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## Management of Farmyard Manure.

The manufacture, preservation and economic application of farmyard manure, deservedly occupies a distinguished position in the agricultural practice of all countries, in which the improvement of husbandry is regarded as an object of national importance. Even in England, where, from a peculiar combination of circumstances, artificial manures, as they are called, can be readily obtained and are extensively employed, the farmer has to depend in a great degree on "barnyard muck," the proper management of which has for many years received, and is still receiving, the most earnest attention both from practical and scientific men. Farmyard manure constitutes the "sheet anchor" of the Canadian farmer, as extra or artificial productions are too difficult to procure, or too costly in price to be, at the present, at least, extensively employed. Slime, hum, ashes, and occasionally a little burnt phosphate of lime, crushed bones or guano, may be employed as special dressings, or in the form of compost with earthy or partially decomposed vegetable matter, yet the farmer looks mainly to the excrements of his live stock, combined with straw, to enable him to restore to the soil the greater portion of those ingredients which a large part of cropping has removed.

Farmyard manure, however, varies very much in the degree of its fertilising power, from several different sources; such as particularly the kind of food on

which animals are fed, and the amount of skill and care that is taken in preserving and mixing their solid and liquid excrements with straw, and other substances which by fermentation produce a compost more or less rich in the food of plants. Animals liberally fed on hay, turnips, linseed, and grain, produce a manure exceedingly rich in nitrogen, and the various salts required by our cultivated crops. The farmer should pay particular attention during the process of the formation of his manure, to what may be termed the chemical action and changes to which the mass is at all times more or less subject, by fermentation and exposure; and that no unnecessary waste occur by its being too much exposed to the action of air and water. Eave-troughs, for instance, ought to be provided in all places where cattle are kept, and their manure exposed to the action of the weather. If this precaution be neglected, a large portion of the soluble salts will be washed out, and make their escape, as is too commonly seen, in the form of a dark brown liquid, flowing from the yards or heap over the lower levels of the adjoining ground, till it meets with a final exit in the water course of a neighbouring ravine. The amount of valuable manure that is thus annually lost baffles all attempts at calculation. In Europe the practice is gaining ground of keeping manure during the period of its formation, more or less completely under cover, thus preventing the washings occasioned by heavy falls of rain water. We have seen a few instances of this kind in Canada; and it is

no doubt an improved practice that is much needed and of great importance. But even here caution becomes necessary, lest by allowing dung too freely to ferment, without the requisite amount of moisture being present, a large amount of its manuring power be dissipated in the form of *volatile* products, instead of only *soluble* matter. Horse dung when kept dry and in large heaps, is peculiarly liable to ferment to such a degree as to render it a light, dry, and almost useless mass. The best plan, for general purposes, is to mix together the manure of the different kinds of animals kept on the farm; admitting as much air and moisture as experience shows to be necessary in accordance with atmospheric temperature, for sustaining the requisite amount of fermentation. The cold of our winters is usually too excessive to allow of rapid chemical changes taking place in manure, either in the yard or in the heap; but great waste often occurs during a thaw, or heavy rains, when much of the soluble salts is wasted in the way before described.

In proof of this waste the following experiment made by Professor Voelcker, chemist of the Royal Agricultural Society of England, will be deemed conclusive. He took several cart loads of dung from the stables of the cows, mixed them thoroughly, and analysed a portion, that he might be able to understand whatever changes might subsequently take place. The mass was then divided into several equal parts, each of which was treated differently from the others, and after some months analysed again. The result was, that the portion kept under shelter had lost scarcely anything, but that which was exposed to rain, &c., had lost two-thirds of its most valuable ingredients, potash, ammonia, and phosphoric acid. And that this immense loss was due to the washing of the rain, and not to evaporation, was proved by frequent examinations of the air immediately around those parts most likely to give off ammonia, the only one of the three ingredients named which is at all volatile; and also by the analysis of liquid which flowed from the heaps.

Farmyard manure exerts a double action in the soil; that is, it produces *both a mechanical and a chemical change*. Under the former agency we find it giving stability to light sandy

soils, and making them more absorbent of moisture,—rendering tenacious clay soils more open and friable in their nature, and thereby admitting the freer passage of the rain and atmospheric air, as well as promoting the decomposition of these soils, and thereby rendering them more fertile. For dung to act mechanically in rendering the soil more open, and to overcome its tenacious character, it should be applied in what is termed its green state, that is not too much rotten. Ploughing deeply tenacious clays, incorporating with the soil a quantity of rough manure, tends to open their pores, so as more readily to admit air, and light, and heat, ameliorating agents of the greatest value. On soils, however, naturally light and porous, dung should be thoroughly decomposed before it is applied.

Farmyard manure exercises another group of influences of the greatest moment in the economy of vegetation in relation to the soil, which comes within what is designated *chemical action*. Here we have powers quite distinct from the former, that is the *mechanical*, which relates principally to the weight and tenacity of the soil, while the chemical powers supply the necessary ingredients for the growth and maturity of the cultivated crops. It is, therefore, in their combined action that the most desirable results become manifest. It is, however, worthy of inquiry, whether or not the use of fresh dung for stiff land, and rotten dung for porous land, is supported and confirmed by the chemical character of dung? When fresh dung is used upon stiff land, we find that the decay which then takes place acts upon the land, and renders the dormant ingredients of the soil active, and thereby converts matter which could not nourish a plant into valuable food for vegetation. It also imparts to the soil a beneficial warmth, which is favorable to germination and vegetable growth. In addition to this, the absorbent powers of the soil seize and return the products of this fermentation of the dung, and secure them until required by the growing plant. In the case of a sandy land, the circumstances, as well as the powers of the soil, are totally different. The porous character of the soil is decidedly unfavorable to the power of retaining manure; and consequently we cannot look upon such soils as safe guardians

of manure, and for this reason it should be added, so as to be immediately available for the crop. The manure, consequently, is more suitable when well rotten, upon chemical grounds, as well as upon a consideration of its mechanical character. The same principle is applicable to all the intermediate descriptions of soil, modified by the same rule.

The time for applying farmyard manure must greatly depend upon the nature of the soil and the crop to be raised. In soils of a retentive character, such as clays, marls, and strong loams, farmyard dung, even in a rough state, that is but imperfectly decomposed, may be ploughed in almost at any time, with advantage. In very porous soils, resting on loose, gravelly strata, it is impolitic to apply manure till a short period previous to the sowing of the seed, or it can be absorbed by the growing plant, otherwise much of it will percolate away in a fluid state, and consequently will, in a great measure, be lost.

From time immemorial dung has been employed as a top dressing for pastures and meadows, and has generally met the approval of practical men. But there have not been wanting those who have stoutly opposed this practice, representing it as wasteful, and generally unaccompanied with any benefits, proportionate to the cost. The objections are not wholly without foundation. The careless manner in which the operation of top dressing is sometimes conducted, leads, no doubt, to much unnecessary waste. In our climate, dung exposed in the fields during inclement weather in winter, seldom loses much of its fertilising ingredients, as little or no fermentation is set up. But the danger is when the spring commences; the increased temperature and moisture hasten decomposition, and unless the manure be carefully worked in by the bush-plow or other means, there is much risk of an escape of ammonia and of some portion of the solid manure running to waste. If the dung be decomposed before it is applied, and worked in as quickly as possible after being spread, the loss will in general be comparatively trifling. Dr. Backer, to whom we have already referred in the preceding article, has recently thrown considerable light upon this subject. He has ascertained by fully conducted experiments that, in well-rotted dung, the ammonia exists in combi-

nation with the organic acids, forming compounds which are not volatile. The original ground on which top-dressing was condemned was that, in consequence of the volatile character of the ammonia, we lost considerably by the practice. A more complete knowledge of the character and composition of dung thus confirms the experience of the past, and points to the well-rotted manure as being of great value for top-dressing; involving comparatively little waste, when the process is conducted with ordinary skill and care.

### On the Botany of the Red River Settlement and the Old Red River Trail.

[The following interesting paper, by John C. Schultz, Esq., was read at the meeting of the *Botanical Society of Canada*, at Kingston, Jan. 11th, 1861. We are glad to see this young and important Society already exhibiting unmistakable symptoms of healthful activity, and heartily wish it a long career of usefulness.]

Ebs.

The Red River Settlement of late years attracted much attention in Canada on account of its isolated position and the many and vague reports that were in circulation regarding it, some describing it as a land of milk and honey, and others as a cold barren waste. But little was known of the real resources of the country till the years 1857 and 1858, when the attention of our Government was directed to it, and they ordered two Expeditions to be fitted out, one under the charge of Mr. Hind, and the other under Mr. Dawson. These gentlemen, on their return, after an absence of eighteen months, submitted their Reports, accompanied by maps and a geological description of the country traversed. These were published and widely distributed, and many of you no doubt have seen them. Therefore any account that I give of the settlement will be as short as possible.

It is situated on the Red River, near its entrance into Lake Winnipeg, occupying both banks of the Red River and the Assiniboine, which empties into the Red River at the Hudson's Bay Company's post Fort Garry, the centre of the settlement. The settlement extends from the mouth of Red River up about forty miles, and on the Assiniboine River about twenty miles. The distance of the settlement from St. Paul is said to be six hundred miles, and from Lake Superior about three hundred. The population is estimated (rather high I think) at 10,000, including the roving population, who live alto-

gether by hunting. The climate resembles that of Montreal in the length and continued cold of the winters, and the rapid vegetation in the spring after the snow is off the ground. All the cereals are raised in abundance, the average produce to the acre exceeding that of Canada. Garden vegetables are also grown in abundance. Indian corn, however, is not so successful, being nipped by the early frosts.

While residing last summer at Fort Garry (the Hudson's Bay Company's post in the settlement) I had an opportunity of collecting specimens of plants, some of which are now exhibited to the Society. From want of the necessary material they were rather imperfectly prepared, but may perhaps serve to give a general idea of the botany of the immediate vicinity of the Fort. On referring to the list it will be observed that here, as in other prairie land, the richest family is the Compositæ, many species of which are found. At the Fort we have not only the ordinary Prairie Composites, but a great abundance of such plants as *Artemisia Absinthium*, especially on the dryer and higher parts. Next in frequency come the Cruciferae, which generally follow man: these are abundant in the immediate vicinity of the Fort. There are many species of Rosaceæ and Leguminosæ, truly indigenous; Umbelliferae are not infrequent, and we have frequent representatives of Ranunculaceæ, Xanthoxylaceæ, Violaceæ, Balsaminaceæ, Caprifaliaceæ, Rubiaceæ, &c. The timber trees near the Fort are small groves of aspen and balsam poplar, and on the banks of the rivers oak, ash, elm, maple, aspen, and balsam poplar.

As I had an opportunity of collecting some specimens in the vicinity of the trail coming from Fort Garry to St. Pauls, I propose to give a description as short as possible of the character of the country coming down, so that it may be an assistance to those wishing to examine the specimens.

From the Red River Settlement to Canada there are three routes more or less in use. The oldest and the one now least used is known as the Old Red River Trail. This, leaving the settlement, passes up on the west side of the River Pembina (a small settlement of half breeds immediately on the international boundary line,) and distant sixty-five miles from Fort Garry. Crossing the Red River the trail takes a nearly south-west course, crossing all the eastern tributaries of the Red River, the larger of which are the Pine, Red Lake, Wild Rice, and Otter Tail Rivers, and ends at Otter Tail City, the first settlement on the American side. From here there is a bridged road to Crow Wing, seventy-five miles, and from thence to the city of St. Paul, a stage road of one hundred and fifty miles. Thence the traveller passes by steamboat and railroad to Canada.

The second route is our Canadian route, which, I am sorry to say, is not so practicable as might

be wished. This is a canoe route, passable about five or six months in the year, and always attended with a good deal of difficulty. This route is made by descending the Red River to Lake Winnipeg, ascending the Winnipeg River to Lake of the Woods, and from thence passing through the chain of rivers and lakes and over the numerous portages or carrying places to Fort William on Lake Superior. From Fort William there is communication with Canada by the mail steamer *Ploughboy*, which leaves monthly during the navigation for Collingwood.

The third, known as the new route, is the one now most travelled, and the one through which the Hudson Bay Company bring their furs. It was opened up last year for travel by parties to St. Paul, who took a small steamer over to the head waters of the Red River in pieces on sleighs the winter before last, and put her together there, then cutting a road through from St. Paul to the head of navigation on Red River, they connected the boat with St. Paul by stages. By this route you leave the settlement in the little steamer referred to, ascend the river about three hundred miles to Georgetown, the head of Navigation, and take the stages there for St. Paul. By this route it is possible to travel from the Red River settlement to Canada in twelve days, which is a great improvement on the ordinary time of twenty-five to thirty days by the other routes.

Now it was getting rather late in the season for the Lake Superior Route, and the water on the Red River being too low to admit of the little steamer making the trips, I was compelled either to come down by the old trail or postpone my journey till next spring. However, as my companion, Mr. Buckingham, was determined to come, we began preparing for the trip, first buying two hardy Indian ponies, which are the best horses fit to travel of this kind, a common Red River cart to carry our clothes, blankets, and provisions, a few cooking arrangements, two blankets, two buffalo robes, a gun cart, and provisions, which last consisted of two hundred pounds of pemmican, thirty pounds biscuit, butter, sugar, and tea. These were packed in several parcels, for convenience in crossing rivers, in some places the rivers were too deep to ford and we had to raft the baggage in a kind of a boat, made by stretching the canvass cart over around the body of the cart, and drawing it over with lines.

(To be concluded in our next.)

### Hiring of Farm Servants in England

A correspondent has sent us a report of a meeting of the Penrith Farmers' Club, from which we make the following extract from a paper read by the Rev. J. Simpson, on the condition of master and servant in the farm house.

Cumberland and Westmoreland. The modes of hiring servants, and other agricultural customs differ very widely in different parts of the United Kingdom. The Bothy system, which has existed so long in some parts of Scotland, and been productive of much social evil, has at length received its death-blow. Formerly it was the general practice for farmers to keep their unmarried servants in their houses, to admit them to their own table and exercise over them a sort of paternal government. During the last thirty years matters have greatly changed in these respects, and few farmers keep more than one man in the house; single men get lodgings in the cottages of married labourers. It is principally in reference to this change Mr. Simpson observes:

But with this great change in the relative position of master and servant it is a question whether other changes are not desirable. It is not for me to say what might be done under the present system of hiring servants into the house, yea, even what is now perhaps done in some few instances. None can doubt the great benefits that servants might derive from a residence under their master's roof. The farmer who employs many workmen, the great majority of whom form part of the family, might have a wonderful influence for good over those who serve him—might, like the patriarch of old, command his children and his household after him, that they should keep the way of the Lord, to do justice and judgment. There may be instances of this fatherly care and protection—there may be masters and mistresses who know the responsibility imposed on them by their position, and strive in some measure to influence their servants for good; but, as I said before, it is not for me to speak of what might be, but of what is, and I am much mistaken if in the great majority of farm houses servants are not left to their own desires; and as they sit around the fire on a winter evening it is very doubtful whether their conduct is becoming, their conversation edifying, or the treatment to which the younger girls especially are exposed, is such as their mothers would approve. That there are many exceptions I am perfectly well aware; that there are very many amongst farm servants themselves to whom loose and profane talk is disagreeable, I well know; and a change in the present system of hiring, in many respects, would be more beneficial to servants than to masters. At present the master goes to the market and hires a servant of whose moral conduct and character he knows little or nothing. That servant in due time takes up his residence in the master's household, and has his place at the kitchen fire. Few days elapse until his con-

duct and conversation rank him as very different from those amongst whom he has found a place. For God's name he has no reverence, in female virtue no faith, and his fellow-servants begin by tolerating and too often end by approving of what he does and says. Or you may reverse the picture, and follow a modest and well-conducted girl from the Sunday School to the hiring, and from the hiring to her first place. Stand by her in thought as she first listens to language to which her ears have been unaccustomed, follow her if you will to the ill-arranged sleeping apartments, and realize the shock to her feelings when she finds she cannot even undress without being overlooked, and then remember that she must endure this, and much more than this, or go to prison, and that because she has been hired out for half a year as a servant in husbandry and must serve her term. And here I may remark upon the inequality of the law as it affects masters and servants. If a servant in husbandry hires for half a year, he must serve the term, or may be imprisoned. However much he may dislike his service, however hardly he may be treated, to whatever evil influences he may be exposed, from whatever temptations he may desire to escape, he cannot terminate the service without running the risk of imprisonment. While on the other hand the master may turn away his servant at a moment's notice, and if he pay him wages for the time he has served, it seldom happens that the servant can obtain any recompense. It is very true that if he waits until the end of the half-year he may try to obtain the half-year's wages; but he will most probably be brought face to face with one of those gentlemen whose business it is to make the worse appear the better reason, and whose profit depends upon their success in doing so, and in nine cases out of ten the servant will have to be satisfied with wages for the time he has served. Such being the state of the law it is to me surprising that servants should still continue to hire for the half-year, surprising that they should not engage themselves on the condition of a month's notice or a month's wages. That such will eventually be the case I have little doubt, and I believe that such a change would have a most beneficial effect upon the social condition of servants, and help to lessen an evil which all regret, the frequent change of place. Under the present system of half-yearly hirings change of place is almost a necessary consequence. As the term approaches masters and servants have to make fresh arrangements. The master may have no fault to the servant, and the servant may like his place, but he thinks he ought to have more wages. The master is unwilling to advance. The bargaining goes on until the hiring day and they part, the servant probably to get less wages at a worse place, and the master to hire a stranger for the same money. And so long as there are half-yearly hirings there will be these constant

changes of place and all the evils which necessarily arise out of these changes. Inconvenience might indeed arise if men-servants could leave their places at a month's notice: but in the case of women servants there could be no such inconvenience, and the change would be for them and for their employers an unmixed good. However, this change in the conditions of hiring is only one of several things needed to improve the social comfort and elevate the moral condition of your servants. If employers of farm labor are really anxious to check that evil which is said to prevail to so great an extent amongst the farm servants of Cumberland and Westmorland, they must provide them with amusements less corrupting than fairs and "merric nights," allow them more reasonable opportunities for honourable courtship than the midnight hour, and give them greater facilities for marrying and making homes and firesides of their own. Now that the intimate intercourse between masters and servants, which once was, has ceased to be; now that young men and women hired to live in farm houses no longer spend their leisure time in the company or presence of the master and mistress of the household; now that there is no restraint upon the rude conduct, no check upon loose and profane talk, nothing to interest or instruct, nothing to elevate or refine the servants in our farm houses, it is doubtful whether the present system of hiring into the house is good for either master or servants.

### Observations on the Physical Geology of the Western Districts of Canada.

BY CHARLES ROBB, C. E., HAMILTON, C. W.

*From The Journal of the Canadian Institute.*

(Continued from page 45.)

*Strata traced Westwards.*—The various members of the series of rocks already described, are also exposed in tracing the escarpment running parallel to the shores of the lake, from Niagara to Flamboro'. The strata lie nearly horizontally from east to west, but dipping slightly to the eastward, the dip of the lower sandstone bed (called by the quarrymen the Gray Band,) which rests immediately on the red marl, being at the rate of twenty-two inches per mile. An extensive observation of the section thus exposed will shew the remarkable manner in which certain of the beds thin out and die away as you follow them westwards; while others not to be discovered at the Niagara River are intercalated in the series, and as they are traced in a north-west direction attain to a great thickness, still retaining their distinctive characters. Thus the great deposit of dark shale, which at the Falls shows a thickness of eighty or ninety feet, is represented at Flamboro' by a bed of only five feet

thick; while the encrinal and cherty limestone, which at Flamboro' occupy a most prominent place in the group, die out gradually and are scarcely to be detected at the Falls.\* This same encrinal limestone, which at Flamboro is only about twenty feet thick, is observed to attain a thickness of one hundred feet in Eramosa, Nassagawea and Caledon. This limestone, as well as the underlying Clinton limestone, is everywhere well adapted to form an excellent and durable building material, and is likewise of good quality for burning into lime. It forms wherever it crops out a bold escarpment (which may be called the Niagara ridge) owing to its solid and apparently unstratified character. This escarpment is distinctly traced from West Flamboro' eastward into Nelson, where it takes a sweeping turn to the north, and maintains a nearly straight course in that direction until it reaches Owen Sound, near Sydenham village. The dark bituminous limestone which forms the upper member of the group follows the same course, which, however, is not so distinctly marked, owing to its being stratified in thinner beds, and occupies throughout from the Niagara River to Owen Sound, a breadth of country varying from eighteen to twenty or twenty-two miles.

The red marl which forms the base of our series of rocks is supposed to be about 614 feet thick. The bore which yields the mineral water at St. Catherines pierces it for a depth of nearly four hundred and seventy feet without passing through it, and the level at which the bore commences is one hundred feet below its upper surface. It seems geographically to come to an abrupt termination at the west bank of the creek at Oakville, and is there succeeded by the Lorraine Shales, or Hudson River Group—an older formation consisting of alternate very thin beds of limestone and shale, which extend from this point along the north side of Lake Ontario to the River Rouge in the township of Pickering, immediately adjoining Scarboro'. A good section of this formation is exposed on the east bank of the Don at Toronto. A bore which was executed under my directions at the Toronto Station of the Great Western Railway, penetra

\* This phenomenon, which is not peculiar to the Silurian or any other system, though nowhere perhaps more strikingly apparent than in this locality, may, I conceive, be accounted for in three ways: Either, 1st That in the wide and deep ocean in which these deposits were made, certain of them never reached the deeper portions, but subsided along its shores; Or, 2nd. It may have been caused by certain portions being too shallow or even upraised above the surface of the water. Or, 3rdly. After the deposition of the stratum, it may have been uplifted so near to the surface of the sea, as to have been worn away by the waves, and thus have allowed a succeeding deposit to come directly upon one of preceding date.

ted it for a depth of one hundred and fifty feet without change. The water which this bore yielded was salt and bitter, and a considerable quantity of carburetted hydrogen gas was evolved.

I may here remark in passing that in the spring of 1855 a great landslide occurred on the slope of the mountain a little below Dundas Station, which displaced a portion of the track of the Great Western Railway, and was caused by the weight of the debris of the harder rocks above sliding along the face of the soft shales which, by exposure to the weather, resolve themselves into an unctuous sort of clay.

I may also notice that in filling up the old channel of the Desjardins canal, enormous quantities of material were thrown in and disappeared, producing no effect in forming a bank, but forcing up the soft material in the original bottom of the marsh to a considerable extent and height above the surface. This affords a good illustration on a small scale, of what the geologist often finds on a large scale, and may be puzzled to account for; I refer to the displacement of strata, formed in horizontal position and thrown up into a highly inclined or even vertical position.

**Waterlime and Ochre.**—Before noticing the superficial deposits of this region, I shall direct attention to the waterlime and ochre beds of Thorold, which are somewhat extensively worked for commercial purposes, and occur about three hundred feet above the level of the Lake, and close on the line of the Welland Canal at Thorold. The waterlime deposit consists of a series of thin layers (each layer not exceeding eight to ten inches thick) in all about three and a half to four feet thick, of very hard compact dark blue limestone, corresponding in position and probably identical with the Clinton group. These beds are in some places a perfect congeries of large bivalves, called *Pentamerus oblongus*, some of them measuring three and a half to four inches across, while the partings of the beds are beautifully marked with furoids of various species. The limestone from this bed, when calcined and ground to powder, forms an hydraulic cement of the best quality; owing this peculiar property to the presence of a large proportion (over ten per cent.) of silica or silicates. Immediately underlying and overlying this bed, are layers of a softer stone, which, when calcined and ground, forms an excellent drab coloured pigment; a rich brown paint, said to be fireproof, is also manufactured at Thorold, and the same material found in the same quarries.—Whether these peculiar products extend far to the east or west of the localities where they are present quarried, I am unable to say; but at Chester there occurs an iron ore bed at the same place in the series, and Dr. Mack of St. Thomas has ascertained that the stone from the drab ochre bed contains forty per cent. of

**Superficial Deposits.**—I shall now, as briefly as the subject will admit, direct your attention to the superficial deposits of this region, and the proofs of glacial action which they afford. It is now pretty generally conceded, and in fact cannot on any reasonable ground be denied, that the thick deposit of clay, sand, gravel and boulders which covers the Western districts of Canada, (in many places upwards of one hundred feet beneath the general surface, and along the shores of Lake Erie and elsewhere forming hills one hundred and fifty feet above the general level,) is due to what is called by geologists the glacial period, and the phenomena referable to this epoch, are precisely similar on both sides of the Atlantic. From well known cosmical laws, icebergs and fields of floating ice are constantly, in seas north of the fortieth parallel of latitude, passing from the Polar regions in a direction from N.E. to S.W. and are conveyed for hundreds of miles from their original birth-places; and these are frequently found to be charged with vast quantities of mud, sand and boulders, the debris of the granitic rocks which mostly occupy these regions. These ice-islands become stranded in seas too shallow to float them, and as the ice is melted, deposit their insoluble contents at random over the bottom of such seas, and the deposits thus formed would be stratified or unstratified according as the water was in a quiescent state or disturbed by currents. The slow passage of these ponderous masses, armed with such refractory materials, over the rocks forming the bottom of the seas, would grind down their upper surfaces, removing great quantities of their constituent materials, and producing grooves, furrows and scratches in the normal direction of their course. We have, on a small scale, an example near our own doors of the effect of ice in removing masses of rock. I refer to the fact that the isolated rock called Gull Island, between Cobourg and Port Hope, two miles from the northern shore of the lake, and on which the lighthouse is built, formed at the time of the early settlement of the country, an island of over two acres in extent, but is now only a sunken reef, owing doubtless to its having been as it were decapitated by the ice-forming over and adhering firmly to its upper beds, which would be borne away with the floating ice during storms. The same process is continually going on upon a larger scale in Lake Superior, and the observations of navigators in the Arctic regions supply, on a still more extensive scale, all the "modern instances" requisite for the corroboration of the theory.

Now it is an interesting and important fact that the constituent materials of the clay, sand and gravel which cover the greater part of Canada West, are derived from granitic and trappean rocks; that the boulders embedded in the clay and strewn over the surface are, for the most part, fragments of the same rocks; that

these rocks are found in their native beds invariably in a North-easterly direction, and that the surfaces of the harder rocks *in situ* in the peninsula, wherever exposed by the removal of the drift, are found to be smoothed, polished, furrowed and scratched in a direction from N.E. to S.W. Any one who has had occasion to visit Niagara Falls will see this phenomena strikingly developed along the top of the cliff on the American side, and at the excavation for the Hydraulic canal, about half a mile below the Fall. That this smoothing and scratching of the rocks could not be produced simply by the action of torrents of water carrying stones with it, may be satisfactorily proved by examining the rocks in the bed of the river, which, even where the current is most rapid, exhibit no analogous effect.

### Importation of Seeds.

MR. EDITOR,—I have just read an article in the *Agriculturist* of last year, on the subject of imported seed, and thought I would communicate something to the same point. About ten years ago one of my present neighbours sent home to Sussex a few oats, which were carefully sown in a garden and multiplied from year to year, until enough were produced for public sale and distribution. These Canadians, as they are called there, are now widely spread, and well known as coming to harvest two or three weeks earlier than the common English oat, are heavier, and produce a larger crop.

When in England in 1858, I saw them standing alongside of others, and they were a fortnight ahead of the common sort, and an incomparably better sample. Last year, notwithstanding the unfavorable weather, they sustained their character, and my brother-in-law, writing to me says: "I have bought Canadian Oats weighing 46 lbs. per bushel, (they have sometimes weighed 48 lbs.) although many English Oats are not worth finding. Mr. Agate sowed all Canadians this year, perhaps 100 acres, and I think they are better than ever."

Now Sir, I think all this goes to prove that it is profitable for English farmers to get their seed here, but that owing to the shortness of our season compared with theirs, English seed will not suit this country. I know that English oats and barley have failed up here. Yours respectfully,

PETER FULLER.

Meaford, January 38, 1861.

### Swiss Cultivation.

The following is a notice of the farming on the Rhine:—The cultivators of the soil must, in many cases, live more than two miles from the scene of their daily labours. The general aspect of the plain is no doubt monotonous, but is a monotony of beauty, and a beauty which fills the

mind with images of peace and plenty. In this vast plain there are scarcely any fences, but there are innumerable rows of trees, which probably mark the boundaries of property, with many little plantations of copsewood, and some considerable masses of forest. A large proportion of the whole surface is in grass, which is cut for forage, and is in extensive tracts, suggesting the idea of large properties, or large holdings. The face of the land under tillage conveys a very different impression, and would have amazed us, if we had not seen the same thing in France on a smaller scale. Here we find six distinct crops on four or five acres. By the side of an acre of wheat, for instance, on one broad furrow, you find an acre of potatoes; then follow half an acre of tobacco plants six feet high, half an acre of hemp, an acre of barley or rye, half an acre of hops, or poppies, or clover, and all generally clean and fair crops. A field of five acres in one species of produce is quite a rarity, and this over a range of 200 miles! These little plots of many colours, standing side by side, give the cultivated land the aspect of a nursery. Do they indicate minutely divided property as in Belgium, or minutely divided tenantry, as in Ireland? These are questions not to be answered without consulting books to which I have no access. I saw no Indian corn, or, at least, nothing which I could recognize as such, for I ought to tell that I have never seen the plant growing, except two or three stalks in a garden. Perhaps it has been superseded by potatoes, of which the quantity raised is very great. I am equally at a loss to account for the vast breadth of land in grass, the whole produce of which would seem to be used as hay, for we did not see a single horse, cow, or sheep, pasturing in the fields. Perhaps the intense heat at this season renders it necessary to feed the animals under cover. Here, in Switzerland, the cows pasture on the mountain tops all day long at 6,000 or 7,000 feet above the sea; but in the low land, where we are living (Interlaken) they are let out only in the morning and evening, and housed during the heat of the day.

### Do Sheep Require Water in Dry Weather?

Many farmers provide no water for sheep in winter while they have access to snow; but this is poor management, as sheep require more water while eating dry food; and to eat snow slake their thirst is a tedious, unpleasant, and unsatisfactory way, in which the animal will not take so much moisture as is necessary for health and good condition. In summer, sheep will do well without water, as has been proved by experiments; and we have learned this by years of observation, having frequently been most of the day in sight of the only watering place in the pasture, and never seeing the sheep drink.

their tracks around the water. But in the warm season they have moist food, and they usually feed when the dew is on.

If sheep be provided with a good watering place in winter, they will frequent it often, probably oftener than any other animal; and we have no doubt that they will go as far for water as other animals, after they have been introduced to it in a kind and gentle manner.

We have observed that sheep will go and drink in the morning, even to a considerable distance, before they have half done their breakfast; and they generally go to the water several times in the day, while some other animals only go once or twice. This shows conclusively the importance of a good supply of water.

### Bees—How to Feed Weak Swarms.

EDS. RURAL NEW-YORKER:—I have some late swarms of bees which I wish to winter, and I think they have not enough honey and but little bee-bread. Will you please to inform me through the columns of the RURAL, how I can most successfully feed them?—J. B. L., *Cuba, N. Y.*

Feeding bees should generally be over by the last days of October. If obliged to feed bees after the middle of November, it will generally be the better way to take them up; for, if by this time, they have but a scanty supply, it will cost nearly as much to feed them as they are worth, to say nothing of the trouble incurred. However, we will do what we can under the circumstances, as our correspondent seems desirous to winter his bees if possible. Now, if Mr. L. had only taken the precaution to have stated the *kind of hives* his swarms are in, it would have saved some unnecessary remarks. As different directions must be given with different kinds of hives, i. e., hives with moveable frames and hives without frames,—this seems to be necessary.

If the swarms are the common surplus box hives, we would say, move them at once to a good dry, dark cellar, where the temperature may be uniform; and then commence feeding by placing empty combs under the hives and also in the surplus honey chamber, which are to be kept supplied with honey, or what is *cheaper* and *equally good*, a preparation made as follows:—One-third part honey, and two-thirds coffee sugar—the sugar first dissolved by warm water. After the sugar is dissolved, then add the honey—the mixture should be well stirred and nearly the consistency of honey. If the hive be not provided with a chamber, it may be inverted, and the empty comb be filled with honey, or the preparation laid directly on the combs upon which the bees are clustered. The bees will not leave the hive if the cellar be perfectly dark. It would be folly to attempt to feed bees unless they can be kept at such a temperature as to induce them

to go in search after honey for them. If this cannot be done in the cellar, they may be moved to a warm, dark room in the house, where they should remain till they have stored enough in the hive proper to last them a month or more,—this will depend upon the amount of comb there is in the body of the hive—when they may be returned to the cellar. The less bees are disturbed and the more uniform the temperature, the less honey they will consume, and the better they will winter.

If the hives have *frames*, we should say the better way would be to unite the contents of any two swarms. There will be but little contention among the bees, provided they be thoroughly sprinkled with diluted honey scented with a few drops of peppermint essence. As bees distinguish each other by the *scent*, they will thereby not be able to distinguish “friend from foe.” Again, if some colonies are strong, and have more than 25 pounds of honey,—the amount necessary to winter a good swarm,—the excess may be taken away by means of the frames, and given to the destitute swarms. This method of feeding bees by removing the frames of comb—is the best and safest known. By it bees from other hives are not attracted to the hives thus fed, as no scent is emitted by the honey as when fed in the ordinary way; no labor is required from the bees, and but little time and labour are required from the keeper. Should the swarms be united and then need feeding, they must be moved either to the cellar or room, and fed by placing comb with honey in the chamber. By proper care and attention to these directions, there will be but little danger in wintering bees having a scanty supply of stores.—*Rural New-Yorker.*

THE BEST MODE OF MIXING SALT AND LIME. Soda made according to the plan of J. Benet, Esq., M. P., for Wiltshire, I have found a good application to land at the proper time. Lay three inches of unslaked lime, ten feet long and six wide, as a bed, then spread one inch thick of common salt. Repeat these layers till a bed two feet high is formed. If the mixture is made in summer, when it is dry, it may be in the open air; at other times, under cover. After ten days turn it over, and repeat the turnings five or six times at intervals of seven days; spread from a cart about sixty bushels per acre, covering the horse with a sheet or cloth to prevent burning the hair off. It should be ploughed in before wheat sowing.—*Hillyard's Practical Farming.*

BREEDING FROM YOUNG SOWS.—The *Maine Farmer* says, “It is quite common to breed from young sows, say fall pigs when one year old, a practice to be utterly condemned, and if continued in the same family for a few generations of the swine, they will be found to dwindle down from three or four hundred hogs to two or

three hundred. It is much better to keep the sow three or four years, or even much longer—they have been kept some fifteen years to advantage. The hog is some years in his natural state in maturing. It is a fact well known, at least to every Irishman in the "ould" country, that pigs from old sows will grow into hogs some thirty or forty pounds heavier than those from young ones."

**LIME AS A MANURE.**—Mr. Towers, in *The Farmer's Magazine*, thus sums up the qualities of quicklime:—"1. If applied to green vegetables, quite hot from the kiln, it will destroy the tissue and carbonize the substance, itself being brought into the state of mild lime or chalk. 2. As powdered or air-slaked lime it will directly kill slugs and moluscous vermin, acting by its peculiar attraction for water. 3. As an alkali it will neutralize acids of every description, and hence is peculiarly useful if dusted over trees infested with lichens. 4. Its affinity for humic acid is predominant, as we have seen; and, therefore, it becomes a specific remedy wherever there is a redundancy of inert decayed vegetable remains. 5. According to high chemical authority, it is capable of liberating potassa from clay and granite rocks, and of setting it at liberty from its combination of flint as an insoluble silicate of potassa. 6. It is a mistake to suppose that quicklime renders vegetable and animal remains soluble. These substances are partially soluble, as we have seen in the three alkalis; but the precipitate formed by the addition of lime is not soluble, or, at any rate, it is so far fixed that it will remain long quiescent in the ground, from which it can only be taken in very small quantities, and slow degrees, according to the capacity of the vegetable for such food. Lime, then acts as an antidote of redundant humous matter, attracting and fixing its acid as an innocuous humate.

## Agricultural Intelligence.

**STOCK IMPORTATIONS.**—We learn that Mr. Stone, of Guelph, in addition to his importation of Herefords, lately noticed, has also made an addition to his flock of Cotswolds, of thirty-six ewes and rams, per *Anglo Saxon*, which he hopes will enable him to supply the increasing demand for this breed of sheep next fall. The Herefords are doing well since they have gone into winter quarters. Mr. Joseph Kirby, of Guelph, has added to his flock of Leicesters, six fine shearing ewes, per same steamer. Mr. Stone's flocks and herds are attracting attention in widely-spread portions of the continent. During the last two months he has sold sheep to go to California, Virginia, Pennsylvania, New Hampshire and New Brunswick, as well as to a large number of counties in Upper Canada.

**SHEEP KILLING.**—We are informed that Mr. W. Bamberger, two miles north of Waterloo had eight sheep bitten by a dog last week, out of which six have since died. Mr. Moses Shantz, a neighbor of Bamberger, had also nine sheep bitten by the same dog, it is supposed, and eight out of these have died. Mr. Bamberger's sheep were valuable ones, as were also Mr. Shantz's, and their losses are quite heavy.—*Waterloo Chronicle*.

## Royal Dublin Show.

The usual winter show of this old society took place in the City of Dublin the second week of December, but it would appear that the agricultural department of the Winter Exhibition, for want of adequate encouragement, has of late years been declining. The Reporter of the *Mark Lane Express* observes:

"For the long period of 130 years the Dublin Society has been a prominent, and in many respects a useful institution in the sister island. Aided by considerable annual parliamentary grants, it has laboured in "promoting husbandry, and the other useful arts"—being the objects for which it was first established, and in the furtherance of which it has drawn into the ranks of its members a large number of the landed proprietors in Ireland, although not so many as it ought, perhaps, to have. Still they form the bulk of its members, who believe that they are fulfilling at least part of their duty when they have become contributors to its funds.

For many years "the promotion of husbandry" in Ireland formed by far the most important item in the annual accounts of the Society, and large sums were expended in encouraging planting, draining, the introduction of new varieties of plants suitable for the farm and the garden, the improvement of live stock, and in different channels which are now apparently forgotten—not the least important being the maintenance of a veterinary institution, which is now, by the way, sought to be revived, as it ceased about forty years ago, from some causes which are now apparently rather difficult to trace. Although perhaps, this might have originated in a certain indifference to agricultural matters, which has of late increased to a considerable extent in the management of the society, and which even at that period might have begun to exercise its baneful influence. Be that as it may, certainly the Dublin Society of the present day is not the Dublin Society of sixty years ago. Its liberal premium system has dwindled down to a very small sum, and its Agricultural Committee, instead of occupying, as it ought to do, the foremost place, is shoved into a corner, and its most moderate demands met by a growing non-compliance.

The truth is, Irish country gentlemen gen

ally do not take an active part in the general management of the Society; whilst those who do are unable to fight against the stronger influence of others, not at all connected with the management, and who do not consider farming matters "genteel" enough to merit the attention of such savans as they fancy themselves to be. They consider, forsooth! that the Dublin Society, founded for the purpose of promoting husbandry, ought to devote its fostering care to "higher branches" than the rearing of bullocks or the management of muck-heaps. Consequently, they intrude into matters with which they have here no concern, but which form the special province of other societies; and to effect this, they first starve, and will ultimately ruin, that department of the Society's operations which is its first concern, unless public opinion steps in to save it.

The spring shows of the society have for several years been no doubt, highly successful; but we deny that such success is attributable to encouragement afforded by the Society. It gives, indeed, a convenient place of meeting, and that is nearly all; for the premiums are laughably low, and would not, of themselves, draw together a parcel of common pig-jobbers. But then, breeders find the spring shows admirably suited for enabling them to dispose of their young stock; and hence at those meetings, there is a turn-out of yearling Shorthorn bulls such as we do not meet with elsewhere. Implement-makers also find the "Leinster Lawn" a first-rate sale-ground; but all the Society does is to find the ground, for which they charge largely."

The winter shows formerly consisted of roots, cereals, and butter, but latterly fat stock have been added. But it is stated that the same reasons which lead to a full show of breeding stock in spring, do not apply to a winter exhibition of fat stock, and that the society do but little to encourage it, especially when their ample means are considered. Owing to the curtailment of the premium list, and the unfavourableness of the season, the quantity of fat cattle, sheep and swine, was smaller even than usual, but the quality was good, considering the state of the weather during the whole of last year.

The soil and climate of Ireland are peculiarly adapted to the growth of root crops, and we have frequently seen astounding accounts of the size and weight of turnips, mangels, cabbage, &c., at their winter shows of the Dublin Society. The weather of the past year was of course unpropitious for these productions, yet we find the following facts in the report of the late Exhibition. Many samples of grain were of course a little raw and soft, but the 1st prize white wheat weighed 61lbs. a bushel, and the red 61½lbs. Barley 57½lbs. Oats 44½lbs. The best six Swedes weighed 94lbs.; another lot which arrived too late reached 119lbs! Six roots of Aberdeen turnips, 86lbs. Four white cabbages,

150lbs. Six roots of long red mangels weighed 69½lb.; long yellow mangel, 70lbs.; red globe mangel, 55lbs.; and yellow globe mangel 68lbs. First prize for twelve roots of Attringham carrots weighed 33lbs.; Belgian carrots, 32lb.; parsnips, 33lbs. The show of hemp and flax was small, but several samples were of very superior quality.

### The Northern Counties Fat-stock and Poultry Show.

The Northern Counties Fat Stock and Poultry Society, hitherto known as the "South Durham and North Yorkshire," held its eighth annual exhibition in Darlington, on Wednesday, Thursday, Friday, in the past week. It proved to be, what it was fully expected to be, by far the best show ever held, not only by the society, but in the north of England, for not merely were the entries more numerous (although a material decrease was exhibited in the number of cattle), but they were greatly superior in quality. The following is a comparative statement of the number of entries for the latter years of the society:

	1855	1856	1857	1858	1859	1860
Cattle ...	75	73	78	66	81	51
Sheep ...	27	16	14	12	21	20
Pigs ...	14	21	22	33	32	44
Poultry ..	403	477	377	480	339	471

Thus showing, as compared with last year, a falling off of 30 in cattle, and one in sheep, and an increase of 12 in pigs, and 132 in poultry.

The chief attraction of this show, and why we more particularly notice it, is the superior class of shorthorns which it is the means of bringing together. This very excellent and deservedly popular breed, in its early history, was known as the "Tees Water;" latterly the "Durham," or "Shorthorn." Of the dozen different breeds and sorts of beasts in this country, one third, we are told, are composed of Shorthorns. They are the most widely spread of any other, their popularity being confined not only to our own island, but extending also to the four quarters of the globe. Where, then, they are admitted to be indigenous to the soil, as is said to be the case with Darlington and the neighborhood, or the Vale of the Tees, it is most likely that we shall find the choicest specimens. And be it remembered that in this district there are many as great admirers of this species of animal as was ever Mr. Collins, to whose anxious devotion and care we owe so much. Last year the Duke of Cleveland exhibited an ox which had it been shown at the Smithfield Club or Birmingham would, it was generally asserted, and that by most competent judges, have taken the shine out of those which obtained the chief honors. This year, although

perhaps there was not one to equal in bulk that of the Duke of Cleveland's, there were many noble animals, and, as a whole, their quality was vastly superior to those shown last year. A heifer, the property of Mr. Booth, of Warlaby, near Northallerton, called the "Soldier's Bride," which was declared to be the best animal in the yard, and thereby won the "Founder's Cup;" a gold challenge vase, valued at 100 guineas, given by Mr. Mewburn, jun., a silver cup, given by the tradesmen and innkeepers of Darlington, and £15 as the best in her class, was only one year eleven months and three days old, and yet she weighed, it was estimated, dead weight, not less, perhaps more than 70 stones. Such an instance of early maturity, we believe, is not on record. Her symmetry was perfection itself, her back level as a board, and quarters exceedingly good; so with loins, ribs and shoulders; the beast could not be excelled, and her rump had the appearance of two fangi. Her flesh was particularly mellow to the touch, and her coat, white in colour, was almost as fine as silk. A thousand guineas is said to be about her figure. She was the observed of all observers; it was extremely difficult to get a glimpse of her, the stall being surrounded with spectators during the whole of the exhibition. She won a silver tankard at York the other day, on the occasion of a fat cattle show being held in that city. Providing she be kept for a couple of years more (and, as she is intended for breeding purposes, doubtless this will be the case) competent judges hesitate not to say that she will win all before her. We shall expect to find her at Birmingham or Smithfield next year.

The Shorthorns as a class are represented as excellent, and evenly fattened. In sheep nothing remarkable, although many well-known breeders entered the lists; but the pigs were more numerous than at any previous show, and it is doubtful whether as a whole they could be beaten anywhere.

"Altogether," remarks the reporter of the *Mark Lane Express*, from which the preceding account is taken, "the collection was such a one as any town might envy, and justly place the society in the rank they claim, namely, the *third* in the kingdom."

### Yorkshire Fat Cattle Show.

The fourth annual Exhibition of this Society was held in the City of York in December last, and the numbers and quality of both stock and poultry were considered satisfactory. The money and plate given amounted to about £300. Mr. Repps' Shorthorn ox won the first prize. Mr. Booth's once renowned Queen of the Isles was beaten in her class by a heifer of Lord Faversham's. But her companion, Soldier's Bride, by Windsor from Campfollower, who is not quite

two years old, and in training for the two year old heifer classes at the Royal next year, not only won the younger heifer prize, but the President's £20 silver tankard, as the best beast in the yard. The sheep were good: comprising excellent specimens of a cross between Lincolnshire ewes and Hampshire down rams, which is strongly recommended. A cross between a Cotswold and Leicester is also well spoken of. Pigs form a fine collection, comprising many animals of the large and small breeds that exhibited beautiful proportions, and evenly fattened.

### Agriculture in the Cape Colony.

At the recent annual meeting of the Smithfield Club, Mr. Eaton, a Cape colonist, gave the following description of agricultural matters in that part of the world:

He then proceeded to give some account of the effect of an Agricultural Society at the Cape of Good Hope, and of his own fifteen years experience there as an agriculturist. It took five years to gain sufficient experience to make ends meet: the first two were spent with a large practical farmer, and during the others, which were on his own account, he lost £700; but that sum bought that experience which led to his subsequent prosperity. About fifteen years ago there were comparatively few English farm implements in the colony. The labour was unadapted for machinery or implements requiring careful usage; and an agricultural society was only kept alive by the indefatigable perseverance and assistance of some few, amongst whom was one of its most staunch friends throughout, Mr. T. B. Bayley (nephew to the late Mr. Butterworth Bayley), who imported thorough-bred horses, sheep and other stock to a very large extent. The colony reaped rich harvests from these and similar importations. Wool is now exported largely; and, during the mutiny in India, the Cape supplied upwards of 6,000 horses, which had been very highly spoken of in India. About thirteen years ago Mr. Bayley imported a few of Howard's double-furrowed ploughs, one of which he (Mr. Eaton) used that season, as well as an American and the old clumsy Dutch plough, which required eight horses. He need not mention the result; but still the Dutch farmers were so prejudiced in favor of their fathers' and grandfathers' ploughs, that it took years for them to see their own interest; but the ploughing matches were too convincing, and now his (Mr. Eaton's) agents alone had imported upwards of a thousand of Howard's, besides many from Ransome. With regard to thrashing machines, which were almost unknown to most of the Dutch a few years ago, a trial of the few there had the effect of causing the farmers to come forward to order machines and join the society, and now they

were becoming quite general. These improvements had also convinced them of the value of improved labour; and now our Parliament has granted £150,000 for the importation of labour of that sort. Men with inclination to drink had better stay at home, as the Cape wine was cheap, wants few, wages good, and labour always in demand; but those who went, determined to resist this temptation, might work with the pleasant prospect of themselves becoming masters of comfortable homes in a few years. Mr. Eaton concluded by expressing his desire to learn more as to stall-feeding, which he thought ere long must be adopted in the colony.

### Brahmin Cattle Crossed with Durham, Devon, and Native.

The following communication was addressed to the Secretary of the New York Agricultural Society by Dr. D. C. Ambler, of Jacksonville, Florida, and will be found to contain an interesting account of his experiments, conducted on a large scale, in crossing the Brahmin cattle on other breeds, in Florida. We copy it from the January number of the Society's Journal:

When I saw you last, I had made a commencement of a Stock Rancho, at Enterprise, on Lake Monroe, Upper St. Johns, some 200 miles South of this. My first enclosure consists of a prairie of some eight to ten thousand acres of very excellent pasture. I placed on it some four to five hundred native cows; on which I cross with bulls of half Brahmin and half Durham or Devon. The mark of blood in the grade calves is very distinct and very superior to native. These grade calves at six months are better calves than natives at twelve months—all from same class of cows, and running on same pastures, and all fat. Their rapid growth quite exceeds my expectations. These calves and their sires bear the heat and sun of our summers much better than their mothers, with an entire immunity from bilious diseases—as black tongue, murrain, &c. This season I place some four to five hundred more cows on the pasture, and a corresponding increase of bulls; each year select cows from my outside or half wild-woods stock; adding others to those in the enclosure, till I rob my outside stock of all breeders. At the same time increase the size of the pastures and improve the feed by introducing improved grasses. Should my life be spared I hope, in a few years, to show a fine herd of blooded stock—when I should be most happy to see you, and ride over these beautiful southern prairies, in our sunny winter days.

The nine hundred calves I market this season, will make a beginning of rations for our good people, whether in the cotton fields or the tented field.

The fine stallion I procured from Jefferson

County, in your State, bears himself well in his new home, and I trust a few years will show a good herd for the road, the saddle and the plow. My mares are running at large on the same prairie as the cattle—requiring no feed but the grass, for the whole year.—*January 1st, 1861.*

### Shorthorns from America to England.

We remember hearing one of our enterprising Canadian breeders observe at our Provincial Exhibition four years ago, that the time was fast approaching when we might select as good specimens of several of the improved breeds of live stock, either from the United States or the British Provinces, as could be imported from Britain herself. This remark is beginning to be verified. We referred to this subject a few weeks ago, and have since found the following remarks in the *London Agricultural Gazette*:

It is interesting to learn that America, which has hitherto acted as such a drain on our best herds of Shorthorns in England, with no small profit, of course to their owners, is at length beginning to restore somewhat of the benefit she has thus derived. We understand that Mr. Langston, M. P., of Sarsden, has just hired of Mr. Samuel Thorne (of Thorndale, N. Y., one of the largest buyers at the great Tortworth sale, seven years ago, a young bull, the '5th Duke of Thorndale' by name, a son of 'Duchess 66' (for which 700 guineas were paid at that sale,) by 'Grand Turk,' bred by Mr. Bolden, and sold at Mr. Ambler's sale for 300 guineas.

Mr. Robinson, of Clifton Pastures, and Mr. C. Howard, of Biddenham, have also hired of Mr. Thorne, the '2nd Duke of Thorndale,' got by '2nd Grand Duke' (a son of the 600 guinea cow at the Tortworth sale), out of 'Duchess 71,' a daughter of 'Dutchess 66' (the 700 guinea cow just named), by the Duke of Gloucester.

Here we have the pure 'Duchess' blood crossing and re-crossing the Atlantic for the improvement of herds on both sides of it; and while enormous sums are paid for the hire of such bulls, there is no reason why the cost of transit and of insurance should stand in the way of a still more frequent interchange of good offices of this kind.

### Apricot's Gloster.

We observe in a recent number of our excellent cotemporary, *The Rural New Yorker*, a fine wood engraving of this handsome Shorthorn Bull, bred by Mr. S. P. Chapman, of Madison County, N. Y., and owned by Messrs. Butts & Cass, Onondaga county, calved Jan. 15, 1858, got by Duke of Gloster out of imported Apricot. He is described as a very promising animal, richly imbued with the Bates' blood, Kirk-leavington, England.

Mr. Chapman was for a number of years a distinguished short-horn breeder, and is well known and much respected in Canada. About two years since, being appointed to a responsible county office, he sold out the greater part of his herd, a number of very fine animals, which passed into the hands of other breeders.

### Manure from the Air.

It is well known that ammonia is the most valuable constituent of Peruvian guano, and that farmers pay a high price for this substance, with which they supplement the manure of the farm. Large leaved plants derive a considerable proportion of the nitrogen which they contain from the ammonia of the atmosphere; for this substance exists in the air, though the relative amount, as compared with the other constituents of the atmosphere, is but little more than appreciable. Now, nitrogen forms four-fifths of the weight of the atmosphere, and nitrogen, by combining with hydrogen in the proportion 17 to 3, forms ammonia; hydrogen is a constituent of water; and if a cheap method of separating it from this fluid and combining it with the nitrogen of the air were discovered, the production of ammonia upon a large scale might be carried on, and the farmer supplied with the most valuable, and, at present the most costly of the various manures he employs. Efforts in this direction have been made for several years past, and it would appear that success has now been attained. Two French chemists (M. M. Margueritte and De Sourdeval), have lately communicated to the French scientific journal a paper on this subject, of which the following is an *epitome*:—

Since the remarkable labors of Messrs. Liebig, Schaltenmann, and Kuhlmann, on the fertilising action of ammonical salts, the production of ammonia at a low price has become a problem of the highest interest. But to arrive at this result it is necessary to obtain the nitrogen elsewhere than in the nitrogenous matters which may, for the most part, be employed directly as manures, and of which the limited quantities and elevated price permit only a restricted use.

Atmospheric air is an inexhaustible and costless source of nitrogen. However, this element presents so great an indifference in its chemical reactions that, notwithstanding the numerous attempts which have been made, chemists have not heretofore succeeded in combining it with hydrogen so as to produce ammonia artificially. The result, so long desired, has been reserved for M. M. Margueritt and De Sourdeval, who have obtained it by employing an agent of which the remarkable properties and neat and precise reactions have permitted them to succeed where others had failed. This agent is baryta of which notice has recently been taken on account of the applications that M. Kuhlmann has made of it in

painting, of which no person suspected the part that it was to be called to play in the development of the agricultural riches of our country. The manufacture of ammonia is based on a fact entirely new—the cyanuration baryum. It had been believed until the present time that potash and soda alone had the properties of determining the formation of cyanogen; that the earthy alkaline bases—baryta, for example—could not, in any case, from cyanides.

Messrs. Margueritte and De Sourdeval have ascertained that this opinion is entirely erroneous, and that baryta, much better than potash or soda, fixes the nitrogen of the air or of animal matters in considerable proportions. It is already understood that for the preparation of Prussian blue the cyanide of barium presents great advantages over that of potassium, for the equivalent of baryta costs only about the one seventh of that of Potash. Thus do we find practically and really obtained the result first announced by Desfosses, and vainly pursued in France and England—the manufacture of cyanides from the nitrogen of the atmospheric air. This solution, so important, depends on the essential difference which exists between the properties of baryta and those of potash; the first is infusible, fixed, porous, and becomes deeply cyanuretted without loss; the second is fusible, volatile, and becomes cyanuretted only at the surface, and suffers from volatilisation a loss which amounts to 50 per cent. After the cyanide of barium was obtained, the grand problem for Messrs. Margueritte and De Sourdeval to resolve was the transformation of the cyanide into ammonia, by means at the same time simple, rapid, and inexpensive. The following is the operation:—

“In an earthen retort is calcined, at an elevated and sustained temperature, a mixture of carbonate of baryta, iron filings in the proportion of about 30 per cent., the refuse of coal, tar, and sawdust. This produces a reduction to the state of anhydrous baryta, of the greater part of the carbonate employed. Afterwards is slowly passed a current of air across the porous mass, the oxygen of which is converted into carbonic oxide by its passage over a column of incandescent charcoal, while its nitrogen, in presence of the charcoal and the barium, transforms itself into cyanogen, and produces considerable quantities of cyanidine. In effect, the matter sheltered from the air and cooled, and washed with boiling water, gives with the salts of iron an abundant precipitate of Prussian blue. The mixture thus calcined and cyanuretted is received into a cylinder of either cast or wrought-iron, which serves both as an extinguisher and as an apparatus for the transformation of the cyanuretted. Through this cylinder, at a temperature less than 300 deg. (centigrade) is passed a current of steam, which disengages, under the form of ammonia, all the nitrogen contained in the cyanide

of barium. It is impossible to foresee all the results of this great discovery. Among other things, it suggests the production of nitric acid from the air by oxidising ammonia.—*Irish Agricultural Review.*

GUANO.—M. Boussingault, to whom we are indebted for many valuable contributions to the literature of agriculture, has recently presented a paper to the French Academy on the origin and nature of Guano, from which we extract the following:—

The deposits of guano (*guano de pajaro*) extend from the 2nd to the 21st degree south latitude along the coast of Peru. Those which lie beyond these limits are much poorer in ammoniaical compounds than the former, and are not, therefore equal to them in value. Guano is generally found deposited in small promontories or on cliffs; it fills up crevices, and is in general to be found in those places in which the birds seek shelter. The rocks of this part of the coast consist of granite, gneiss, syenite, and porphyric syenite; the guano which covers them generally exists in horizontal layers; but sometimes the latter have a strong inclination, as at Chipana for instance, where they are nearly vertical.—The guano deposits are generally covered with an agglomeration of sand and saline substances, called *eatiche*, which the labourers first remove before they begin the attack on the guano. In some places, as at Pabellon de Pica, and at Punta Grande, the deposits lie under a mass of sand descended from the neighbouring mountains; and on this subject an observation made by M. F. de Rivero is extremely curious. At the places above mentioned the lowest guano deposits are covered with a stratum of old alluvial soil; then comes another layer of guano, and then a stratum of modern alluvial soil. To understand the importance of this fact, our readers must keep in mind that the age of modern alluvians does not extend beyond our historical times, while old alluvians date from the period immediately preceding that at which man first began to inhabit the earth; so that the guanae, or cormorants and other allied tribes of birds which deposit guano, must have existed thousands of years before man, seeing that the inferior layer of guano is several yards (sometimes from 15 to 20) in depth, and the old alluvial crust above it has a thickness of upwards of three yards. To explain the immense accumulation of guano in those regions, M. Boussingault observes that there has been a combination of a variety of causes favorable both to its production and preservation. Among these causes must be reckoned a dry climate; a ground presenting a vast number of cracks, fissures, and caverns, where the birds can rest, lay their eggs, and hatch them without being disturbed by the strong breezes from the south; and then abundance of the food suited to them. No where are fish so abundant as on this

coast, where whole shoals of them are cast upon the shore even in fine weather. Antonia de Ulloa states that anchovies especially are in such abundance here as to defy description; and he gives a good account of the manner in which their numbers are diminished by the myriads of guanae which are seen sometimes flying in countless flocks, like clouds intercepting the sun's rays, and sometimes darting into the sea to catch their prey. According to M. Boussingault's calculation, 100 kilogrammes of guano contain the nitrogen of 600 kilogrammes of sea fish; and as the guano deposits, before they began to be worked, contained 378,000,000 of metrical quintals of guano, the birds must have consumed 2,268,000,000 of quintals of fish.—*Irish Agricultural Review.*

## horticultural.

### Fruit Growers' Association of Upper Canada.

We had expected to have been furnished with a special report of the recent meeting of this Society at Hamilton, but not having received at the time of going to press, we make use of the following communication and report supplied to the *Toronto Globe* by our friend D. W. Beadle, of St. Catharines:—

This Association held its general annual meeting on the 16th and 17th January, at Hamilton. The officers chosen for the ensuing year are as follows:—President, Judge Logic, Hamilton; Vice Presidents, George Leslie, Esq., Toronto, D. W. Beadle, Esq., St. Catharines; Secretary, J. Hurlburt, LL.D., Hamilton; Treasurer, John A. Bruce, Esq., Hamilton; Committee on Orchard Fruits—Messrs. Leslie, Beadle, and Murray; Committee on Small Fruits—Messrs. Arnold, Gray and Meston.

The objects of this Association as expressed in its constitution, are the advancement of the science and art of fruit culture, to be accomplished by holding meetings for the exhibition of fruits, and for the discussion of all questions relative to fruit culture, and likewise by collecting, arranging, and disseminating useful information in relation thereto.

To this end, every one who cultivates fruit in any part of the Province, even though in ever so limited a way, is urgently solicited to become a member and to contribute the results of his experience. The adaptedness of different varieties of fruit to different localities, and especially the hardness with which they withstand the severity of our climate, are subjects of the greatest interest, and could the information on these points alone, which now lies scattered about through the Province, be gathered up

and brought before the Canadian public, it would soon prove a saving of no inconsiderable amount in preventing the useless planting of certain varieties of fruit in localities where they will not flourish. The experience brought out at the recent meeting in Hamilton is sufficient to show the importance of such a society to Canada, and the beneficial results to be anticipated from it, when not only every county but every township in every county shall be fully represented.

Once more then, on behalf of the fruit-growing interests of Canada, permit me to request all who take any interest in the cultivation of fruit to send in their names to the secretary, who will give them due notice of the time and place of meeting, and should any be unable to be personally present, by no means fail to send in to the secretary, in writing, the results of their experience.

Enclosed I hand you some extracts taken from my notes of the recent meeting of this Society, which will serve to show you its practical workings and the nature of the information there elicited. I have made them as brief as possible, that they might not occupy too much of your valuable space.

After the transaction of some routine business and listening to some reports on fruit culture, and an excellent address from the acting President on the culture of the grape, the committee on orchard fruits introduced a list of apples and pears for discussion, with a view to bring out the experience of different cultivators, which resulted as follows:—

*Early Harvest*, quality "best of its season." Tree perfectly hardy at Toronto, St. Catherines, and Grimsby; somewhat tender at Paris.

*Red Astracan*, quality very good, beautiful appearance, sells well in Toronto market. Tree very hardy in all parts of the Province.

*Dutchess of Oldenburg*, quality, "very good," very handsome. Tree perfectly hardy everywhere, very prolific, bears young and every year.

*Sweet Bough*, large size, best sweet apple of its season, valuable for market. Tree hardy at St. Catherines and at Paris; tender at Toronto.

*Early Joe*, quality best. Tree very hardy and a very slow grower. Most desirable as a dwarf in gardens.

*Early Strawberry* was found to a very small apple, and the tree a very shy bearer.

*Primate*, quality "best," hardy so far as known, but the variety had not been very generally tested.

*St. Lawrence*, quality "very good" at Toronto, best at Paris, "variable" at St. Catherines, improved in quality to the northward. Tree perfectly hardy in all the Province and a good bearer.

*Fameuse*, or *Snow Apple*, highly esteemed in all Canada as a desert fruit. Tree perfectly hardy.

*Fall Pippin*, quality "very good." The tree had been found to be tender in some localities and seasons about Toronto.

*Keswic Codlin*, quality "very good cooking." Tree very hardy, and an early bearer.

*Hawthornden*, "good cooking," very handsome. Tree very hardy and bears very young.

*Golden Sweet*, "very good" sweet apple, valuable for market. Tree very hardy and a good bearer.

*Gravenstein*, quality "best," best in all respects. Tree hardy at Toronto, Paris, and St. Catherines.

*Jersey Sweeting*, "best" fall sweet, valuable for market. Hardiness of the tree not yet fully tested.

*Baldwin*, "best" quality, profitable for market; keeps well until spring. Tree an early and great bearer, but tender to the northward.

*Rhode Island Greening*, one of the most valuable and profitable market fruits. Tree begins to bear young and is very prolific, but quite tender to the north and particularly at Paris.

*Spikenburg*, quality "best," tree hardy, very slender grower. A moderate bearer at Toronto, Paris, and St. Catherines, a good bearer at Hamilton and Niagara.

*Ribston Pippin*, quality "best," for both table and cooking, valuable for market. Tree hardy everywhere and a good early bearer.

*Roxbury Russet*, quality "good," valuable for its long keeping. Tree hardy at Toronto and St. Catherines, somewhat tender at Paris.

*American Golden Russet*, quality "very good," size but a little larger than the *Pomme Grise*, fine long keeper, valuable for market. Tree hardy, a good grower and good bearer.

*Northern Spy*, quality "best," size large, a long keeper, hangs well on the tree. Tree perfectly hardy everywhere, somewhat tardy in coming into bearing, but after it has begun it is an excellent bearer, and as it always puts forth its blossoms after all other apples, it frequently escaped late frosts that seriously injure the crop of other varieties.

*Swaar*, quality "best," succeeds in a warm, dry, rich soil. Tree very tender at Paris, and a poor bearer at Toronto.

*Pomme Grise*, quality "best," small russet, fine for eating all winter, and will keep until July. Tree very hardy and a good bearer in all parts of the Province.

*Yellow Bellflower*, quality "very good," but the tree had proved a very poor grower and a very shy bearer.

*Belmont*, a new variety, very good for both the table and cooking; tree very hardy at Toronto, and a good bearer.

*Wagener*, a new variety of great promise, quality "best," tree very hardy, very prolific, and an early bearer.

*Alman Sweet*, best winter sweet apple; tree very hardy. At Toronto the fruit was apt to be small and scabby.

*Colvert*, quality "good cooking," very large. This variety received the first prize of the Provincial Agricultural Association, last fall, as the best baking apple. Hardiness of the tree not fully tested.

*Vandevere*, this flourished best on dry, light soils. At Toronto the fruit was so scabby as to be worthless.

*Rambo*, quality very good, keeps until January. Tree very hardy and prolific. At Toronto the fruit was apt to be small and scabby.

## PEARS.

*Madeline*, the best earliest pear.

*Osband's Summer*, quality "best," size medium. The tree hardy at Toronto and St. Catharines.

*Tyson*, quality "very good," size medium. Tree perfectly hardy at Toronto, St. Catharines, Hamilton and Paris.

*Belle Lucrative*, quality "best," tree hardy and very prolific on both the quince and pear stock at Hamilton and St. Catharines; tender and a poor bearer at Toronto and Paris.

*Bartlett*, quality "very good," large, handsome. Tree tender at Toronto and Northward, hardy at St. Catharines, Hamilton and Paris; bears young and abundantly on the pear stock.

*Beurre Giffard*, quality "best," medium size. Tree grows slowly, but is perfectly hardy.

*Louise Bonne de Jersey*, an universal favorite at Toronto, Hamilton, and Paris. Tree perfectly hardy and a great bearer.

*Flemish Beauty*, very much esteemed at St. Catharines, Toronto, Hamilton, and Niagara, size large. Tree very hardy.

*White Doyenne*, quality "best." Tree hardy at Toronto, St. Catharines, and Hamilton, but somewhat tender at Paris. At Toronto the fruit was too small to be good.

*Seckel*, quality "best," fruit quite small, tree small, but bears abundantly, and is hardy throughout the Province.

*Duchess D' Angouleme*.—Is not hardy in Hamilton, and in that neighborhood does not set its fruit well, though it blossoms abundantly. At Toronto it is only half hardy, but bears tolerably well. At Paris it was hardy and the fruit large, and at St. Catharines hardy and fruited abundantly.

A list of small fruit was also reported by the Committee on small fruits, but there was not time before the hour fixed for adjournment arrived to discuss it fully.

## STAWBERRIES.

*Wilson*, excellent flavor, enormous bearer and very hardy.

*Jenny Lind*, early, large and prolific, one of the very earliest.

*Bun's New Pine*, finest in flavor of all the strawberries, hardy and a good bearer.

*Triomphe De Gand*, had failed at Paris, but at Toronto, Hamilton, and St. Catharines had proved hardy and one of the most promising new varieties.

*Hooker*, much admired for size, beauty and flavor, but tender in many localities and liable to winter kill.

## RASPBERRIES.

*Franconia*, quality "very good," being dark red, prolific, the most hardy variety, and valuable for market.

*Brinckle's Orange*, was found tender at Toronto; tender with Mr. Holton, of Hamilton, but Mr. Freed, of Hamilton, had left it out unprotected for the past three years, and found it quite hardy; flavor "good," not so highly flavored as the yellow Antwerp.

*Fastolf*, not very hardy at Toronto, but occasionally bore large crops there. At Paris and Hamilton very tender.

*Knevit's Giant*.—Mr. Holton, of Hamilton, has grown it upon poor light soil, and it proved a good bearer; berries large to very large; flavor "best," and nearly hardy; not quite as hardy as Franconia.

The hour for adjournment cut short the further discussion of these fruits.

D. W. BEADLE.

St. Catharines, 1861.

ATTENTION TO FRUIT TREES IN WINTER.—Much injury is frequently done to young fruit trees in winter by the gnawing of mice; and as there is now a thick covering of snow on the ground, a close look out is necessary in order to prevent the evil. Mice work under the snow, and when trees are mulched, or their stems surrounded by long grass, their destructive operation in peeling the bark is very much facilitated. Some protect the stems of trees near the ground by hay or straw bands, which, however, are very liable to be eaten, and often prove a failure: others use old stove pipes. But if the snow be shovelled away from the stem, or closely trodden down for some distance around, as soon as it falls, very little injury can be done by mice, since they cannot burrow in a compact substance. We have known this method to be effectual in numerous instances and to save many a fruit tree from irreparable injury. When it is considered how long a time is required to raise an orchard, and the expense and anxiety involved in the operation, none surely will grudge a little extra care during the inclement weather of our winters to obviate the threatened evil in the way before described.

COVERING STRAWBERRIES.—The soundness of the following advice, taken from the *American Agriculturist*, we have verified in our own experience in Canada, and also in the practice of others.

We can have too much of a good thing, as many tyros in fruit culture have found out to their cost in this operation. Reading that strawberries are benefitted by a mulch in winter, they wrap them up as they would babies in bed, hardly leaving a breathing hole. Three and four inches of stable manure, or leaves, are spread over them at this season, and the snows press down

the litter, so that the leaves and crowns of the plant decay. They come out in the spring black and dead.

Nature gives us a profitable hint as to the proper amount of protection for this plant. It grows among the grasses, and the old fog that forms after mowing, where the fields are not pastured, screens them sufficiently from the cold. If the leaves are covered at all, it should only be with loose litter through which the air can circulate freely. With this precaution, we have never found any difficulty in the winter-killing of the plants. It is better to manure them at this season, than in the spring. What is spread upon the surface now, leaches down with the winter rains, and is equally distributed among the roots. Look occasionally to the plants to see if the leaves are green.

**KEEP HOUSE PLANTS CLEAN.**—A writer in the London Cottage Gardener relates an experiment showing the advantage of keeping the leaves of plants free from dust. Two orange trees, weighing respectively eighteen ounces and twenty ounces, were allowed to vegetate without their leaves being cleaned for a year; and two others, weighing nineteen ounces and twenty and a half ounces, had their leaves sponged with tepid water once a week; the first two increased in weight less than half an ounce each, while of the two latter, one had increased two and the other nearly three ounces. Except the cleansing, the plants were similarly treated.

**TRANSPLANTING RHUBARB.**—Rhubarb may be transplanted either autumn or spring. Rather the best way is to divide the roots in the autumn, plant in a rich, well-manured soil, and cover with coarse manure. In the spring, as soon as growth commences, this manure may lightly be forked under, or allowed to remain on the surface.

**A NEW TOMATO.**—The *Gardener's Chronicle* of November 24 thus notices a new tomato recently produced in France:—"It appears in a circular from Messrs. Vilmorin that they are offering seeds of a *new upright tomato*, which requires no support. This plant is said to be entirely different from the kinds previously known. Its stem is two feet high or more, quite upright, and so remarkably strong and stiff as to be strictly self-supporting—a highly commendable quality. It branches less than the common great red tomato, is less leafy, and does not want so much pinching. The leaves are rather curled, much puckered, very firm, and closely placed on the sturdy branches. Their colour is a remarkably deep shining green. It does not bear so freely as the common tomato, but its fruit, which is of the same colour, is larger and more regularly formed. In earliness, it is intermediate between the Early Red (*rouge hative*), and the Great Red (*rouge grosse*.) It was raised from seed by Grenier, the gardener of M. de Fleurieux,

at a place called the Chateau de Laye, wherefore it is to be called the *Tomate de Laye*."

We cannot say that this will be a very great acquisition, but it is worthy of trial, and we shall endeavour to obtain seeds for the purpose. A little brush placed around the plant when young is all our common tomato needs, and if the ear is drawn well towards the stem, forming a mound, the branches may lay on this, where the fruit will ripen earlier than if more exposed. Shortening the tops, or cutting out a portion of the shoots, will prevent too much shade. Whether particularly valuable or not, this upright tomato will be curious.

**BUTTONING OF THE CAULIFLOWER.**—The buttoning of the Cauliflower has plagued many a gardener; and here the plant having been imprudently planted too early, and in too rich a soil, is kept through the winter in the close atmosphere of a frame, from which it is transferred in a gouty or plethoric state, and what we gardeners term "drawn," to the open ground to face a March wind and sun; the consequence of course is, that the growing principle is suddenly arrested, and the premature formation of a blossom is produced. The above hint may be useful at this season, when many Cauliflower plants will be placed in their winter quarters. Let not those who have charge of them kill them with kindness.—*Gardener's Chronicle*.

"The CAMELIA JAPONICA," the California Farmer says, "will grow in our gardens most perfectly as an ornamental tree, and bloom perfectly in our open border. The only injury that can affect them is the burning sun in summer. It recommends planting under clusters of large trees to obtain protection from the sun."

**THE ALLEN RASPBERRY.**—Mr. L. F. Allen, of Black Rock, has an excellent article in Meehan's Gardener's Monthly, descriptive of his red raspberries.

Mr. Meehan says that a neighbor of his had a little bed of the Allen raspberry, under, we believe, an hundred feet square; sold over \$200 worth of fruit, as he informed us at the fruiting season. Soil is low and damp. This will do for the Allen raspberry.

## Domestic.

### Sewing Machines.

*Editor of the Agriculturist*

Whilst every number of your paper teems with recommendations to the Farmer, of tools and machinery, to lighten and improve the labor on the farm, little is said of tools and implements to reduce or lighten the toil of the farmer's wife and daughter. Now, Mr. Editor, as the wife of a farmer, you will allow me these few lines to say a word in favor of Sewing Machines. At

last Provincial Show at Hamilton, my husband bought from Mr. Allen, who had a lot on exhibition, one of the N. American family sewing machines made in Canada; and this machine has been of such great comfort and service in my large family, that I cannot refrain from recommending it or some similar machine to all farmers' families. With this sewing machine the whole sewing of my house can be done in half the time it required formerly, and with infinitely more pleasure. To many wives it must be tiresome to hear the farmers say, when they walk in early in the evening from their work, that they have harvested ten or twelve acres more easily than they could have done two before the aid of machinery, or that they have thrashed out their whole crops in a few days that used to keep them a whole winter flailing and fanning, and at the same time see their better halves sew, sew, stitch, stitch, night after night, and all the year round, winter and summer, until near midnight. If the labor-saving machines of the farm are so very beneficial, a farmer with their assistance should soon be enabled to buy machinery for household purposes and thereby add to the wife's comfort and happiness, and if it should only allow her a little extra time for reading and improving her mind she would thus make the more interesting and agreeable companion. With the sewing machine I have now in use can be sewn with equal facility the finest lawn or the coarsest cloth. Yours, &c., A FARMER'S WIFE.

[It is not often, we regret to say, that we are favored by contributions from our *fair* readers, and therefore we have the greater pleasure in giving insertion to the above letter. The plea is a reasonable one, and we certainly think that the labors of the household have as good a claim to be lightened by every available appliance of art or mechanism as those of the field and barn. We do not suppose that the amiable temper and agreeability of the farmer's wife and daughter, either in respect to the male portion of their own family or occasional visitors, would be in the least damaged by having a few more leisure hours on their hands occasionally, in which to amuse or interest themselves. We hope that the cares of the "large family" of our kind correspondent, will not prevent her again contributing to our columns, and that other "farmers' wives and daughters" will be encouraged to imitate so good an example.—Ed.]

### Cabbage Heading in Winter.

Choose some dry spot—if it be a sandy one so much the better, and if it be sloping a little better still—and dig a trench sufficiently wide to

admit the cabbages, and a foot or 18 inches deep. Pull the cabbages up by the roots. Invert them (head down,) close the leaves together and place them in the trench, having previously placed a little dry straw in the bottom. After you have thus filled your trench with the cabbages, press some dry straw on each side of them so as to bring and keep the leaves together. This done, place straw over the roots and place a board on each side, one edge resting on the edge of the trench and the other side meeting the opposite board on the top, thus forming a roof. Over these throw the earth. Dig trenches on each side to convey any surface water away that may fall during the winter. Early in the Spring they may be opened, and if no water has got in among them, most, if not all the heads will be found to have closed up so as to be quite solid.—*Maine Farmer.*

**HOW TO COOK A BEEFSTEAK.**—The following were the rules adopted by the celebrated "Beefsteak Club," started in England in 1734:

Pound well your meat until the fibres break;  
Be sure that next you have, to broil the steak,  
Good coal in plenty; nor a moment leave,  
But turn it over this way and then that.  
The lean should be quite rare—not so the fat.  
The platter now and then the juice receive,  
Put on your butter, place it on your meat,  
Salt, pepper, turn it over, serve and eat.

### The Dairy.

#### Management of Cream in Cold Weather.

For some reason not yet known, cream skimmed from milk in cold weather, does not come to butter when churned, so quickly as that from the same cow in warm weather. Perhaps the pellicles, which form the little sacs of butter in cream, are thicker and tougher. There are two methods of obviating this trouble in a great degree. One is to set the pan of milk on the stove, or in some warm place, as soon as strained, and let it remain until quite warm—some say until a skim of cream begins to form on the surface. Another mode recommended, is to add a table spoonful of salt to a quart of cream when it is skimmed. Cream thus prepared will generally come to butter in a few minutes when churned. It is thought the salt acts upon the coating of the butter globules and makes them tender, so that they break readily when beaten by churning.—*Maine Farmer.*

**CHURNING MILK OR CREAM ALONE.**—The following report of an experiment by Mr. Zoller, a dairyman of St. Lawrence County, is from the Transactions of the New York State Agricultural Society for 1859:

Mr. Zoller's cows are what are called native, crossed with Durhams.

We desired Mr. Zoller to make an experiment as to the two modes of making butter, so as to furnish us with the result. He has done this, and the result is as follows:

September 10. Took 208 quarts of milk and strained it into pans—set till the cream had thoroughly risen—skimmed and churned cold—produced 17½ lbs. of butter, ready for packing.

Sept. 11. Took 208 quarts of milk, strained into the churns, stood till sour, but not loppered, churned and treated in the same manner; gave 19½ lbs. butter ready for packing; being a gain of ten per cent. over churning the cream.

This Mr. Zoller believes, is about the fair difference between the two methods; and if uniformly this result is secured, it certainly is an important advantage.

It will be seen by this experiment that 10 62-77 quarts of milk produced a pound of butter, which is a much less quantity of milk than the average returns of our dairies. Mr. Zoller is of the opinion that this is about the average amount of milk required under his system, under ordinary circumstances; but the trial, during the entire season, would probably alter this average.

We think there is enough furnished by this experiment of Mr. Zoller's, which has been continued for some time past, to lead others carefully to test this practice. If *ten per cent.* can be secured over the ordinary method of churning the cream, and if an *equally good quality of butter can be made*, it will need little urging to induce our dairymen to give attention to it.

## The Poultry Yard

### A Few Words on Hatching and Rearing Poultry.

I would recommend all parties desirous of procuring a superior breed of birds, at the least possible expense, to obtain two or three barn-door hens about to sit, then buy from some neighbor, having the desired breed, fresh-laid eggs, allowing from eleven to thirteen to each hen, according to size; should more than thirteen eggs be placed under a hen, and the weather prove cold, the chances are that one-third of the clutch, at least, are spoiled. If an out-house or cellar can be used for the nest-house, so much the better, provided the floor is slightly moist. In the darkest corner place a good handful of oat-straw; and to better form a nest and prevent the eggs rolling out when the hen moves, a row of bricks all around. In such a place the chickens will shell out strong and healthy. Many persons may wonder at my recommending a moist place; but let it be remembered, if you leave a hen to herself, she will choose for the brooding-place a spot under a bed of nettles, a

gap in a hedge, inside a stack of faggots, or similar damp places; all being places nature has pointed out as the most suitable, and apparently for this reason: the germ of the egg floats uppermost within and against the shell, in order that it may meet the genial warmth of the breast of the fowl. We must, therefore, in hatching, apply most warmth to that part only; the egg being supplied with only a limited quantity of moisture, is thus arranged to prevent evaporation from a large surface, as the egg is only very warm at the part in contact with the fowl, until the blood-searching nourishment for the embryo, have surrounded the inner surface of the shell, when the whole egg becomes gradually warm, and eventually of an equal temperature.—*Cottage Gardner.*

## Veterinary.

### Contraction of Horses' Feet—Cause and Remedy.

The tendency of a horse's feet, in a healthy condition, is to expand whenever the weight of the body is thrown upon them. Being a very complicated piece of mechanism, they are very easily disarranged, and once out of order are difficult of repair; hence the necessity of preserving them in a sound condition.

*Contraction is caused*—1st, by cutting away the bars of the feet, which are the mainstays for the support of the quarters; 2d, by (opening the heels, as the smith calls it) cutting away a portion of the frog, in consequence of which the moisture of the frog becomes absorbed, losing its elasticity, and destroying its function, thus exposing the feet to injury by concussion; 3d, by standing upon plank floors; 4th, by improper shoeing.

An ordinary observer will, upon an examination of the common shoe, notice that it inclines from without inward at the heels, thus forming a concavity for the feet to rest in; the consequence is a lateral resistance to the expansion of the hoofs, when the weight of the animal is thrown upon them. The effect of this resistance is to force the heels together, creating pressure upon the sensitive parts within the horny case; establishing fever, by which the moisture of the hoofs is rapidly absorbed, rendering the hoofs hard, brittle, and liable to crack, and frequently causing corns, navicular joint lameness, bony deposits to be thrown out from the lateral wings or processes of the coffin bones, rendering the animal permanently lame or unsound. These are but a few of the bad effects arising from contraction; enough, however, to serve our purpose at present.

*Remedy*—Preserve a level bearing by making the shoe perfectly flat on the quarters, so as not

interfere with the expansion of the feet. A good contraction already exist to a considerable extent, bevel the shoe slightly outward at the heels, in order to facilitate expansion. Care should be taken not to bevel too much, or bulge of the lower part of the hoofs at the quarters will be the result. The shoe should in all cases be forged and not twisted, as is sometimes done, and cause trouble by the bungling smith. Proper applications, to soften the horny part and promote elasticity, should also be used. Such preparations are put up in the form of hoof ointments.—*Scientific American.*

### Spaying A Mare.

Dr. Dadd, V. S., informs us that he has recently performed the novel operation of spaying a mare (removing the ovaries). The mare was three years old, and belonged to Charles H. Ball, of Hartford, Vt. We believe this is the first case of the kind in this country, if indeed it is not the first one ever tried, and Mr. Ballard entitled to much credit for offering so valuable an animal for the benefit of science, as it has been generally supposed that an operation of this kind would prove fatal. The animal was saved by the influence of sulphuric ether, and the operation proves entirely successful, ten having been performed since it was performed. The object of this particular case, was to render a mare more docile, as she had heretofore been very unmanageable during her periods of heat. Physiologists are of opinion that removing the ovaries, if successfully performed, will render an animal mild and gentle.—*Am. Agriculturist.*

### Foot-Rot in Sheep.

This disease, although not common in Canada, compared to countries having wetter soils and a more humid climate, is nevertheless occasionally troublesome. In Britain it is apt to prevail in certain seasons, and on land that is not drained. The disease is contracted by the sheep grazing the hoof and applying lunar caustic is the ordinary mode of treatment. As soon as the disease manifests itself by the animals becoming lame, they should be immediately removed to fresh pasture, in a drier situation; and the greatest care exercised in not allowing sound sheep to mix with such as are affected, or to graze the ground on which they have been affected for a considerable time, and till atmospheric and other conditions have been changed. This disease has been very prevalent in the British Islands during the extraordinary wet weather of last year, and many flocks were seriously injured thereby.

A correspondent of the *Rural New Yorker* recommends the following mode of treatment, which is said to have proved thoroughly efficacious wherever it has been fairly tried:

Procure a shallow trough eight or ten feet long, and about eight inches wide in the bottom. Place it between two yards, in such manner that sheep in passing from one to the other will be obliged to traverse the bottom the whole length; which is best done by making a tight board fence from the top of each side of the trough and the whole length thereof, a little inclined outward, but not enough so as to enable the sheep to get a foothold upon the inclined plane and thus escape the bottom of the trough. Dissolve ten pounds sulphate of copper (blue vitriol,) in about four gallons of water, put it in the trough and drive and call the sheep from one yard to the other through the trough, every other day, until they have wet their feet in the solution five or six times, and a cure will be effected. The liquid may be drawn off and saved for future use.

I prefer this mode for the reason that a hundred can be doctored in this way in the time requisite to handle one sheep when they are taken separately, and I believe it equally effectual.

REMEDY FOR LICE IN FARM STOCK.—The following remedy I have used and found to be a certain cure, and one which I am satisfied will not fail, if properly tried:—Take two ounces Venice Turpentine, one ounce of Red Precipitate, eight ounces Fresh Butter: take the turpentine and put it into a smooth vessel, pour water upon it and stir it well, then pour off all the scum that arises on the top, and continue this process until it becomes like cream, or wax, and then add the other ingredients and mix them well before using. One ounce of the above will cure the itch and kill lice of all descriptions on man and beast, and the old sow too.—*John Eversole, Brownsville, Licking Co.*

## Transactions.

### Abstract of Report of Agricultural Societies received in the year 1860.

*Continued from page 52.*

#### TOWNSHIP BRANCHES.

ALDBOROUGH.—One hundred and ten members; amount of subscriptions collected and public grant, \$258.75; balance from previous year, \$11.25; received from sale of Bulls and other sources, \$191.14; total receipts, \$355.14. Paid in premiums, \$146.93; sundries, \$47.83; balance in hand, \$153.21.

*Extract from Report:*

In the year 1855 the society bought five thorough bred bulls, which they kept for two

years and then sold them to individuals residing in the township. This circumstance has done much towards the improvement of stock in the district.

The soil is sandy for the most part, but there is some good clay and gravel land in the northern part of the township. All seem to agree that sheep farming, embracing the growing of roots and spring grain, is best adapted to the soil.

The wheat midge has made great ravages in the wheat crops for some years, so much so that there is perhaps not more than five hundred acres at present under fall wheat in the whole township.

**SOUTH DORCHESTER.**—Fifty-seven members; subscription, \$58; share of public grant, \$41.70; total received, \$99.70. Paid in premiums, \$79; expenses, \$13.84; balance in hand, \$6.86.

**MALAHIDE.**—Forty-nine members; subscription, \$49; balance from previous year, \$53.75; grant, \$36.52; total received, \$139.27. Paid in premiums, \$60.50; expenses and sundries, \$51.73; balance in hand, \$22.04.

**SOUTHWOLD AND DUNWICH.**—Eighty-six members; amount of subscription, \$89; balance on hand from 1859, \$208.40; received from sale of clover seed, \$21.15; stock, \$16; public grant, \$65.60; total received, \$400.15. Paid for keeping bulls, \$165.40; paid for clover seed, \$19.20; premiums, \$42.25; expenses, \$58.84; balance in Treasurer's hands, \$114.46.

**YARMOUTH.**—One hundred and twenty-nine members; amount of subscriptions, \$129; balance from previous year, \$62.11; grant, \$93.19; total receipts, \$284.30. Paid in premiums, \$228.87; expenses, \$27.33; balance in Treasurer's hands, \$28.10.

#### ESSEX.

**COUNTY SOCIETY.**—Eighty-one members; amount of subscriptions, \$90; balance from late Treasurer, \$60; deposited by township societies, \$403; public grant, \$599.96; total received, \$1093.56. Paid township societies, \$761.67; premiums, \$229.26; expenses, \$65.12; balance in hands of Treasurer, \$37.51.

#### *Extracts from Report :*

The annual fair was held at Amherstburgh this year, and though not so numerously attended as on former occasions, still we think

the articles shown were of a very superior quality. The grain products, such as wheat, corn, and oats, were the best on the whole that have ever been shown in this county. The root crop was very good, particularly potatoes, not only from the variety of sample, but from the fine and generally healthy appearance. Live stock were not so numerous as represented on former occasions, but cattle and horses that were on the ground presented quite a creditable appearance. The sheep in quality, we think, excelled any former exhibition of this society.

The Secretary has taken the trouble to address queries to prominent farmers in the different townships, as to the average yield of the amount of the grain and root crops of the county, but the replies thereto are so inaccurate as to preclude the possibility of arriving at anything like a correct conclusion or estimate of our crops; but we trust by another year the society may be able to arrive at a comparatively correct estimate of the various crops or products of the county. From what information we possess, we are strongly of opinion that more attention will have to be paid to manuring and general cultivation of the soil than has been heretofore the case. Some of the old soils which have been forty or fifty years under cultivation, and have produced excellent crops of wheat during that time, now scarcely yield a crop sufficient to defray the expenses of cultivation; and this decrease in the yield has not been caused by either weevil or rust, but by the want of vegetable power in the soil of sufficient strength to produce a crop. And we feel assured that unless the heavy soils of this county are deeply ploughed, better drained, and better manured they will, year by year, decrease in productivity. To have the land deeper ploughed will require much heavier teams than are present in use by the farmers. The Canadian pony may suit very well as a carriage or saddle pony, but it is totally unfit for the thorough cultivation of our heavy soils; and our Township Societies in aiding the introduction of heavier breed of horses are doing a work which ought to command the respect and assistance of the farming community. The necessity of drainage is so apparent to every one that it needs no notice from us further than in suggesting to the Township Councils the propriety of cutting out and keeping open the leading ditches as would facilitate the drainage

to them of farms which could not be drained by any other means. Under the head of manuring we might mention the fact which has been ably stated in other quarters, that unless the soil receive nearly as much vegetable matter, in the shape of manure, as is extracted from it by yearly cropping, it must regularly decrease in vegetating power. Raising stock would very much help the farmer to keep up the productiveness of the soil, and also prove a profitable investment. Why should not this fine county send its car loads of cattle and hogs to the eastern market as well as the farmers of Michigan and Illinois. Our soil is good, and our climate about the same, and all it requires is determination and energy in the right direction to accomplish great results. Only let our farmers rally round the Township societies, and get them to import the best breeds of every kind of stock and we shall soon feel the effect of it in the general prosperity of the county. But no such result can be arrived at as long as the farmers in the neighbourhood of Windsor and Amherstburgh are expending the greater proportion of their time in the traffic in steamboat wood, a traffic which does not pay, but yearly reduces all those engaged in it in worldly circumstances and makes them more and more dependent on the merchants. If the same amount of physical labor spent in the wood trade, were spent on the farm, what different results would be seen! Instead of dilapidated looking barns and other appurtenances about the farm, as are to be seen at present, we would see every thing in thorough order, and agriculture in general in a more prosperous condition, in proof of which assertion we would refer the members of the society to the farms in those townships which are the furthest away from the localities before mentioned, and whose occupants spend all their time in agriculture instead of the wood trade.

#### TOWNSHIP BRANCHES.

**COLCHESTER.**—Seventy-three members; amount of subscription, \$73; total receipts, including balance from previous year and share of public grant, \$194.98; expenditure, \$131; balance on hand, \$63.98.

**GOSFIELD AND MERSEA.**—Seventy-eight members; amount of subscriptions, \$92; balance from previous account, \$37.06; received on account of seeds and stock, \$19.53; share of public grant, \$81.88; total receipts, \$230. Paid on account of seeds and stock,

\$13.50; expenses, \$32.77; balance in Treasurer's hands, \$184.20.

**MALDEN AND ANDERDON.**—Eighty-eight members; amount of subscription, \$88; balance from previous account, \$235.85; share of grant, \$78.30; total receipts, \$402.15.—Paid for sheep, purchased for society, \$103; premiums, \$77.97; expenses and sundries, \$31.14; balance in Treasurer's hands, \$190.04.

**ROCHESTER AND MAIDSTONE.**—Sixty-six members; amount of subscription, \$66; balance from previous year, \$14.48; Government grant, \$58.74; sundries, \$8.62; total receipts, \$147.84. Paid on account of purchase and keeping stock for society, \$56; premiums, \$13; expenses, \$14.74; balance in Treasurer's hands, \$64.10.

**TILBURY WEST.**—Seventy one members; amount of subscriptions, \$79; share of grant, \$53.40; received from late united society of Rochester, Maidstone and Tilbury West, \$10.75; received from other sources, \$46.72; total receipts, \$189.87. Paid for stock, \$156; expenses, \$15.43; balance in Treasurer's hands, \$9.84.

#### *Extract from Report.*

Average quantity of corn forty bushels to the acre, and in some cases sixty, where the crop has been properly cultivated. Peas twenty bushels to the acre. Peas have done well in this township for two or three years past, being almost free of bugs. Oats forty bushels to the acre, sixty not being an unusual crop. Wheat is very little cultivated since the insect has been so destructive. Stock thrive extremely well, but are subject to a murrain, of which we cannot ascertain the cause. Grass is generally a very heavy crop in this township. Oats, corn and stock are considered the most profitable.

**WINDSOR AND SANDWICH.**—Forty members; subscriptions, \$40; grant, \$35.62; cash on hand, \$75.62. The society propose appropriating the funds in purchase of improved stock.

#### FRONTENAC.

**COUNTY SOCIETY.**—Seventy-four members; amount of subscriptions, \$74; balance on hand from previous year, \$245.33; deposited by township branches, \$168; received from South Leeds Society, \$100; public grant, \$479.98; total receipts, \$1067.31.—Paid insurance on Crystal Palace, \$37.50;

paid Treasurer of the Local Committee of the Provincial Exhibition. \$740.98; paid for care and fitting up of Crystal Palace and grounds, \$91; other expenses, \$81.75; balance in Treasurer's hands, \$113.08.

#### TOWNSHIP BRANCHES.

**KINGSTON.**—Sixty-four members; report imperfect.

**LOUGHBOROUGH.**—Report very imperfect.

**PITTSBURGH.**—Amount of subscriptions, \$53; balance from previous year, \$4.05; share of public grant, \$47.59; total receipts, \$104.64. Paid Treasurer of County Society, \$89.59; expenses, \$10; balance in hand, \$5.05.

#### *Extract from Report:*

The soil in this township is favorable for the production of spring wheat. Over a large portion of the township peas, oats, barley, and the usual root crops, such as potatoes, turnips, ruta baga, can be raised with success in moderately warm and not too dry seasons. Indian Corn is a crop not to be depended on, and hay is entirely dependent upon the early rains in May and June. Fall wheat not to be relied upon, owing to the very open winters.

**PORTLAND.**—There is no statement of receipts and disbursements from this society. The Provincial Exhibition in the County, there was no show held.

#### *Extract from Report:*

The soil of this township in the front part, say from the first to the seventh concession, is generally good, being a mixture of clay and loam; the remainder, being seven concessions more, is very much broken by lakes, rocks, and swamps, there being not less than seven lakes. In the last seven concessions the soil is generally black and red sand, mixed with loam and clay. Improved farms in the front, with good buildings, are worth from \$25 to \$35 per acre; without buildings, worth from \$16 to \$20 per acre. Land in the back part of the township is worth from \$1 to \$6 per acre. Rotation of crops is not practised generally, but where it is the results are successful. The average return of various kinds of crops is about as follows:

Fall wheat.....	20	bushels per acre.
Rye.....	15	“ “
Spring Wheat.	15	“ “
Barley.....	25	“ “
Peas.....	20	“ “
Oats.....	35	“ “
Indian Corn....	30	“ “
Buck Wheat from 10 to 30	“	“
Potatos from 100 to 300	“	“

Carrots and mangel wurzel have been raised successfully, but only in a few instances have been tried to any amount.

The average wages of labourers is about from \$100 to \$120 per year. Mechanics and tradesmen will command from \$1.25 to \$1.50 per day. Men of all descriptions may find employment here during the summer season.

The crops were not injured by insects this season as much as last, in fact not much at all. Potatoes escaped the rot except in a few instances. With regard to cattle, farmers are looking after the Durham breed, and believe them best adapted to this locality. The farmers who have attempted to fatten cattle have thought the most profitable mode is to purchase them in the spring, let them graze through the summer, and sell them in the fall or early winter. There have been only three breeds of sheep, in addition to the old stock brought into this township, viz: South Down, Leicesters, and Merinoes; the Leicesters are considered the best. There have been only two dairies established in the township; one has proved highly remunerative, the other less so, in consequence of the grazing land being of the best quality.

There has been no thorough drainage of land commenced, although all are convinced of its value.

Root crops have not been cultivated extensively.

Reaping and mowing machines are being introduced into this locality.

There is one nursery, containing say fifty thousand trees, chiefly apple.

**STORRINGTON.**—Thirty-four members; report imperfect.

**WOLFE ISLAND.**—The report from this society is also imperfect. The societies in the county appear generally to have held no exhibitions this year, in consequence of the Provincial Show being within the county.

#### GLENGARY.

**COUNTY SOCIETY.**—One hundred and twenty members; subscription, \$112; balance from previous year, \$151.67; deposited by township branches, \$168.50; Government grant, \$479.98; sundries, \$5.75; total receipts, \$917.90. Paid township branches, \$428.44; premiums, \$298.01; incidental expenses, \$94.47; balance in Treasurer's hands, \$99.94.

#### TOWNSHIP BRANCHES.

**CHARLOTTENBURGH AND LANCASTER.**—Amount of subscriptions, \$82; balance from

vious year, \$110.65; share of public grant, \$30; total receipts, \$322.65. Paid for sick animals for society, \$276; expenses, \$4; balance in hand, \$22.65.

**LOCHIEL AND KENYON.**—Amount of subscriptions, \$85.50; balance from previous year, \$5.65; grant, \$129.99; total, \$221.14. Paid in premiums, \$184.28; expenses and salaries, \$30.99; balance in Treasurer's hands, \$5.87.

#### SOUTH GRENVILLE.

**COUNTY SOCIETY.**—Three hundred and ten members; amount of subscriptions, \$415.65; Government grant, \$479.98; received from sale of lumber and stock, \$190.70. Paid for building and other expenses, \$430.15; prizes, \$34; office expenses, \$100.

#### *Extract from Report:*

The annual fair and society's show was again held on the grounds of H. D. Jessup, Esq., and although not quite so largely attended as last year, may be considered satisfactory, considering the excessively inclement nature of the weather, which caused a large diminution in the receipts. It is a subject of regret to know that the agricultural products raised, and put up for sale in this locality, do not generally (there are however numerous eminent exceptions,) bear the high reputation enjoyed by other neighboring districts, owing not so much to inferiority in quality, as to the carelessness in packing and preparing for market. This is a great mistake, and involves a heavy loss to the seller, because by reason of the advantage of the position of this locality, (being so near the American frontier,) the highest prices can always be obtained for best grades. Formerly so much care was not required, but now it is expected, and is all important to the seller. It may not be generally known that winter barley has been tried and successfully grown in the Ottawa and some western districts in Upper Canada. It is sown early in September, and is ripe early in July. In the Niagara district last year, 60 bushels on fallow and 40 on corn land was produced per acre.

Owing to the large demand for several years past in this locality for cord wood, for the purposes of navigation, &c., much of our farmers' time has been consumed in cutting down to meet this want, instead of raising up, which no doubt is his most legitimate occupation, and there can be no doubt that the de-

mand for the above mentioned article has lately much diminished without any prospect of its immediate recovery. The time that has therefore been devoted to that purpose should now be directed to other equally sure sources of wealth, such as drawing the rich and fertile muck of swamps, manure from stables and barnyards, and towns, to the higher and more exhausted portions of the farm, removing stones, clearing off logs, &c., preparing for underdraining, selecting and carefully cleaning seed, getting out and drawing fence timber, repairing stables and premises, implements, &c., so that when spring arrives, all will be ready prepared for a large cultivation.

#### Miscellaneous.

**LIGHT LET INTO THE STOMACH.**—Professor Busch, superintendent of the hospital of Bonn, in Germany, communicates to the medical journals the history of a case almost as remarkable as that of the famous St. Marin, who has been living so many years with a hole in his stomach, allowing people to look in and see the process of digestion going on inside. A woman was brought to the hospital of Bonn, who had been gored sometime previously by a cow, wounding her in the abdomen. The injury resulted in a fistulous opening through the walls of the abdomen into the upper third of the small intestines. The result was, that as soon as the woman commenced to eat, the food would begin to run out of the opening; and though her appetite was ravenous, she had become very much emaciated when she was admitted to the hospital. Dr. Busch tried the plan of injecting soups through the opening directly into the intestines, even crowding in little pieces of meat and bread with his finger. Under this odd mode of feeding the patient thrived and gained flesh rapidly. Of course, Professor Busch seized this rare opportunity to make a series of physiological investigations, which have proved to be very interesting. The fact of greatest practical value observed was, that the gastric and other juices by which digestion is effected, are secreted in much greater abundance when several kinds of food are taken into the stomach, than when a meal is made of a single article. This confirms the latest conclusions of other physiologists, and is useful knowledge as a guide to action. Dyspeptics can commit no greater blunder than to confine themselves to a very few articles of diet. It is best for us all to eat a variety of food at each meal.

**INVENTORS.**—The *London American* says:—“While many an inventor has lived and died in a garret, a fortunate few end their days amid the bounteous fruits of their labor. As there is

no class in the community to which the world is so much indebted, so there is no class more generous with their wealth. In America, perhaps, more than in Europe, the inventors are likely to reap a fortune, as the rapid development of the sources of wealth and the scarcity and comparatively high price of manual labor, necessitate the almost immediate introduction of any really useful labor-saving machine. This is especially true of agricultural implements, and often large fortunes are realised on simple articles of use. A gentleman by the name of Peeler, who is said to have realised \$400,000 (£80,000) from the sale of a patent plow, has recently proved the profitableness of his invention and the goodness of his heart by giving \$200,000, or £40,000, of this sum to the Methodist Church of the United States."

**MEMORY OF THE ELEPHANT.**—A female elephant, belonging to a gentleman at Calcutta, who was ordered from the upper country to Chittagong, in the route thither broke loose from her keeper, and, making her way to the woods, was lost. The keeper made every excuse to vindicate himself, which the master of the animal would not listen to, but branded the man with carelessness, or something worse; for it was instantly supposed he had sold the elephant. He was tried for it, and condemned to work on the roads for life, and his wife and his children were sold for slaves. About twelve years afterwards, this man, who was known to be well acquainted with breaking elephants, was sent into the country with a party, to assist in catching wild ones. They came upon a herd, and this man fancied he saw amongst the group his long-lost elephant, for which he had been condemned. He resolved to approach it; nor could the strongest remonstrances of the party dissuade him from the attempt. Having reached the animal, he spoke to her, when she immediately recognised his voice; she waved her trunk in the air as a token of salutation, and spontaneously knelt down, and allowed him to mount her neck. She afterwards assisted in taking other elephants, and decoyed three young ones, to which she had given birth in her absence. The keeper returned, and the singular circumstances attending the discovery being told, he regained his character; and, as a recompense for his unmerited sufferings, had a pension settled on him for life. This elephant was afterwards in possession of Warren Hastings, when Governor General of Hindostan.—*Cassell's Popular Natural History.*

**THE CUTTING ANTS OF TEXAS.**—In the "Proceedings of the Academy of Natural Sciences at Philadelphia," Mr. Buckley describes these most destructive insects:—"They burrow extensively under ground, and form chambers generally from ten to twelve feet, sometimes eighteen feet deep, the upper cells being seldom

nearer to the surface than eighteen inches. These have avenues four or five inches in diameter, by which these ants convey their stores of barley, &c. Sometimes these ants tunnel beneath a stream to get into a garden. When their dens become foul, or are injured by heavy rains, millions emigrate *en masse*. Mr. Buckley saw multitudes on the banks of the Colorado river, going up hill, bearing fragments of leaves and berries, marching like an army with banners. Great is the damage they do by destroying trees and vegetables. They will strip a fruit-tree of leaves in a night. Attempts to exterminate them by fumigating their dens have failed: the only effectual method is to dig, and kill the females and young. This is so expensive that it is only resorted to near a garden or dwelling, and as these ants are scattered throughout Western or Central Texas, they will probably never be exterminated by man.—*Annals of Natural History.*

**THE SPONGE.**—The substance so well known by the name of sponge, is an animal product, which is found attached to the rocks under water in the Mediterranean and other seas. Sponge is a light, soft, and highly elastic material, very easily compressed, and rapidly resuming its original shape when the pressure is removed. It is exceedingly porous, containing an immense number of small tubes, which communicate with some larger apertures that are found in it. The substance of the sponge consists of living elastic fibers, and these are so placed as to form the tubes and pores described.

When the sponge is in the sea, alive, the inside of the pores are covered with a substance, like the white of an egg. This appears to be the flesh of the animal, and currents of water may be seen running into the sponge through the small pores, and out of it through the large ones; and it is supposed that while the water is passing through the sponge, the nourishment requisite for the support of the animal is extracted. When the sponge is removed from the water, this soft flesh drains away, leaving nothing but an elastic fibrous substance, with which we are acquainted.

The use of the sponge, as a material for washing with, depends chiefly on its being so highly porous and elastic. When placed in water its pores become filled with the liquid. If in this state it is compressed, the water is readily forced out over anything desired to clean, and as soon as the pressure is taken away, the sponge resumes its former size, and its pores are again open to suck up a fresh supply of fluid, if required.

The sponge we use comes chiefly from the Mediterranean Sea, where it is procured by diving, and also by dredging, or dragging the bottom of the ocean. The best sponge,—which is white and fine—comes from Turkey; the inferior

coarse kinds from the coast of Barbary. Of eleven kinds of sponge are found on the coast of England—none of them, however, are for use.

**WOMEN.**—If a man begins to cough, as the result of a common cold, it is the effort of nature attempting the cure, and she will effect her own time, and more effectually than man can do, if she is let alone, and her instincts cherished. What are these instincts? She abhors food and craves warmth. Hence the moment a man is satisfied that he has taken time to let him do three things. First, eat not an ounce of food; second, go to bed and cover up warm in bed; third, drink as much cold water as he can, or as much hot herb tea as he can, and in ten or twelve hours out of four, he will be entirely well in twenty-six hours.—*Hall's Journal of Health*

**ACCLIMATION UNDER WATER.**—I have had a rare opportunity to watch the pumilus, in the breeding season, every spring, for the last ten years. At that time, it approaches in pairs the shores of the ponds in which it lives, and seeks shallow, gravelly places, overgrown with water-lilies, water-lilies and other aquatic plants, in which it begins by clearing a space of a foot in diameter, rooting out the plants, and pulling them up with violent jerks of its tail, the large bubbles, and leaving a clean spot of fine sand, into which it deposits its eggs, surrounded and over-looked by a grove of verdure. In this enclosure the parents remains hovering over the eggs, and keeping at a distance all intruders. The office of watching over the progeny does not devolve exclusively upon either of the sexes, but the males and females watch alternately, with a keenness with which they dart at their enemies, and the anxiety with which they look out for every approaching danger, show that they are endowed with stronger instincts than have been known heretofore in any of their class. The foresight goes so far as to avoid the bait which is set to them, and however lively and tempting it may be. However near to one another, the parents of one nest do not interfere with those of another; but, like good neighbors, they live peacefully together, passing over each other's nests when going out for food, without making any disturbance. But whenever an unmated male fish makes its appearance among the nests, it is chased away, like an intruding libertine, and is rebuffed. The development of the egg is rapid. In less than a week, the young are hatched, and the parents soon cease to take any further care of them.—*Agassiz.*

### Preservation of Forests.

In the manner in which the Germans preserve and improve their forests, our countrymen may take a valuable lesson. At Hohenheim

this forms one of the most important departments of study. The pupils are instructed in the best method of preserving, propagating and improving their forest trees, while at the same time a proper estimation of the pecuniary and moral value of those noble productions of nature is instilled into their minds, which must eventually become the common sentiment.

Our people must give attention to this subject, sooner or later; and every day's neglect of this practical science will entail evils upon us for which years of labor will hardly make amends. We do not, as a people, appreciate the value of our forests. Negligently, carelessly and wantonly we are destroying them on every side, not considering that in them lies a mine of untold wealth; for the time comes with every people when they can turn their own natural productions to the most advantageous use for themselves; and this law applies as firmly to trees as to the coals and various mineral ores. Yet what destruction of the best and most valuable timber have we witnessed during the past forty years! A statistical statement of the pecuniary loss would astonish the reader, to say nothing of the loss of health and domestic comfort.

The connection of family health, enjoyment and comfort, with a grove of primeval forest trees about the homestead, never entered the practical heads of our fathers; and their sons, true to the example before them pursue the same suicidal course. Down come the lofty oaks and the beautiful maple, leaving the homestead to parch and the spring to dry up in the scorching rays of the sun.

If there are exceptions here and there, you will find the value of the farm increased a thousand fold, simply because the trees have been left alone.—*Exchange.*

### The Marvels of a Seed.

Have you ever considered how wonderful a thing the seed of a plant is? It is the mystery of mysteries. God said, Let there be "plants yielding seed;" and it is further added, each one, "after his kind."

The great naturalist, Cuvier, thought that the germs of all past, present, and future generations of seeds were contained one within the other, as if packed within a succession of boxes. Other learned men have explained this mystery in a different way. But what signify all their explanations? Let them explain it as they will, the wonder remains the same, and we must still look upon the reproduction of the seed as a continual mystery.

Is there upon earth a machine, is there a palace, is there even a city, which contains so much that is wonderful as is enclosed in a single little seed—one grain of corn, one little

brown apple seed, one small seed of a tree, picked up, perhaps, by a sparrow for her little ones, the smallest seed of a poppy or a blue bell, or even one of the seeds that are so small that they float about in the air invisible to our eyes: Ah! there is a world of marvels and brilliant beauties hidden in each of the tiny seeds. Consider their immense number, the perfect separation of the different kinds, their power of life and resurrection, and their wonderful fruitfulness!

Consider first their number. About a hundred and fifty years ago, the celebrated *Linnaeus* who has been called "the father of botany," reckoned about 8,000 different kinds of plants; and he then thought that the whole number existing could not much exceed 10,000. But a hundred years after him, *M. de Candoile*, of Geneva, described 40,000 kinds of plants; and at a later period he counted 60,000, then 80,000 and he supposed it possible that the number might even amount to 100,000.

Well, let me ask you, have these 100,000 kinds of plants ever failed to bear the right seed? Have they ever deceived us? Has a seed of wheat ever yielded barley, or a seed of a poppy grown up into a sun flower? Has a sycamore tree ever sprung from an acorn, or a beech tree from a chestnut? A little bird may carry away the small seed of a sycamore in its beak to feed its nestlings, and on the way may drop it on the ground. The tiny seed may spring up and grow where it fell, unnoticed, and sixty years after it may become a magnificent tree, under which the flocks of the valleys and their shepherds may rest in the shade.

Consider next the wonderful power of life and resurrection bestowed on the seeds of plants, so that they may be preserved from year to year, and even from century to century.

Let a child put a few seeds in a drawer and shut them up, and sixty years afterwards, when his hair is white and his step tottering, let him take one of these seeds and sow it on the ground, and soon after he will see it spring up into new life, and become a young, fresh and beautiful plant.

*Mr. Jouannet* relates that in the year 1835, several old Celtic tombs were discovered near Bergerac. Under the head of each of the dead bodies there was found a small square stone or brick, with a hole in it, containing a few seeds; which had been placed there beside the dead by the heathen friends who had buried them, perhaps 1,500 or 1,700 years before. These seeds were carefully sown by those who found them, and what do you think was seen to spring up from this dust of the dead!—beautiful sunflowers, blue corn flowers, and clover, bearing blossoms as bright and sweet as those which are woven into wreaths by the merry children now playing in our fields.

Some years ago a vase, hermetically sealed,

was found in a mummy pit in Egypt, by an English traveller, *Wilkinson*, who sent it to the British Museum. The librarian there unfortunately broken it, discovered in it grains of wheat and one or two peas, old, dried, and as hard as stone. The peas were dried carefully under glass on the 4th of July, 1844, and at the end of thirty days these seeds were seen to spring up into new life. They had been buried probably about 3,000 years ago, perhaps in the time of *Moses*, and had lived in the dust of the tomb.

Is not the springing of the seed an emblem of the resurrection of the dead? According to it is mentioned by the Apostle *Paul*, in 1st Cor. xv., where from the springing of the seed, he explains the doctrine of the resurrection unto life.—*Gausson*

**THE HUMAN BODY.**—When we have got some slight knowledge of the wondrous mechanism we name the body, how multitudinous combined actions, how easily the disturbance of one will affect the healthy action of the rest, how recklessly we disregard the plainest laws of health, wonder at a few men having succeeded in the course of an intense intellectual life at once, and a new wonder emerges—that any man can live this life, and retain his faculties in healthy activity. The very pre-eminence of the nervous system implies a predominant activity, and this is liable to be stimulated to excess by two potent tempters: ambition and eagerness to jostle its way through energetic exertion and fascination, which lies in intellectual life, the brooding *storge* of creation, the passionate persistence of research. These tempters lead men into excess. Men who live much by their brain have seldom the courage to be patient, seldom the wisdom to be patient. In vain significant words of warning become louder and louder; in vain the head feels hot, the ears full of noises, the heart fluttering and thumping, the nights sleepless, the digestion miserably imperfect, the temper irritable: these are not warnings to desist, but they are disregarded; the object of ambition lures the victim into seduction of artistic creation, or of a truth dancing like a will-o'-wisp, incessantly seducing him; he will not pause—at length he ceases to pause, the excitement has become a feverish flame that warms and destroys him: madness and ruin. Sad this is, and would be infinitely sad if there were no help for it, if the very glory and splendour of the intellect were necessarily allied to infirmity and ruin. But it is not so. Men do not transgress nature's laws without incurring nature's penalties.

**ENGLISH HORSES.**—A writer in the *La Revue* complains that the noble breed of English horses is becoming ruined. Horses of our country, once famed for the best breed

saddle-horses in the world, is becoming overrun with a lot of worthless, weedy, refuse racing stock, which by many inexperienced farmers and breeders, are gradually being crossed with, and thus deteriorating the breed of our short-legged, deep-bodied, wide-hipped, strong loined saddle-horses, the lineage of which, in a few instances, we can still trace, by their compact forms, to the breed of race horses encouraged by our forefathers, who bred horses for *useful* purposes, to carry men long distances, and not the spindle-banked velocipedes bred by our turmen of the present day, that break down after running a few parlous with a baby on their backs.

**THE EXCITEMENT OF INTOXICATION**—The love of narcotics and intoxicating compounds is so universal, it may almost count as an instinct. Every nation has it in a greater or less degree—some in the shape of opium, some in smoke, some in drink, some in snuff; but, from the equator to the snow-line, it exists—a trifle changed in dress, according to the climate, but always the same need, always the same desire. Kings have decreed punishment on the secular law; priests have anathematized on the spiritual; and makers have sought to pluck out the habit, root and branch, from their people; but all to no good—man still goes on smoking, snuffing and chewing; putting “an enemy into his mouth to steal away his brains,” and finds immense satisfaction in a practice that makes him both an invalid and a madman, and never quits him till it has laid him fairly in the grave.—*Chambers' Journal*.

**THE POWER OF THE HEART.**—Let any one while sitting down, place the left leg over the knee of the right one, and permit it to hang freely, abandoning all muscular control over it. Speedily it may be observed to sway forward and back through a limited space at regular intervals. Counting the number of these motions for any given time, they will be found to agree exactly with the beatings of the pulse. Every one knows that, at a fire, when the water from the engine is forced through bent hose, the tendency is to straighten the hose; and if the bend be a sharp one, considerable force is necessary to overcome the tendency. Just so it is in the case of the human body. The arteries are but a system of hose through which the blood is forced by the heart. When the leg is bent, all the arteries within it are bent too, and every time the heart contracts, the blood rushing through the arteries tends to straighten them; and it is the effort which produces the motion of the leg alluded to. Without such ocular demonstration, it is difficult to conceive the power exerted by that exquisite mechanism, the normal pulsations of which are never perceived by him whose very life they are.—*Jos. W. Sprague*.

**HORSES AND MULES.**—A correspondent of the *N. Y. Spirit*, writing from Virginia, says: “If my experience is worth anything to Old Whip's theory in *Horses vs. Mules*, you can tell him that by actual experiment a pair of horses will carry a plough, drill, harrow or wagon, over more ground, and to work better, in eight hours, than mules will in twelve. In seeding wheat, I put in more with a pair of carriage horses to a drill, running them from 8 till 12 and from 2 to 6, than I could do with mules from sun to sun.”

**WASHINGTON AS AN AGRICULTURIST.**—Perhaps a short account of Washington as an agriculturist, may be new and interesting to some of your readers. His views upon the raising of tobacco might well be pondered by our Connecticut valley producers of the weed. I copy from “Washington's Political Legacies,” to which is annexed an appendix, containing an account of his illness, death, &c. &c. Boston, 1800:

“Colonel Washington was one of the greatest landholders in North America; his estate at Mount Vernon was computed in 1787, to consist of nine thousand acres, under his own management and cultivation: he had, likewise, various other large tracts of land in other parts of the State; his annual receipt from his estates, amounting in 1776, to four thousand pounds sterling, and it was then believed would have sold for upwards of one hundred and sixty thousand pounds sterling, which is equal to more than \$666,000. What his revenue was recently, we do not know, but there can be little presumption in supposing it was much increased under his prudential guidance, and practical economy.

“He allotted a part of the Saturday in each week to receive the reports of his overseers, which were registered progressively, to enable him to compare the labor with the produce of each particular part, and it is affirmed that this weekly retrospect was duly considered by this great man during the stormy movements of the numerous household, which amounted to nearly revolutionary war, and his presidency of the United States. He has raised in one year, seven thousand bushels of wheat, and ten thousand bushels of Indian corn, on his Mount Vernon estates; in a succeeding year he raised two hundred lambs, sowed twenty-seven bushels of flax seed, and planted seven hundred bushels of potatoes: at the same time his domestics manufactured linen and woolen cloth enough for his a thousand persons. With him, regularity and industry were the order of each day, and the consequent reflection made them all happy. Though agriculture was pursued by him with such undeviating attention, he used it rather as the means of his pleasure, than the end of his wishes, which concentrated in the labor to improve the well being of his fellow-citizens; and to effect this, he desisted from planting tobacco, to employ himself in the introduction and foster-

ing such articles of vegetation as might ultimately tend to a national advantage."—*New England Farmer*.

**LOCK TO THE CHESTS OF YOUR ANIMALS.**—A late writer says that a wide, deep chest in all animals is an indication of robust constitution, and is, no doubt, the point of shape to which breeders should look when selecting either males or females. It is not enough that a bull or cow should show a wide, full breast in front, but the width should extend back along the brisket, and show itself under and between the elbows. Fullness through the region of the heart is indispensable in either sex.

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### The Language of Animals.

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"That animals have each a language of their own to one another," says James Hogg, (the Scottish "Ettrick Shepherd,") "there can be no doubt, I know a good deal of their language myself. I know by the voice of the raven when he has discovered one of my flock dead; I know also his prelude to the storm and to fine weather. The moor-fowls call one another from hill to hill. I learned to imitate their language so closely that I could have brought scores of them within the range of my shot of a morning. The black-cock has a call, too, which brings all his motely mates around him, but the female has no call. They are a set of subordinate beings, like the wives of nabobs. They dare not even incubate upon the same hill with their haughty lords. But the partridge and every mountain bird have a language to each other; and though rather circumscribed, it is perfectly understood, and as Wordsworth says 'not unknown to me.' The stupid and silly barn-door hen, when the falcon appears, can, by one single alarm note, make all her chickens hide in a moment. Every hen tells you when she has laid her egg; and lest it should not be well enough heard or understood, the cock lends the whole power of his lungs in divulging the important secret. The black faced ewe, on the approach of a dog or a fox, utters a whistle through her nostrils which alarms all her comrades, and immediately puts them upon the look out. Not one of them will take another bite till they discover whence the danger is approaching. If the dog be with a man, sundry of them utter a bleat, which I well know, but cannot describe, and begin feeding again. If the dog is by himself, they are more afraid of him than of any other animal, and then you will again hear the whistle repeated through the whole glen.

But the acuteness of the sheep's ear surpasses all things in nature that I know of. A ewe will distinguish her own lamb's bleat among a hun-

ded lambs, all bleating at the same time, and making a noise. Besides the distinguishment of voice is perfectly reciprocal between the ewe and the lamb, who, amid the deafening sound, run to meet one another. There are few things which have ever amused me more than a sheep-shearing, and the sport continues the whole day. We put the flock into the fold, set all the lambs on the hill, and then send out the ewes to them as they are shorn. The moment that a lamb hears its dam's voice, it rushes from the crowd to meet her, but instead of finding the rough well clad mamma which it left an hour or a few hours ago, it meets a poor naked shivering—a most deplorable looking creature. It wheels about, and uttering a loud, tremulous bleat of perfect despair, flies from the frightful vision. The mother's voice arrests its flight—it returns and returns again generally ten or a dozen times before the recognition is perfect."

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### False Education.

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Shame upon historians and schoolmasters for exciting the worst passions of youth by the display of false glories! If your religion hath any truth or influence, her professors will extinguish the promotory lights, which only allure to breakers. They will be assiduous in teaching the young and ardent that great abilities do not constitute great men, without the right and unremitting application of them; and that, in the sight of humanity and wisdom, it is better to erect one cottage than demolish a hundred cities. Down to the present day we have been taught little else but falsehood. We have been told to do this thing and that; we have been told we shall be punished unless we do; but at the same time we are shown by the finger that prosperity and glory, and the esteem of all about us, rest upon other and very different foundations. Now, do the ears or the eyes seduce the most easily, and lead the most directly to the heart? But both ears and eyes are won over, and alike are persuaded to corrupt us.—*Walter Savage Landor*.

**NAMES OF TEAS.**—Hyson means before the rain, or flourishing spring—that is, early in the spring. Hence it is often called Young Hyson. Hyson Skin is composed of the refuse of the other kinds, the native terms for which means tea skins. Refuse of a still coarser description, containing many stems, is called tea bones. Bohea is the name of the hill where it is collected. Pekoe, or Pecco, means white hairs—the down on the tender leaves. Fow-chong—folded plant. Souchong—small plant. Twankay is the name of a small stream in the province where it is brought. Congo is from a term signifying labour, from the care required in its preparation.

**HORSE CENSUS.**—The following curious account is given in Appleton's Cyclopaedia, of the number of horses in the various parts of the world:—"The general estimate has been eight million horses in Europe for every hundred inhabitants. Denmark has forty five horses to every hundred inhabitants, which is more than any other European country. Great Britain and Ireland have 2,500,000 horses; France 3,000,000; Austrian Empire, exclusive of Italy, 2,600,000; Russia 3,500,000. The United States have 600,000.

The amount of grain in store at Oswego and Buffalo at the present time, according to a carefully prepared statement in the Oswego Commercial Times, is 3,343,000 bushels, embracing 2,625,000 bushels of wheat, 441,000 bushels of corn, 42,000 bushels of oats, 147,000 bushels of barley, 84,000 bushels of rye, and 3,000 bushels of peas. This does not include the amount afloat at Buffalo. Total receipts of grain at Oswego and Buffalo for the season, reducing flour to wheat, aggregate 55,000,000 bushels nearly.

**THE VALUE OF A DEAD HORSE.**—The value of a dead horse is from 20s. to 60s., the average being 40s.; the weight in pounds from 672 to 138, the average weight in pounds 950. Reflect that every application to art or science of this dead horse renders him of greater value; and it is for us, engaged in various ways in the race of life, to see whether we cannot apply things that have hitherto been wasted. Five hundred horses die every week in London. The skin is worth from 8d. to 1s. per lb., and it is used for making haircloth, for stuffing mattresses, and making plumes, and bags for crushing seed in oil mills. Then the hide, weighing 30 lbs., is worth 8s., which is, perhaps, not a great deal of money; but when you have from 300 to 500 a year dying within a radius of five miles from a spring-cross, it comes to some money. Then the skin is used for a variety of purposes; tanned, you know, are made into gelatine, and glue, and jellies. I told you that you must not be particular about these jellies; when the poor horse has drawn your carriage, served you in omnibus and cab, and died at last, even then you have not done with him, for his tendons then serve you for your delicious jellies. Then, again, it is not an uncommon thing for man to eat horse flesh. We do not eat it here knowingly, but they eat it on the continent of Europe. Then there is the blood, which is carried to the prussiate of potash manufacturers. Then there are the internal tubes, which are used for the covering of sausages; and, as I said of the jellies, we need not ask any questions about these coverings as long as they are sweet. The heart and lungs are evidently great "mysteries," for no one knows what is done with them. There is just as much mystery about them as about

the manufacture of the cloth of your coat. The heart, however, can be chopped up and mixed with sausage-meat, and the tongues may be sold for ox-tongues. On a recent occasion, when I stated this fact, a newspaper which reported my lecture, added that it was all a mistake, and that the tongues were never sold for so inferior an article as an ox-tongue; they were always sold as reindeer tongues. Now, passing over the fat, which is worth 3s. 4d., I need not tell you that horses' bones are as good as any other bones, and can be employed for the various purposes to which other bones are applied. The bones of a horse weigh about 160lbs., and are worth 4s. 6d. per cwt. Then there are the hoofs; 6lbs. of these, at 8s. 10d. per cwt., which can be used for making buttons, prussiates, and snuff-boxes. I do not think that it is correct to say that they are used in making glue. I think horses' hoofs are composed of the same material as hair. They are sold, it is true, to the gluemaker, but he sells them to the prussiate-manufacturer. Even the poor old shoes are worth from 4s. to 10s. per cwt.; and then with regard to all these substances employed, there is nothing which cannot be used again and again.—*Dr. Lankester's Lectures*

**PLANTS WHICH FORM NATIONAL BADGES.**—England, the Rose, Rosa sp.—Scotland, the Thistle, Cnicus latceolatus—Ireland, the Shamrock, Oxalis acetosella, according to Mr. B. Cheno; but commonly considered to be the White Clover, Trifolium repens—France, the Fleur-de-lis, Iris sp.

**RATS.**—A correspondent of the *Gardener's Monthly* says: "I tried the effect of introducing into their numerous holes, runs, or hiding-places, small portions of chloride of lime, or bleaching powder, wrapped in calico and stuffed into the entrance holes, and thrown loose by spoonfuls into the drain from the house. This drove the rats away for a twelvemonth, when they returned to it. They were treated in the same manner, with like effect. The cure was most complete. I presume it was the chlorine gas, which did not agree with their olfactories."

## Editorial Notices &c.

**BLACKWOOD'S MAGAZINE FOR JANUARY, 1861.**  
—The first number of the new volume contains the usual quantity of first rate articles on some of the leading topics of the day. Price \$3 a year; or with any of the four Reviews, \$5. Blackwood and the four Reviews, for \$10 per annum. This is the most seasonable time for commencing subscriptions. New York, Scott & Co.; Toronto, H. Rowsell, King Street, and booksellers in general throughout the Province.

REPORT OF THE MASSACHUSETTS' HORTICULTURAL SOCIETY FOR 1860.

We have been favoured with advanced sheets of the Annual Report of this old and influential Society from Mr. Wright, Corresponding Secretary. It contains in the various reports of the sub-committees much interesting and useful matter on many points of practice pertaining to the extensive and beautiful art of Horticulture; and from which we shall doubtless glean something for the information of our readers.

The Agriculturist for 1861.

The *Agriculturist* is published semi-monthly, each number consisting of 32 pages, and forming a volume of 768 pages.

The *Agriculturist* is exclusively devoted to Agriculture, Horticulture, and similar subjects. It is the cheapest paper of the kind in North America, and specially adapted to the circumstances of the soil and climate of Canada.

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As a further reduction in price on the largest orders, the following money premiums will be paid on copies ordered and paid for prior to or on 1st April next, viz:—

To the officer of any Agricultural Society, member of a club, or other person who shall send in the largest list of subscribers, accompanied with the cash, on or before the 1st April next, a money prize will be paid of..	\$20
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