will be perceived when we observe that their weight was from 140 to 170 stones each, and that some of them found purchasers at 36*l.* per head. Mr. H. Brown, of Stawell, near Bridgewater, had also some remarkably good Devons, bred by Mr. John Birch, of Bridford, near Taunton, and by Mr. T. Danger, of Turnstile, near Bridgewater, which elicited much approbation. We have also to notice favourably the 26 Devons shown by Mr. W. Bond, of Bishop Lydiard, near Taunton, Somersetshire; as also some by Mr. G. Bond, of Oak Farm, near Taunton, and which reflected the highest credit upon those gentlemen's skill as breeders. The 20 Devons exhibited by Mr. Harman, of Barrow, near Bridgewater, were well made up beasts, though not such heavy weighers as those above-noticed. Mr.

Gurrier had also an extraordinarily fine show of Herefords, Devons, Runt, and Scots; while Mr. Collins had two of the best shorthorns, bred and fed by Mr. Simpson, near Cambridge, we ever saw, exceeding in weight 170 stones each: The 10 Herefords, the property of Mr. Layton, of Thorney, near Peterborough, and offered for sale by Mr. Collins, were first-rate animals. Mr. Robert Morgan had also 20 very superior short-horned and Hereford Oxen, grazed by W. Goodall, Esq., of Market Deeping, Lincolnshire. These beasts were greatly admired by the butchers, and allowed by judges to be the 20 best beasts shown in London, of any one gentleman's feeding. Mr. Morgan, had, likewise, some very good Oxen on sale, the property of W. Wiseman, Esq., of Moulta Eauget, and some remarkably fine Scots, belonging to G. Hay, Esq., of Aberdeen, (N. B.) The short-horns and Herefords last referred to weighed quite 200 stone each. Mr. Verley had on show 14 Herefords, sent by Mr. B. Simpkins of Oby, Leicestershire, and which were justly admired by all present.

We now come to the Sheep, but in which, with some exceptions—to which we presently allude—there was a slight falling off in quality, but not in numbers (the latter being about the average of those shewn on this occasion). Prime old Downs being scarce were taken off somewhat freely, at currencies fully equal to those obtained on this day se'nnight, or from 4s. to 4s. 4d. per 8lbs; but with polled and other breeds the trade was in a very depressed state, at barely stationary prices.

In glancing through the supply of Sheep we perceived some unusually fine creatures amongst it—Mr. Weal having offered 16 polled sheep, the property of E. F. Whittingstall, Esq., of Langley-Berry, Hertfordshire; as, also, 20 remarkably fine Downs, bred by the same gentleman. Some of the former produced 6l. per head. Mr. Weal likewise showed two wonderful Downs, sent by Mr. Addams, of Ware, Herts, and which were justly praised. There were shown by other salesmen some remarkably fine Downs, bred and fed by Mr. Tuckwell, of Signett; five polled Sheep, bred and fed by Mr. C. Large, of Broadwell; and some exceedingly fine Downs, belonging to Mr. Faulkner, of Berry Barns, which were certainly the prodigies of the supply of Sheep.

DRY ROT IN POTATOES.

This disease is one that has produced loss and disappointment to farmers both in the British Isles and in Canada, to a considerable extent, within the last few years, and the causes do not appear to be satisfactorily understood. The following selection on the subject is from a late number of the *Mark-Lane Express*, and deserves attention:

There have been various cases in this district of the total failure of this crop from what has been denominated the "taint" or the rotting of the sets in the ground. Various attempts have been made to account for this sort of failure which has been so common, especially in the south of Scotland, of late years; but none of the causes usually assigned seem to be satisfactory. It has been attributed to the avidity of the soil at the time of planting; to the fermentation of the dung; to the cutting of the tubers, and to their being allowed to lie too long cut before being planted. But the question occurs—why should any of these circumstances cause failure now, seeing that no such thing was heard of in former years, during which these supposed causes of failure were at least as much in operation as they are at present? Potatoes had frequently been planted in a dry and warm season (1826 for instance,) with dung in all stages of fermentation—always in cut

sets—and it had wont to be the general practice, in this part of the country, to cut the tubers just as it happened to suit the convenience of the parties concerned, though it might be several days before it was intended to plant them, and to throw them down in heaps in a shed or by the side of a wall and elsewhere, and yet no such failure in any instance occurred. It seems pretty evident, therefore, that these circumstances are only secondary causes of the failure, any of which may be sufficient to complete the destruction of the vital energy in a plant which is extremely susceptible of injury from its being in an unnatural, or, as it may be called, a diseased state. The quantity of starch found in the potatoe is known to be very much; and though its containing a large quantity of the substance increases its value as an article of food, yet there is reason to believe that the same circumstance tends to lessen the power of the vital principle in the plant, and consequently, especially when combined with other unfavorable influences, to occasion it to fail in vegetating. Now, there are three circumstances which seem to have a tendency to affect the quantity of starch, viz., 1st, The time that has elapsed since the tubers were raised from the seed obtained from the apples, or "plums" as they are called in this part of the country; 2nd, The nature of the soil on which they have grown; and 3rd, The degree of ripeness to which they have been allowed to attain before being dug up. If these conjectures, then, are correct, a remedy for the failure might be found in raising tubers from seed; for though these might at first be less dry, their juices would be more vigorous, and they would possess the vital principle in all its power. And, potatoes raised on a soil that has been long cultivated, and of a dry and rather loose texture, with abundance of carbonaceous matter, or vegetable mould, will be most likely to fail when re-planted; whereas those raised on a soil of an opposite character, especially if it is rather late and high-lying, will probably vegetate. And, again, potatoes which are already in that condition, or stage of their existence, in which they have a tendency to deposit an excess of starch, may, to a considerable extent, be prevented from doing so by being dug up early; whereas the contrary effect will certainly ensue from their being allowed to be what, in such circumstances, may be called over-ripened. The writer of this does not pretend to have given any very particular attention to the matter, and merely ventures to throw out these hints for the consideration of those who have studied the subject—a subject which, apart from its importance to the agriculturist, is certainly an interesting point in vegetable physiology.—Nov. 25.

EXPORTATION OF CATTLE TO BELGIUM.—The agents acting for his Majesty King Leopold in this country have made another large purchase of prize bulls, rams, and ewes, for the purpose of improving the breed of horned cattle and sheep in Belgium. On Tuesday 12 bulls of the best English breed, 15 rams, and 30 ewes, were shipped off for Ostend on account of the Belgium Government, making a total of 80 bulls, 100 milch cows, and 300 rams and ewes, that have been exported from England to Antwerp and Ostend within the last six weeks by the agents. They are all prize-cattle, and have been purchased at first-rate prices, the expense being no object, as the King of the Belgians is desirous to have some of the finest specimens of the English breeds to carry out the grand plan of agricultural improvement and rural economy throughout his kingdom by offering annual prizes and encouragement to the farming interest.

BARN CELLAR.—If it can be as conveniently done now as at any time, construct a cellar under your barn, or a portion of it, for the storage of roots, and the preservation of manure. The farmer who has no barn cellar, is getting so to be considered behind the age.

Quick lime is found to be a much better agent than water in dispersing the choke damp that is often found in wells and pits. The application of a bushel of lime, slaked or unslaked, will be sufficient to clear a well in five or ten minutes.

ON THE ECONOMY OF MANURES.

Were we to announce that we had discovered a chemical process, by which, for the mere trouble of collecting, we could supply every farmer with abundance of that inestimable manure—guano, doubtless our table would groan with the weight of applications for information as to the means to be used. We do announce that such discovery has been made; and without putting those under whose notice this may fall to the trouble of farther application, we tell them the secret consists in the proper management of the manures constantly accumulating, and, we regret to say, as constantly going to waste on most farms. Every particle of manure which lies for an hour exposed to the air, or to rain, is parting with its ammonia—the principle which renders guano so valuable; every pound of the fluid from the cattle-house, or even from the house-bucket or wash-tub, which is allowed to flow down the stream, or be absorbed by the yard or the air, is so much of the essence of manure thrown away, or, in other words, of food wasted. We have repeatedly endeavoured to bring the matter under the notice of farmers; it is a subject, however, of such importance that we must not omit any opportunity which may present itself of recommending it to their attention.

The following is from "Trimmer's Chemistry for Farmers:"—"The waste of the most valuable part of farm-yard manure is so great under the English system as to render it desirable that, without abandoning the use of it for that of liquid manure, till the superiority of the latter has been fully proved by experiment, the farmer should endeavour to introduce improvements in the present management of it, based upon a knowledge of the chemical properties of the substance with which he has to deal, by which a vast amount of manure may be saved, which is now lost. Not contented with promoting the escape of as much ammonia as possible in the volatile form during the process of heating, turning, and spreading the dung, and during the time which it is frequently allowed to lie on the land before it is ploughed in, we appear to endeavour to deprive it as much as possible of all soluble matter, by making the dung-heap the channel through which all the water which is collected from the roofs of the buildings passes by the main drains of the farm-yard into the nearest stream. The annual waste of manuring matter which takes place on most farms, from this mode of management, is immense. In order to prevent it, the eaves of all the buildings should be supplied with spouts, which would lead the water away without allowing it to reach the dung-heap, which should receive, except in very dry weather, only the water which falls on it directly from the atmosphere; and a drain should convey a surplus moisture from the dung-heap to a covered tank, in which it should be preserved in a separate state. The brown or blackish fluid thus collected will consist partially of urine, partly of water, with many dissolved particles of the solid excrements. It must be putrefied before it can be used, in order to neutralize the caustic ammonia, with carbonic acid; but if putrefaction be allowed to proceed so far that the smell of ammonia is entirely gone, it will have lost the greater part of its manuring properties. It will be better, however, to convert the ammonia into sulphate of ammonia during the process of putrefaction, by means either of sulphuric acid or gypsum. The liquid thus prepared may be applied, by means of the water-cart, to some of the most accessible of the growing crops, but not during wet weather; for, holding, as it does, so many salts in solution, it may convey too much nutriment to the plants, and injure instead of benefiting them, should the ground not contain moisture enough to dilute it properly. If it contain more than four or five pounds in the hundred of solid matter in solution, it will be too concentrated to be applied with safety to growing crops in dry soils. If derived from a manure-pit flooded by rain from the roofs of the buildings, it will scarcely contain two per cent. of solid matter, and will then be of little value. If the farmer dislike the use of the drainings of the dung-heap in a liquid state to growing crops, they may be distributed upon uncropped land immediately before ploughing or harrowing it, or they may be used for the purpose of saturating heaps of

compost; but to such compost, and indeed to any, containing, like all dunghoops, salts of ammonia, burnt lime should on no account be added, as it decomposes most of the salts of ammonia, and causes the escape of volatile ammonia.

MODE OF FIXING THE AMMONIA BY MEANS OF SULPHATES.—The dunghoop, thus freed from superfluous moisture, and the fluids which dr. in from it being preserved for use, instead of being got rid of as a nuisance, the next object is to provide that during the heating of the dung, and the subsequent management of it, as little ammonia shall escape in a gaseous form as possible. The best mode of fixing it appears to be by means of gypsum. Liebig recommends the strewing of the floors of stables and cow-sheds with it, for the twofold purposes of removing the offensive smell, which must always be more or less prejudicial to the health of the cattle, and of preventing the escape of the ammonia in the form of the volatile carbonate. Gypsum and carbonate of ammonia cannot be brought into contact at ordinary temperatures without mutual decomposition, and the production of the non-volatile sulphate of ammonia and carbonate of lime. It is stated in a note by the editor of Liebig's work, that the practice thus recommended prevails in some parts of England. In Germany, according to Sprengel, it is usual to strew gypsum over land on which sheep are folded, in order to fix the ammonia of their dung and urine in the soil. The dunghoop might also be strewed with gypsum for the same purpose. It is a very cheap substance, easily obtained in most parts of England. Considerable beds of it exist in Cheshire, Derbyshire, and near Watchet, on the Bristol Channel; and it might be raised in much greater quantities than at present, if there were a demand for it. Of the quantity that would be required upon a farm for those purposes, we may form a rough estimate, by supposing that for every horse or head of horned cattle kept, as much ammonia is lost in a volatile state, by our present mode of managing farm-yard manure, as Sprengel calculates is lost in Belgium by putrefying urine without diluting it with water, or saturating it with acids—viz., 162 lbs., requiring for its saturation 373 lbs. of sulphuric acid. This quantity of sulphuric acid might be obtained for somewhat more than five cwt. of gypsum. But as the cattle are not in the yard above six months in the year, this would be reduced to 2½ cwt. per head, which should produce 2½ cwt. of sulphate of ammonia—a powerful manure, not to be bought for less than 25s. the cwt. Of course, however, if the dunghoop is to be flooded with water, which will carry this soluble sulphate away from the farm, its formation by means of gypsum will only incur an unnecessary expense.

THE RICK-YARD AT TEDDESLEY.—Lord Hatherton, in his interesting and instructive speech at the recent Lichfield agricultural dinner, adverted to some of the many improvements carried into effect on his farm at Teddesley, under the superintendance of his lordship's agent, Mr. Bright. We had the satisfaction a few days ago of witnessing the completely triumphant results of those improvements, as exhibited in the rick-yard—the true test after all. At a moderate computation there cannot be less than 10,000 or 11,000 bushels of corn of this year's growth in the yard, all secured in excellent condition, and presenting an appearance truly imposing. The wheat comprises more than a third of the whole quantity, and is contained in no less than 21 handsomely formed ricks. This vast quantity of grain is the produce of 350 acres of land, a considerable portion of which but a very few years ago was little better than a barren heath. The quantity of hay is also prodigious, exceeding 400 tons, nearly 300 of which is new hay, the produce of about 150 acres of upland meadow, irrigated solely by the drainage from the adjacent parts of his lordship's farm. That modern and most valuable system of summer stall feeding, or "soiling," is extensively practised at Teddesley, and with such extraordinary and striking success, both with regard to the economy of food and the augmentation of the quantity of manure, as to be almost incredible to any but those who have witnessed it.—*Staffordshire Advertiser.*

EFFECTS OF A TRAVELLER'S DISCOVERY.—Saltpetre being indispensable in making sulphuric acid, the commercial value of that salt had formerly an important influence upon its price. It is true that one hundred pounds of saltpetre only are required to one thousand pounds of sulphur; but its cost was four times greater than an equal weight of the latter. Travellers had observed, near the small seaport of Yquiqui, in the district of Atacama, in Peru, an efflorescence covering the ground over the extensive districts. This was found to consist principally of nitrate of soda. Advantage was quickly taken of this discovery. The quantity of this valuable salt proved to be inexhaustible, as it exists in beds extending over more than two hundred square miles. It was brought to England at less than half the freight of the East India saltpetre (nitrate of potassa;) and as, in the chemical manufacture, neither the potash nor the soda were required, but only the nitric acid in combination with the alkali, the soda-saltpetre of South America soon supplanted the potash-nitre of the East. The manufacture of sulphuric acid received a new impulse; its price was much diminished, without injury to the manufacturer; and, with the exception of fluctuations caused by the impediments thrown in the way of the export of sulphur from Sicily, it soon became reduced to a minimum, and remained stationary. Potash-saltpetre is now only employed in the manufacture of gunpowder; it is no longer in demand for other purposes; and thus, if government effect a saving of many hundred thousand pounds annually in gunpowder, this economy must be attributed to the increased manufacture of sulphuric acid.—*Liebig's Letters on Chemistry.*

CEREMONIOUS TEA-DRINKING IN JAPAN.—Tea, made in the ordinary way or boiled in the tea kettle, is drunk at all meals, and indeed, all day long, by all classes. But there is another mode of preparing tea, which, on account of its expense through the various utensils and implements employed in its concoction, all of which Japanese etiquette requires to be ornamental and costly, is wholly confined to the higher ranks, and by them given only upon grand occasions, and in great ceremony. It may be called the form of *un Thé* in Japan. The expense must consist wholly in the splendour of the lacquered bowls, silken napkins, &c., without which this tea cannot be offered, since the materials and process, as described, convey no idea of extravagance. The finest kinds of tea are ground to powder; a teaspoonful of this powder is put into a bowl, boiling water is poured upon it, and the whole is whipped with split bamboo till it creams. The Tea thus made is said to be a very agreeable, but very heating beverage. When company are invited to such a tea-drinking, the room in which they are received must be adorned with a picture of the philosopher, and bonze Darma, its inventor, probably, as he appears to be esteemed its patron *kami*, or saint. The adaptation of the decorations of a reception room to this and to other occasions is, in Japan, a science not to be easily acquired. In a handsome Japanese drawing room, there must be a *toko*, that is to say, a sort of recess, with shelves, expensively wrought of the very finest woods. In this *toko* must be exhibited a single picture,—no more,—beneath which must stand a vase with flowers. Now, not only must the picture be suited to the particular occasion, and therefore constantly changed, but a similar congruity in the flowers is indispensable; the kinds, the intermixture, the number, and even the proportion between the green leaves and the gay blossoms, must all be regulated according to the special occasion. The laws that govern these variations are formed into a system, and a book treating of this complicated affair is one of those studied by young ladies at school.—*Manners and Customs of the Japanese.*

THE HARTZ MINERS.—Quiet and monotonous as the life of these people appears, it is, nevertheless, a true living life. The aged palsied woman, who sat by the stove over against the large cupboard, may have sat there a quarter of a century, and her thoughts and feelings have doubtless grown into every corner of this stove, and into every rude carving of this cupboard. And the stove and cup-

board live, for a human being has infused into them a portion of its own soul. It was this life of contemplation—of immediate perceptions,—that gave birth to the German *Marchen*, the peculiarity of which consists in this,—that not only animals and plants, but also objects apparently destitute of all life, speak and act. To the thoughtful and simple people, in the quiet contented privacy of their lowly cottages, on mountain or in forest, the inward life of such objects revealed itself; they acquired an indelible and consistent character. a charming mixture of fantastic humours, and thoroughly human dispositions. And so we see them in the *Marchen*, in which the wildest wonders are told in the easy matter-of-course style of daily occurrences; needles and pins come out of the tailor's shed, and lose themselves in the dark; straws and bits of charcoal try to cross the brook, and are cast away; the shovel and the broom stand upon the step, and quarrel and fight; the questioned looking-glass shows the face of the prettiest girl, and drops of blood begin to speak mysterious fearful words of anxious pity. From the same cause is our life in childhood so infinitely significant; at that age everything is of importance to us; we hear everything; see everything, and all our impressions are vivid; whereas at a later age, we do everything with design, and we lose in depth what we gain in extension of impressions. Now we are grown up gentlemen and ladies; we frequently change our dwellings; the housemaid daily clears everything away, and alters at her will the position of the furniture, which has little interest for us, as it is either new, or it belongs to-day to John, to-morrow to Peter; our very clothes are strangers, we hardly know how many buttons there are on the coat upon our back; we change our clothes as often as we can so that not one of them remains connected with one inward or outward history.—*Heinrich Heine.*

GASTRONOMY IN SPAIN.—Spanish cookery is not generally considered to be first-rate, and the oil and garlic certainly do predominate a little at times; but yet they have many excellent dishes, and have also the good sense to repair their deficiencies by borrowing from the French. The Spaniards in general, I think, care little about eating. Give them a *puchero* and a glass of water, just coloured with wine, and they will dine as contentedly on it, as if they had three courses and a dessert. The cigar that follows the repast always appears to be a much greater gratification to them than the meal itself. The *puchero*, by the by, is a capital plain dish. It is composed of beef, bacon, some of the exquisite little *chorizos* or sausages of Estremadura, white beans and *garbanzos*, a sort of large dried pea, exceedingly farinaceous. This is all boiled together, and then served up dry on different dishes. Tomato or some other sauce is frequently eaten with it. The *refrescos* and cooling drinks have, not unnaturally in a hot climate like Spain, received much attention; and certainly they are most delicious. I recollect dining with some officers of the guard, who drank nothing, both during and after dinner, but a mixture of sherry and lemonade, equal parts of each. This was kept in a large silver pail that stood in a tub of ice, and a waiter served it out with a punch ladle as it was called for. There is another excellent drink, although its composition may seem strange. A bowl half full oficed lemonade is filled up with the light frothy beer drunk on the continent. It is the most refreshing beverage I ever tasted; and, when one is used to it, perhaps the most agreeable, in hot weather. The *leche helado*, milk half frozen, and flavoured with cinnamon and orange flowers, is another delicious draught.—*Colburn's New Monthly Magazine for November.*

SHORT SERMON.—If you can do a favor to a neighbor, don't hesitate.—Man best secures his own happiness by contributing to that of others.—*Selected.*

Gentle treatment and rapid and close milking will tend to the greatest development of the milk in cows, and the contrary practices will have the effect of materially reducing the quantity.

MONTREAL MARKET PRICES.

CORRELATED BY THE CLERKS OF THE MARKETS.

New Market, February 3.

Wheat,.....per minot,.....	5/0 @ 5/3
Oats,..... do	1/0 @ 1/2
Barley,..... do	2/0 @ 2/3
Peas,..... do	2/0 @ 2/4
Buckwheat, do	2/0 @ 2/2
Rye,..... do	2/6 @ 3/0
Flaxseed,.... do	4/0 @ 4/6
Potatoes,.... do	1/3 @ 1/6
Beans, American, per bushel,.....	4/0 @ 4/6
Do. Canada,.... do	6/0 @ 6/8
Honey, per lb,.....	0/4 1/2 @ 0/5
Beef,.... do	0/2 @ 0/5
Mutton, per qr.	1/3 @ 4/6
Lamb,.... do	1/0 @ 2/0
Veal,.... do	3/0 @ 10/
Pork,.....per lb,.....	0/3 @ 0/5
Butter, Fresh, do	0/9 @ 0/10
Do. Salt, do	0/6 @ 0/6 1/2
Cheese,..... do	0/3 @ 0/4 1/2
Lard,..... do	0/5 @ 0/6
Maple Sugar, do	0/4 1/2 @ 0/5
Eggs, per dozen,.....	0/9 @ 0/0
Turkeys, (old), per couple,.....	6/0 @ 6/8
Do. (young) do	3/0 @ 5/0
Geese,..... do	4/0 @ 6/0
Ducks,..... do	1/6 @ 2/6
Fowls,..... do	2/0 @ 3/0
Chickens,..... do	1/3 @ 1/6
Partridges,..... do	2/6 @ 3/0
Hares,..... do	2/6 @ 3/4
Apples, American, per barrel,.....	6/0 @ 9/0
Do. Canada,.... do	5/0 @ 12/6
Flour, per quintal,.....	12/6 @ 13/4
Beef, per 100 lbs.,.....	12/0 @ 25/
Pork, Fresh, do	22/6 @ 25/
Hay, per 100 bundles,.....	20/0 @ 27/6
Straw, per 1200 lbs.,.....	12/6 @ 17/6

St. Ann's Market, February 3.

Wheat, per bushel,.....	5/0 @ 5/6
Oats, do	0/10 @ 1/0
Barley, do	2/0 @ 2/3
Peas, do	2/0 @ 2/3
Potatoes, do	1/2 @ 1/8
Beef, per lb,.....	0/2 @ 0/4
Mutton, per qr.....	2/0 @ 4/6
Lamb,.... do	1/0 @ 2/6
Veal,.... do	2/6 @ 10/0
Pork,.....per lb,.....	0/3 @ 0/4
Fresh Butter, do	0/9 @ 0/11
Salt do do	0/5 1/2 @ 0/6 1/2
Cheese,.... do	0/3 @ 0/4
Eggs, per dozen,.....	0/9 @ 1/0
Ducks, per couple,.....	1/6 @ 2/3
Fowls, do	1/8 @ 2/0
Chickens, do	1/0 @ 1/3
Geese, do	3/6 @ 5/6
Turkeys, do	4/0 @ 8/0
Partridges, do	2/6 @ 3/0
Fresh Pork, per 100 lbs.....	20/0 @ 26/3
Oatmeal, per 112 lbs.....	6/0 @ 7/0
Apples, per barrel,.....	5/0 @ 10/

SIZE OF TREES.—Our native woods often contain noble specimens of which the bulk is ten or twelve feet in diameter, a width greater by three feet than the carriage-way of Fetter Lane, near Temple Bar; and oaks might be named on the block of which two men could thresh, without one incommoding the other. The famous Greendole Oak is pierced by a road, over which it forms a triumphal arch, higher by several inches than the poet's postern at Westminster Abbey. The celebrated table in Dudley Castle, which is formed of a single oaken plank, is longer than the wooden bridge that crosses the lake in the Regent's Park; and the roof of the great hall of Westmin-

ster, which is spoken of with admiration on account of its vast span, being unsupported by a single pillar, is little more than one-third of the width of the noble canopy of waving branches that are upheld by the Workshop Oak. The massive rafters of the spacious roof rest on strong walls, but the branches of the tree spring from one common centre. Architects can alone estimate the excessive purchase which boughs of at least one hundred and eighty-nine feet must have on the trunk into which they are inserted. Those of the Oak of Ellerslie cover a Scotch acre of ground: and in the Three-shire Oak, its branches drip over an extent of seven hundred and seven square yards. The tree itself grows in a nook that is formed by the junction of the three counties of York, Nottingham and Derby.—*Ruins and Old Trees.*

OLD WINTER.

Who's he that comes yonder enthroned in the storm--
So hoarse in his voice—so forbidding in form?
His garments how white! and his visage how pale!
His helmet the snow flake, his weapon the hail;
And icicles, fresh as from glacial rocks—
Behold, how they hang from his hoary old locks!
The wee, tiny children are flocking to see
Whoever this fearful old stranger can be!
'Tis Winter, "old Winter," I know by his pace,
And the light that reflects from his frosty old face.

He walketh abroad while we slumber and dream;
Curls up the green herbage, and glazeth the stream;
He baketh the glebe, and he blanches the hills;
He curdles the fountains, and crusteth the rills;
Lays bare the deep forest, and withers the flower;
Disrobes the old ruin, and batters the tower;
He waveth his wand amid beauty and worth,
And scatters the wreck o'er the face of the earth.
"Old Winter" rules over land, ocean, and sea,
And a potent magician and laird is he.

But still, though his presence be frigid and drear,
He never comes forth but he bodeth of cheer:
His breath may be bleak, and his shouting may craze;
His touch may be icy, and sharper his ways;
The light of his glance, as it fits on the breeze,
The dew-drops on hedge-row and bramble may freeze:
But nature and man after all must agree,
That a welcome old annual visitor's he;
And echo respond to the feeling, all fraught
With the comforts and joys that "old Winter" has brought.

J. H. R. RAYLEY.

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