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The Field.

Experiments of M. Ville.

Some time ago we gave a brief account of a course of investigations pursued by a French savan, M. George Ville, as detailed in six lectures, published in France under the rather inappropriate title of "High farming without manure." The account in question was condensed from reviews and notices in the British agricultural journals. Having lately obtained and carefully perused the English translation of the work, we return to the subject, which is one of much interest and great practical importance.

The results arrived at by M. Ville go far to render agriculture one of the exact sciences, and to remove it from the region of speculation and uncertainty. He has demonstrated the soil to be just a storehouse of moisture and nourishment for plants, and has proved that the particular nutriment needed can be at all times supplied by artificial means. Taking pure sand which had been burnt so as to destroy all organized matter, and leave nothing in the shape of manure or nourishment, he sowed seed in it, which he watered with distilled water. The seed grew, but did not come to maturity, or produce fruit of any consequence. He then took other portions of the same burnt sand, and applied to them separately the four great principles of manure, viz., potassa, lime, phosphates, and nitrates; all being supplied in their purest form, that of chemical salts, and without any foreign admixture whatever. He found that neither of these elements alone sufficed for the nourishment of plants. He then tried various combinations of these elements, and ultimately ascertained, that for a general manure, capable of producing any kind of crop in the artificial barren soil he had prepared, the four elements required to be mingled in certain proportions. Thus, in order properly to fertilize an acre of barren sand, the following compound is requisite.

Phosphate of Lime	352 lbs.
Carbonate of Potassa	352 "
Quick Lime	132 "
Nitrate of Soda	488 "

M. Ville tried various kinds of crops in his burnt sand, fertilized with what he calls the complete or perfect manure, compounded as above. On examining the condition of the soil after the production of each crop, he found that the cereals (wheat, barley, &c.) fed chiefly on the nitrates; the pulse (peas, beans, clover, &c.) fed chiefly on the potassa, and the roots (turnips, &c.) fed chiefly on the phosphates. A portion of lime, however, was needed with all these various constituents, in order to ensure the best results, and the assistance of the whole four elements was needed in a greater or less degree. He ascertained that the same crop could be grown year after year, for any number of years, in the same ground,

by supplying the particular kind of food which it required, in as great a degree as it had been abstracted by the crop of the year preceding. He also found that none of these four elements are wasted. If a crop does not take them up one year, they remain in the soil for future use as called for by plants of a different order, but the absence of any one element in due proportion is fatal to success.

M. Ville condemns the practice of analyzing soils in the ordinary chemical way, maintaining that it is both unnecessary and apt to mislead. He contends that the true analyzers of the soil are the plants which grow in it, and the failure of any kind of crop at once shows the absence of the particular element which it most requires. Thus in a soil which has been dressed with the perfect manure, any of the three great classes of agricultural products will do well both as to quality and quantity, but on repeating the same crop, deficiency shows itself. Thus the want of luxuriant growth in the case of turnips or other roots, indicates lack of phosphate; failure of the cereals indicates absence of nitrates or nitrogenous matter, and a short crop of leguminous plants such as peas, clover, &c., betrays a deficiency of potassa. If success is to be had, these deficiencies must be supplied.

As all soils which are at all fit for farming purposes possess within themselves more or less of the elements, which found in full proportion constitute a perfect manure, a much smaller addition of the salts enumerated in the foregoing table than is there mentioned will suffice to restore failing or lost fertility. M. Ville's experiments furnish a clue to the state of things frequently to be seen in this country. Where the forests have recently been swept away, carbonate of potassa abounds, from its having been plentifully supplied by the wood ashes of the first clearing, and it takes a number of years of bad farming to exhaust that element. So, also, lime is generally present in abundance, and some phosphates. But in burning over the land, we have removed the accumulations of nitrogenous matter, which have been withdrawn from the soil and air by the action of the forest trees and plants, and which had been for centuries collecting on the surface. This may account for the sudden barrenness which seems to fall on certain descriptions of new land, after the first crop or two have been taken off. At any rate, every farmer can, on the principles laid down by M. Ville, ascertain what sort of dressing his land needs. He has only to consult the growing plants to find out from them what is deficient in the soil. If the root crop does not flourish, a dose of super-phosphate, which can be readily had will supply what is wanted. If the cereals do not grow, nitrates in the shape of nitrate of soda, or nitrogenous manure, will do the business. If the leguminous plants do badly, potash must be furnished. A small dressing of quick lime, which is necessary to the best effects of the other elements, is always within the reach of every one.

In all this there is nothing remarkably new. Farmers have long been aware that various products were especially benefitted by certain manures; that bone-bast, for example, was good for turnips, and that clover ploughed under, and which contains large quantities of nitrogen, was excellent for wheat, and so on. But the matter was never before set forth with such scientific accuracy, and while we do not expect that the land will ever come to be physicked with minute exactness, it is plain that a sick soil can have its diagnosis taken, and a suitable prescription made up for it, as intelligently as these can be done for a sick person. We hail every contribution to agricultural science which helps to take practical farming out of the realm of uncertainty and hazard. "Sir Humphrey shooting in the dark" is far from being the true ideal of a farmer. Let us understand what we are about; let us know the principles that underlie our practice, that we may map out our results with some degree of certainty. The right treatment of particular soils, and the judicious rotation and regulation of crops, are topics of constant interest, and much as they have been investigated and discussed, constitute a field of research in which there is yet a great deal to be learned, and a great deal to be done.

Deep And Shallow Ploughing.

Modern experience has shown that deep and thorough cultivation is necessary to success in all agricultural operations, but many misunderstand the question, and imagine that those who advocate deep cultivation, advocate the turning up the under-soil and depositing it above, and upon that which was formerly the surface. Undoubtedly, if you plough deep you bring the under-soil to the top, and bury that which was before the surface; but because you do this, there is no absolute necessity that you should sow the crop on the newly-exposed soil. No one who ever thinks at all would do this. The under-soil must be exposed to the air or you cannot benefit it; the upper must be buried or you do not kill the weeds. But this operation is not necessarily done every crop, or every season, or, at all events, not at first. The right time for deep ploughing is in the fall, when you plough the wheat stubbles. Then tear up the ground to as great a depth as your team-power will allow, and if you can subsoil in the furrow after the other plough, so much the better.

Let the ground be thrown up as roughly as possible—never mind appearances—the rougher it lies the more surface is exposed, and the greater is the amelioration during the following winter. The next spring plough again with only a shallow furrow, two-thirds, perhaps, of the former depth, and so work it twice. By the time you plough the third time the former surface weeds, stubble, and other vegetable material, will be thoroughly decayed. Then put the plough down to the original depth, and bring the

soil buried last fall to the surface. The drags, harrows and cultivator, will then leave the whole with a perfect seed-bed; the former under-soil will be again under, but will now have gathered a stock of nitrogen and ammonia from the air, and will be in the right place for the roots of the new crop to penetrate and derive nutriment, and the result will show the benefits obtained in the shape of a plentiful return. We well recollect the time when deep cultivation was first publicly discussed, not in agricultural papers, for there were none then, but in ordinary publications, and in such few books on the subject as were then to be had. The arguments appeared to the father of the writer of this article so sound that he determined to carry them out, but he did not consider that present mischief might arise from a deeper cultivation than had been usual. A twenty-acre field was first submitted to the process, the soil was a black sandy loam, which had been greatly run out, and from this cause, though naturally good, was very poor, and the tradition in the neighbourhood was that the soil leached, and that all the manure went through it in about two or three years. Very well, said our amateur agriculturist, if it goes through it must be down there somewhere, and I will bring it up, so he ploughed as deep as ploughs would then be made to go, with four large, heavy English cart-horses dragging them—probably nine inches, and on the soil so brought up he sowed vetches, then a new and almost unknown agricultural crop in the part of Britain of which we speak. The vetches came up well and grew splendidly, but with them came also a wonderful crop of a pest almost unknown in Canada (except in the County of Perth), namely, wild oats. These were in such quantities as to be a crop in themselves, and as cattle and horses would not eat them readily they all went to the manure heap. The vetches were cut green for soiling, and, of course, the oats with them, and so were, in a great measure, got rid of, but they became far more plentiful on the farm afterwards, and were very mischievous.

Other people ploughed a little deeper only than common, one brought up an immense crop of charcoal, or wild mustard, another a crop of poppies, another wild spinach, and so on, according as the land contained the seeds of any particular weed, and with all those who did not "think" deeper ploughing than usual was promptly condemned. But the next few years altered matters. The fields, which had been deeply ploughed seemed to have received new life, and a considerable increase of yield was the consequence. Now, the mischief which arose in these experiments was chiefly caused by want of the replacement of the soil which had been brought up into its former position, after it had been aerated and ameliorated by the influence of the atmosphere. Had this been done, the wild oats, poppies, &c., would have stood quietly below the surface, and would not have germinated in such immense quantities. The good would have been done without the evil, and all would have seen the benefits of deep cultivation, instead of condemning it. Another instance happened on the same farm. Planting trees became nearly as much of a hobby as deep ploughing, but it was stated in the same work which advocated the deep ploughing, that, for replanting, the ground must be trenched to two feet deep. Accordingly, about a quart of an acre was trenched, the surface foot was buried, and the sub-soil foot brought to the top, and the trees planted. They were set deep, and in the manner of nursery trees, and did well enough, but the surface of the soil was so poor that even weeds would not grow, so the trees were kept clean with very little trouble, but after a while they had to be planted out, and then the ground was restored to its original purpose of a farm garden, but, although manure and cultivation were not pared, nothing would do well, and, finally, the ground was trenched and the old surface-soil brought back to the light. Then the benefits were shown. Monster carrots, parsnips, and cabbages were the result. Such crops of potatoes as were never before heard of were grown, and the trenched ground was considered the best on the place.

It cannot, therefore, be doubted that in all these cases deep ploughing ultimately benefitted the land. The soil spoken of in all these instances was good though that where the wild oats grew was considerably worn out. Still it was good, and continued good to a considerable depth. But there are cases where deep ploughing is not only mischievous, but positively ruinous, unless the farmer means to make a new soil altogether; such as where the land on the top is tolerable, but lying on a poor wet sand or gravel, or where the subsoil is (as it sometimes is) absolutely inimical to good crops. In these cases great care must be taken to keep what you have that will bear a crop in such a position that it can bear one, and deep ploughing must not be practiced until

the subsoil has been thoroughly drained, or so gradually exposed to the influence of the air as not to lose too much of present benefits whilst aiming at future good.

Deep and shallow ploughing must remain as ever a matter of judgment, but let the farmer bear in mind that when he has a deep soil, deep ploughing is certain to benefit it, provided due precautions are used. Where he has a poor, thin soil he must proceed more slowly; but even there he will find it his interest, year by year, to increase his tilth, if even by half an inch at a time, taking care to add manure in proportion to the new and poor soil that he brings to the influence of the light and air.

Let him try the effect on a small scale; let him pause, think and reflect. Let him keep a diary of his operations, and a record of his experiments, and experience will soon point out the best course to be pursued. We have all seen portions of the farm assume sudden appearances of fertility or of barrenness, as the case may be. A record of operations would always show the cause of the benefit, and also act as a warning to avoid the error, which had been followed by want of success.

Plaster for Grass and Other Crops.

PLASTER may be sown on meadows and pastures during May. It should have been sown, however, in April, but where it has been neglected, good results will follow by spreading it upon the land now. We suppose in this enlightened age there are few farmers that object to the use of plaster as a top-dressing on grass lands. Occasionally we find persons who do not like to use it, and who are afraid that it exhausts the land, and will soon run out the farm. Such persons do not read the agricultural papers; they don't believe that any good can come out of printed matter, that touches upon farming. They are about forty years behind the times, work hard, get small crops, and are eternally complaining of "bad luck." If they keep a dairy, they usually belong to the class of 300 pounds dairymen, not that their personal weight will turn the scales at that enormous figure, but that the average annual yield of cheese from their herds is about 90 pounds per cow. It is hard to convince these old-fashioned gentlemen that cows can be made to produce annually 600 and 700 pounds, and when statements are made to that effect, they are viewed with an incredulous disgust which says, "these are the stories of the agricultural papers and book farmers." Well, the tax gatherer is going to visit these old-fashioned farmers and present an argument that will be likely to be remembered. A kind of waking-up argument to produce more grass, more milk, and larger crops. When one finds an absolute necessity staring him in the face, he begins to look around for means to meet it; and so, perhaps, our increased taxes will serve a good purpose after all, in making us better farmers—in teaching us the necessity of getting better returns, and pushing us forward to devise ways and means to obtain these ends.

Several years ago we remember hearing an old dairy farmer argue the plaster question in this wise. He had a good upland farm, and was somewhat noted for keeping a large stock, and getting a heavy yield of cheese from his herd. He sowed plaster liberally on meadows and pastures, but was not thoroughly convinced that this top-dressing was an important element in his success. He was inclined to believe that he was wasting money and labour, and so for some years he abandoned the use of plaster on his farm, but the result was very unsatisfactory. His herd dropped off in their product 100 pounds of cheese per cow. The meadows did not yield sufficient hay for wintering stock, and fodder had to be purchased. In fact, said he, I found I had been an old fool, and was glad to get back again in my old tracks.

Now, perhaps, the same results could not be had on all farms, nor in all we have said do we wish it to be understood that the farmer is to place his whole reliance upon plaster, or that by its use he can get along without other manures, for plaster properly is not a manure in the full sense of the word. It does not enrich the land, but induces plants to better appropriate fertilizing material, and prevents the waste of matter that can be made available in the various processes of vegetation. The action of plaster is not fully understood, it acts partly as a manure, feeding the plants with its sulphuric acid and lime, and partly as a stimulant, hastening by its lime the decay of vegetable matter in the soil. Its constituents are in 100 parts, as follows: Water, 21; lime, 33; sulphuric acid, 46. It attracts ammonia from the atmosphere, and retains it for the use of vegetation. This fact is put to a practical use by some observing farmers. We remember hearing at a club meeting of farmers, one of the members remark that

he knew of a very shrewd operator in his neighbourhood, who, when his neighbours chanced to be spreading manure in fields adjoining his own, always commenced sowing plaster, and in this way was actually benefitted at his neighbour's expense. He said he had frequently noted the effect of such sowings, and it was a convincing argument to him to use plaster immediately after top-dressing his grass-lands, since he did not care to be at the labour and expense of enriching his neighbours' fields, by allowing the better portions of the manure to be evaporated and carried in the atmosphere for the use of somebody else.

The effect of plaster on large leaved plants is more marked than on others, hence potatoes, corn, and vines, etc., are greatly benefitted by its use. Its influence on the clover is extremely favourable to the growth of that plant, and it is on this account, therefore, which renders it so valuable on dairy farms for the production of milk. Plaster makes clover, and clover makes milk. In the application of plaster to grass lands there is a difference of opinion among farmers whether it should be applied annually, or every alternate season. Some follow one practice, and some the other. When applied annually, of course a lighter coating can be used. The quantity per acre will depend something on the land; if a considerable proportion is already in the soil, a less quantity is needed, and the soil may contain so much as not to be effected by its use. It is applied with good results at the rate of a bushel per acre. Some use considerably more, and soon learn to adapt the quantity to the particular location so as to produce the best returns. We have always found the best results from plaster on grass lands when applied early in the season, so as to get all the benefit of the spring rains, or before grass starts in the spring. When used later, it is always best to sow just before a rain.

Some farmers say that its application late on pasture lands, and at a time when it is not followed by rains, but remains on the grass to be partly consumed by stock, is injurious to milch cows. They claim that it induces a complaint known among dairymen as "fly in the teat," or a gradual stoppage of the milk passage of the teat, and of course destroying that portion of the bag. We have been assured by dairymen whose herds have been badly afflicted with this trouble, and who claim to have given the matter special attention, that it was plainly traced to this cause. We give the suggestion for what it is worth without endorsing it, but it would be well to be cautious about sowing plaster at such times, since its consumption by stock can do no good, and may possibly be of injury in the way alluded to.—*Ulster Herald.*

The Late Mr. Fowler and the Steam Plough:

On Thursday week a paper was read at the Institution of Mechanical Engineers, Birmingham, on steam ploughing, which was commenced by the late Mr. John Fowler a few weeks before his death, and finished by his coadjutor, Mr. David Greig, who conducts the works in Leeds. The cause of Mr. Fowler's first entering on steam-ploughing, was his invention of a system for laying down drains by means of an instrument which first bored a hole any convenient depth in the soil, and then drew after it a long string of drain pipes. This led him on to solve another problem—why not go further, and plough the land by steam? Then came the great question. How is this to be done?—by a rotary digger? by a steam plough coupled direct to the engine? or by an engine communicating by ropes to the plough? Mr. Fowler's practical mind soon solved the question as to which was the right plan to adopt, and then came years of experiments to demonstrate and develop the system to which his name will ever be attached. It will hardly be necessary to say that the system, as perfected by Mr. Fowler, consists of, first, a steam-engine working on the headland; second, an endless rope stretched from the engine across the field round a drum, so secured on a moveable frame that, while it is able to resist the pull of the rope, either in the backward or forward motion of the plough, it is also self-acting along the other headland at the same rate as the engine on its headland; third, a balanced machine, containing two different series of ploughs, which are used alternately in crossing and re-crossing the field, the weight of the man who guides the machine being sufficient to elevate the one and depress the other, or vice versa and the shares, five or six in number, being so arranged that the soil is wedged off in alternate slices. The perfecting of this system, which Mr. Fowler lived to see, is a long history extending over some fifteen years, and explains many reasons why steam-ploughing has not become universal. There is the usual history of development, great

complications of ropes and engines, machinery made too slim from a false notion that everything to go on soft land should be constructed as light as possible. The consequence was, engines broke down, and farmers' patience and purses became exhausted. The rope was at first an enormous expense. Made of iron wire, it wore out in ploughing 200 acres; and when they tried to strengthen it by adding to its diameter, it absorbed all the power of the engine. Steel at last came in, to prevent the steam plough being swamped. The first rope of this material ploughed 600 acres. A frightful source of the wear and tear of the rope was in the coiling of this wire on the drums, squeezing them into V-shaped grooves; but at last came the beautiful arrangement of the Burton clip drum, by which the rope was clasped as if by a hand of iron, its shape preserved, and instead of winding round and round the drum in order to obtain sufficient holding power by friction, a half turn round it was sufficient for the greatest pull required. The application of this drum, and the improvements in the material, has perfected the system—a steel rope, 11-16ths of an inch in diameter, weighing 2lbs. per yard, will plough 3000 acres; while in the first case the iron rope did a duty of 750 miles, costing 1s.7d. per mile, the steel rope does a duty of 9000 miles, costing 2½d. per mile. All this time improvements were being made in the engine; its powers of locomotion were increased, so that in its present form it is, besides its adaptation for ploughing, a powerful traction engine, capable of taking a load of twenty tons up an incline of one in fifteen, with a proper steering apparatus, and provided with a large drum for driving a thrashing-machine, circular-saw, &c., &c. The simplicity of the arrangement in reducing friction is further seen in 75 per cent. of the power given out being applied usefully.

The comparison of horses against steam, the next point treated in the paper, is very interesting. First, as to hauling power, four horses exert a power equal to a pull of 6 cwt., and this, on a width of 12 inches, is equal to 70 lbs. per inch, while at the same time they take along with them a weight equal to 4 tons, which is distributed over the fields in footprints. Where the land is unploughed the effect of this treading is to harden and consolidate the ground, and make it mere difficult to plough. When ploughed, the footprints take away so much from the useful effect of ploughing, and this is more manifest when it is considered that as many as 300,000 foot-prints are made per acre by four horses while engaged in ploughing; that is, nearly the whole area is trodden over by the horses' feet.

In steam ploughing, a draught of 35 cwt. is given out, equal to 300 lbs. per inch, while the load on the land is 25 cwt., and this is carried on two wheels 6 inches wide, and moving 4 feet apart. The requisites to steam-ploughing are a powerful engine, large drums, rope as little bent as possible, and hard, light, and flexible; direct pull on implement, rope kept tight to avoid friction on the ground, soil wedged off by consecutive shares, and as small an amount of manual labour as possible. All these points have been studied in Fowler's system, and the question remains, why has steam-ploughing not been more generally adopted? The writer replies, first, because farming is a slow and uncertain investment, and farmers, generally speaking, are short of capital; secondly, because certain permanent improvements are required to make steam ploughing profitable, such as better roads on the farm, and fields made larger. This properly belongs to the landlord, but very few of them have taken up the matter as they ought. Besides this, as previously mentioned, the first steam ploughs, being constructed too lightly, broke down, and an unfavourable prejudice was excited against them. This objection has now been surmounted, and there seems no reason why steam ploughing should not be generally and universally adopted.—*Mark Lane Express.*

Evaporation from Forests.

The woodlands of a country perform an important office, not only in collecting and retaining the moisture of the soil by overshadowing the land and staying the exhausting process of evaporation, but they, at the same time, spread out from their leaves a boundless evaporating surface to supply the atmosphere with requisite moisture, drawn by the roots from hidden springs within the earth, without exhausting the surface of the soil. The extent of surface which is opened out by the leaves of a forest for evaporation outruns all calculation; and the aggregate amount of water that, by this process, is drawn off into the skies, is equally vast, immeasurable, inconceivable. The Washington elm at Cambridge, a tree of no extraordinary size, was, some years ago estimated to produce a crop of seven millions of leaves, exposing a surface of two hundred thousand square feet, or about five acres of foliage.

By an experiment conducted with great care in Vermont, an acre of forest trees was found to throw off, on the 12th of June, eight hundred and seventy-five gallons in twelve hours. By another independent process, an acre of wheat, in luxuriant growth, has been estimated to give off two thousand five hundred gallons of water in twenty-four hours. A distinguished naturalist, who has bestowed much attention on this subject, has expressed the opinion, that the amount of evaporation from a given surface of woodland is as great or greater than from lake or sea of the same extent. But the evaporation in twenty-four hours from a tropical sea is, according to Maury, equivalent to a sheet of water half an inch in thickness over the evaporating surface.

"All the rivers run into the sea, yet the sea is not full;" because all their waters are taken up by evaporation. "Unto the place whence the rivers come, thence they return again." The sea is but a vast evaporating basin, a part of a stupendous system of hydraulics, by means of which all the rivers of the earth are made to discharge their contents, through the seas, into the skies. How beneficent the providence of God in establishing this stupendous laboratory of nature, for the health and happiness of all the living! The rivers drain from the land, in decaying animals and vegetable matter and noxious miasmata, many ingredients of disease, and flow on to the ocean, turbid, foul, and feculent; charged with pestilence and death. But by this wondrous process of distillation they return, through the skies, pure, fresh, and sweet, shedding down anew streams of life and health and joy over all the earth. But be it remembered the while, that we are not indebted to the ocean alone for these streams of life and health. This vast laboratory is in lace ceaseless action over all the wide world, on the dry land as well as upon the sea. The distillations from the forests especially, in proportion to their extent, send up a freer, fuller flow of waters into the heavens, to refresh and water the earth.—*L. Coleman, D.D.*

Composting Muck.

The successful applicant for the premium offered by the Kennebec (Maine), Agricultural Society, for the best experiment in the use of muck, gives the following as his method:

"I dig the muck as soon after haying as I can that being the driest season of the year, and the sun and the air will have good effect upon it before I take it to the barn-yard. Before moving this muck, after it has been dug, I clear my barn-yard of the previous year's accumulation of dressing, say on the first of November or before the ground freezes—carting it out into the field where I propose to plant corn the next season, or for the purpose of top dressing etc. I then haul into the vacant yard the muck, and spread it evenly all over the surface. My cattle are then allowed to run over and stand upon it during the remainder of the fall and winter. In the spring, as soon as it is dry enough, I run the plough through it, and follow this practice often during the summer. I yard my cattle on it during the summer nights. I have a barn cellar, into which I drop the manure from my cattle during the winter and spring, and whenever housed. This I fork over in the spring and during the summer, keeping it in the cellar until the last of August or first of September. I then commence mixing the pile in my cellar with the muck in the yard, in the proportion of one-third manure from this cellar to two-thirds of the muck in the yard, frequently ploughing them over and incorporating them together as intimately as I can, until it is time to haul into the field.

"I stated that I cleaned my yard just before the ground closed up for the winter, and the sooner it freezes after it is out, the better, as it prevents evaporation or further drying. I drop it in a long pile, and stack it into a sharp ridge, like the roof of a house, flattening it, and smoothing the sides with my shovel, which causes it to shed rain, and you will find it all there in the spring. Muck prepared in this way never failed to give me good crops, and proves more lasting for the hay crop than the same amount of manure does. I have now about fifteen cords, which is my usual amount prepared every year."

How to Kill Sorrel.

I notice the statement of Charles Betts, of Burr Oak, Mich., commending stable manure as an effectual eradicator of sorrel from the soil. During the last ten years I have been deeply interested in the pursuit of theoretical and practical agriculture and horticulture, and, among other experiments, I have frequently noted the effects of different fertilizers applied to the soil, in promoting or checking the growth of sorrel. My observation and experience have proved that stable manure and other organic manures, whether animal or vegetable, are as efficacious in promoting the growth of sorrel and other

noxious plants, as the growth of corn, wheat, oats, potatoes and other cultivated plants. Peruvian guano, so highly valued on account of the large percentage of ammonia, phosphates of lime and magnesia, has invariably produced a luxuriant growth of sorrel where the seeds or roots were in the soil; and I think that to apply horse manure or guano in sufficiently large quantities to kill sorrel, would greatly injure or probably kill or rather burn up the plants you would cultivate. Of all fertilizers that I have seen applied, or even heard of being used on Long Island and in the New-England States near the sea-coast, the moss-bunker (a sea fish, millions of which are annually applied to the soil,) is universally, and I think very justly, reputed as the best manure for the protection of a luxuriant and heavy growth of sorrel. But the question is, *what will kill it?* I am happy to state that I entirely concur with Solon Robinson and Wm. S. Carpenter in commending lime and salt as effectual in destroying this weed—that is, if I may be allowed to add my favourite remedy (potash) to their specifics. As the roots and germs of the sorrel are quite delicate and tender, and as the plants require but little or no potash, I presume that potash is really the safest and most effectual application by which to rid fields of this pest, without injury to cultivated plants. The best time to apply the ashes is in early spring, just as the plant begins to vegetate, when the young shoots are tender.

I. T. WHITBECK, in *Country Gentleman.*

Beets vs. Sorghum for Sugar.

Our esteemed correspondent, "S. W.," in a private note, writes:—"I am surprised that you should give sugar beets the preference to sorghum as a sugar making plant. Beets may be the best in Europe, where land is dear and labour cheap, but not in this country, particularly in the Great West.

That sugar of the best quality can be made from beets, is a well ascertained fact. There is no necessity for experimenting on this point. But with sorghum it is still an open question whether sugar can be profitably made from it. It is grown to a great extent in the West for the manufacture of molasses, but it is seldom that sugar is made from it, except in very small quantities.

There are, aside from the fact that there is no uncertainty in the business, two reasons why we prefer beets to sorghum. The cultivation of beets, and the consumption of the refuse by cattle, enriches the farm. This is well known in Europe, and has given rise to the remark, "the more beets the more grain." Then there is this additional reason in favour of the beet. Sorghum must be worked up at the proper time in the autumn, or there is great danger of loss from chemical changes in the sap, but this is not the case with the beets; they can be kept all winter if need be, and can be worked up when most convenient.—*Genesee Farmer.*

HOW TO APPLY GUANO.—For drilling, it must first be mixed with four to six times its weight of well-sifted mould. Charcoal in powder, either from peat or wood, is also a most excellent article to be mixed with the guano in the proportions indicated. Its great porosity allows it to retain the volatile ammonia, and in dry weather to absorb considerable moisture from the air. This is of material benefit to plants in their early growth. Before mixing, the guano must be finely pulverized, which may easily be done with a common garden roller upon the floor of a barn or shed, or even by beating it with a common shovel. A layer of ashes, &c., is then spread evenly upon the floor, and a quantity of the fine guano sifted over it. This is followed by another layer of mould or ashes, and another of guano, until the requisite quantity of both is used. The whole must then be repeatedly turned with the shovel until thoroughly mixed. If time will permit, it is now preferable to leave the mixture for eight or ten days. It must then be again sifted, when it will be ready for use. In using guano with the drill, care must be taken that the mixture falls below the seed, and that an inch or so of soil intervenes between them, otherwise the strength of the guano will kill the seed. Garrett's, Hornsby's, and other modern drills are well adapted for depositing guano and other concentrated manures. The above mixture is generally sufficiently damp to fall exactly where the hand directs it. When this is not the case, a small quantity of water should be added. The field must be sown with the mixture in the ordinary manner, and the manure harrowed in; the seed is then drilled as usual. Perhaps the preferable mode would be to broadcast two-thirds of the guano applied, and to drill one-third with the seed. The young plants would then have enough manure under the drills to serve the early stages of growth, while the guano sown broadcast would supply the wants of the plants in a more mature state, when the roots would have spread in every direction in the soil.—*Nesbit.*

The Breeder and Crazier.

The Essex Breed of Pigs.

We present our readers with an illustration of a pair of prize Essex swine, exhibited at the last Provincial Show, and owned by Mr. Thos. McCrae, of Guelph. Pigs are usually arranged under two classes,—the large and the small breeds; although there are some varieties that more properly occupy an intermediate position. The large breeds are, with few exceptions, proportionately coarse, but they are the most prolific, and generally have the most abundant supplies of milk. The small breeds are exceedingly numerous, but the Windsor, Lord Radnor's, the recently improved Berkshire, and Mr. Fisher Hobbs, or the modern improved Essex, are among the most esteemed. The difference between the large and small breeds admits of a clear explanation. The original English pig was large in size, coarse in character, and it acquired some special peculiarities in certain districts, according to its habits of life, and its means of gaining support. These varieties gradually distinguished the different local breeds. When improved in their

imals expending their food by active habits, they lay it upon their bodies in the form of fat. The intermixture of these distinct classes of pigs has effected a marked improvement. We have animals combining size, hardy constitutions, and a disposition for fattening; as well as other breeds, which, though more delicate in character than those which we have just referred to, are nevertheless more suited to our requirements, and more hardy than the pure Neapolitan and Chinese. The difference between our several breeds is caused by the proportion of each kind of blood in the animal's parentage. The larger and coarser the pig, the more fully does it prove that its parentage is of the old English blood, while the smaller and finer it is, the greater is the preponderance of Neapolitan or Chinese blood. We may have every intermediate stage of quality between the two extremes; but the same result becomes evident throughout. As the Neapolitan and Chinese blood gains the ascendancy, so it increases the aptitude for fattening, and gives early maturity, with a delicacy and smallness of size. On the other hand, in proportion as the old English blood prevails, so do the progeny take a longer time to fatten;

belly, full in the hind quarters, but light in the bone and offal. They feed remarkably quick, grow fast, and are of excellent quality of meat. The sows are good breeders, and bring litters from eight to twelve, but they have the character of being indifferent nurses."

Mr. Fisher Hobbs has for the last twenty years occupied the most distinguished position as an improver of the Essex pig. He has crossed with the Neapolitan and black Chinese, which, under great perseverance and judicious care, have ultimately produced a very marked improvement. Indeed, to such a pitch of excellence has Mr. Hobbs carried this breed, that it is now usually known under his own name, both in the county of Essex and elsewhere. It is distinguished by smallness of bone and head, beautiful proportions, with a strong tendency to fatten and early maturity, with flesh of fine fibre and excellent quality. The colour is almost invariably black, and the sow is noted for her prolificness and care of her young. With liberal feeding, these animals can usually be fully developed in fifteen or eighteen months, and they attain to good weights for a small breed; some reaching as high, with moderate feeding, as 60 or 70 stones

A PAIR OF ESSEX PIGS.



SECOND PRIZE-TAKERS IN THE SMALL BREED CLASS, AT THE PROVINCIAL EXHIBITION, HAMILTON, 1864.

character, it was effected by the introduction of foreign blood, and for this purpose the tender and delicate Neapolitan and Chinese pigs were well suited. Between these two extremes,—viz., the original large and coarse English hog, and the small Neapolitan and Chinese pigs,—all the English breeds may be arranged, according to their relative size and fineness. In the old English pig, the strong bristles and wiry hair were indicative of a strong constitution, capable of withstanding the roughest weather. Its general configuration of body, and its powers of locomotion adapted it for travelling far for food. These qualities were naturally associated with others that rendered the animal a good breeder, possessing great muscular power, firmness of flesh, and capacity for enduring both privation and fatigue. The Neapolitan and Chinese pigs, natives of warmer climates, have not the power of travelling far for their supplies of food. So far from being restless in their character, they are decidedly predisposed to a luxurious mode of life, in which their food is obtained with little trouble. In this absence of active exercise, there is no necessity for large lungs, consequently they are not fully developed. Instead, therefore, of the ani-

they come to a larger size, and are altogether stronger and coarser. These facts show that, in order to attain the best results, the object to be accomplished must guide us in selecting the most suitable kinds of pigs, and in directing their general management.

The Essex breed of the present day is very different, in size, appearance, and habits, to the original stock that prevailed forty years ago. The old Essex breed is described as "Up-eared, with long snarp heads; rouch-backed, carcasses flat, long, and generally high upon the leg, bone not large, colour white, or black and white, bare of hair, quick feeders but great consumers; and of an unquiet disposition." Lord Western is known as having many years ago effected a great improvement in the old stock, the progeny being designated the *Essex half blacks*, into which entered a large strain of Berkshire blood, and which soon obtained considerable notoriety. They are described by the author of the report on the agriculture of Essex, as "black and white, short-haired, thin-skinned, with smaller heads and ears than the Berkshire, but featured with inside hair, which is a distinctive mark of both; having short snabby noses, very fine bone, broad and deep in the

(8 lbs.), and young pigs of only five or six months old are frequently exhibited at the Smithfield fat cattle show, of extraordinary weight and fatness.

This breed has met with strong rivals in Lord Radnor's, the Suffolk, and particularly the small improved Berkshire, with which it has of late often exchanged places in first-class honours at the principal British exhibitions of live stock. The latter of late years has made very great progress both in Canada and the States, and it may be considered, perhaps, as the most approved variety of the small breeds. But the improved Essex is certainly winning its way on this side the Atlantic to public favour, and from the experience already had, it is deserving the attention and patronage of farmers who desire to raise animals possessing special qualities for domestic use. For the ordinary market, the larger breeds are no doubt the most profitable, but for family consumption, the smaller breeds are infinitely to be preferred, as the texture and flavour of their flesh are so much superior, and in the relative amount of food which they consume, and in the short time they attain to maturity, they unquestionably possess decided advantages.

Horse Power.

MANY have but an erroneous idea of the drawing power of a horse. Some, probably, have no idea that approaches correctness. The strength of different horses undoubtedly varies a great deal, but in calculating the power of an engine, the horse power is estimated as equivalent to a force capable of raising or moving 150 pounds 20 miles a day, at the rate of two and a half miles an hour. This seems small, but experiments have actually shown the power of the farm horses in this country to be considerably less.

On a level road or floor the horse is ordinarily as strong as five men, but up a steep incline the man has the advantage, for it has been found that a man can rise a steep hill with a load, where it would be out of the power of a horse to climb. A man of ordinary strength, placed in a position to exert his strength to the greatest advantage, can apply more power than a horse in drawing from a point two feet above the ground. It requires a heavy pair of horses to exert a force of five hundred pounds, in such a position.

As the horse's speed increases, his power of draught diminishes very greatly, till it becomes very difficult for him to move his own weight. On soft roads the draught is not so much affected by the speed, and the resistance is very little, if any, greater in a trot than in a walk, but a carriage on a dry hard pavement requires one half greater force when propelled in a trot than in a walk.—*Massachusetts Ploughman.*

BUTCHERS and speculators are stocking the mountain pastures of New Hampshire extensively with Canadian cattle.

"A FEMALE SWINE."—An over-fastidious American journal uses this ungrammatical and ridiculous phrase, to avoid the occurrence of the word "sow." "Female Swine" and "Rooster" belong, by good right, to the same vocabulary of refined vulgarity.

LICE ON DOGS.—The swine louse is readily destroyed by a strong decoction of quassia wood; tobacco water is also used, but requires especial caution in its application. A little benzine, dissolved in alcohol, applied with a shaving brush, or piece of sponge, is said to be a certain cure, but, like tobacco water, requires care in its use.—*Amer. Ag.*

KNIFE AND LANCET.—A pork butcher—so it respectfully said—is, so far, in advance of the age, inasmuch as he both kills and cures. Now, it is rare indeed that a doctor can achieve more than one of those delicate operations successfully at a time; at all events there is no living proof of the two having ever been performed completely to the patient's satisfaction.—*San Francisco Paper.*

A PROLIFIC PIG STORY.—The first of April, 1864, a sow under the barn of Edward Earl, in Worcester, had a litter of thirteen pigs, eleven of which, when six weeks old, sold for \$14. In August following, the same animal had thirteen more, and raised nine of them, which sold for \$15. The 24th of February, 1865, to cap the climax, she brought forth seventeen more fine, healthy pigs, (although she had only twelve teats for them,) making in all three litters, within thirteen months, of forty-three pigs.—*Worcester, (Mass.) Transcript.*

IMPROVEMENT IN CATTLE TRUCKS.—The last time we took the railroad—a day intensely warm, even with every mode of ventilation fully open—we chanced to pass a cattle train at a way station, crowded as full as they always are, with but very narrow gratings on the doors for the admission of air, with the fearful odor which accompanies such a train on a long journey, and the poor things inside pent up and panting for breath. Really something ought to be done to render the transportation of stock in hot weather less a source of misery to them; not out of mercy alone to the animal whose scanty supply of foetid air must become so intensely sickening, but for the sake of those who are to consume the feverish and unwholesome meat thus tainted more or less completely in every pore. As heretofore noticed in this column, the subject is attracting much attention in Great Britain, where the diseased character so imparted to the flesh has been fully proven. The last number of the *Scottish Farmer* gives an engraving of a railroad cattle truck, which is certainly a great improvement. It is open for the admission of air along both sides, just above the head of the cattle, and, at a proper height to be within their reach, a trough about 10 inches wide and 10 or 12 in depth, extends around the outside of the whole car, to be filled with water for their use at proper intervals on the journey. This plan has been patented, and the Highland Society has awarded a medal for it to the patentee.—*Country Gentleman.*

The Dairy.

A Visit to a Cheese Factory.

To the Editor of THE CANADA FARMER :

SIR,—I had the pleasure lately of visiting the cheese factory of Messrs Galloway & Co, situate on the 3rd Concession of West Oxford, and so great is the contrast in its operations to those carried on by our mothers and grandmothers in the dairy districts of England, twenty years ago, that I am induced to offer you a few remarks on the subject. I was raised in a dairy county, and therefore accustomed from childhood to the fuss and anxiety of cheesemakers, whose work was never done. The pastures were frequently from two to five miles from the homestead; a horse and cart provided with large cans to carry the milk was in readiness to start at 3 or 4 o'clock in the morning, and about one milker to 10 cows; then, through the whole day, a continued bustle was kept up by a large number of assistants to "get the cheese out of the way." That meant to get it into the press to remain a few hours, but it had to be turned repeatedly the next 48 hours. To manage a cheese of 70 lbs. weight was considered a herculean task for a woman to undertake; and it must not be forgotten that the dairy women of England, as a class, are strong, and able to endure a great amount of labour, and, I might add, seem to thrive on much less sleep than is required in Canada. If the dairy folks in England still pursue the old-fashioned mode I was accustomed to witness a quarter century back, I certainly think they "stand in their own light;" and if they could visit one of our modern factories, they would be inclined to adopt its conveniences, without regard to its origin.

The factory referred to is situated on the banks of a running stream. It is the property of Mr. G. Galloway, and was not complete at the time of my visit. A dam was in the course of erection, to facilitate the pumping of water to a tank over the vats, whence it could be conveyed to any part of the building through pipes, and especially send a constant stream, through a box of ice, underneath the milk, to cool it off before adding the rennet. At the time of my visit, Mr. Galloway was making four cheeses per day, from about 4,000 lbs. of milk. The cheeses would weigh 100 lbs. each. He milks 34 cows, which are driven to the yard twice a day, and with no noise or trouble, each cow voluntarily marches to her stall in the stable, and is thus secure from harm during the process of milking. This is much better than running over a dirty yard to milk. The system pursued with regard to milk brought by others, is the same as that mentioned in the CANADA FARMER of May 15th. The teams are driven close to one corner of the building, a "crane" picks up the can by the handles, hoists it, carries it round till it is in a position to run it into the weighing apparatus, and from thence its contents go into the vat. It is soon done, and the quantity brought by each person duly credited.

Mr. Galloway's vats were made by Buchanan & Gordon, of Ingersoll. They hold 500 gallons each, and cost \$105. Each vat is heated by a copper pipe or fire-box, and is under complete control, even to $\frac{1}{4}$ a degree. The milk is considered best to be cooled, to remove the animal heat, then heated to about 80° before putting in the rennet; it takes 40 minutes to coagulate; the gang-knife is then passed through it each way to allow the whey to settle. The curd can remain in this state for hours if necessary. It is then cut very fine with the gang-knife. The next process is scalding the curd, which takes an hour; it is heated gradually to 100°, and is constantly stirred by a stiff wire rake with two handles, the wire being about 2 feet long and an inch apart. This is considered the most particular operation, as the curd, if left a short time, forms into lumps, and no subsequent grinding or pressing can remove the whey until fermentation takes place and releases it. After it is scalded for an hour, it is allowed to remain all the whey subsides. It is then passed through a strainer, and a pipe under the floor conveys it to a tank outside the building, from whence it is pumped to a trough that leads to the piggery, 150 feet away. The curd is next laid on the rack to drain, where it remains till the morning's milk is made up and mixed with it; then both are ground together. The four hoops are filled and put in the press, where they remain till the same time

next day. When taken out a bandage of cotton, previously coloured with annatto, having a drawing string in each edge, is slipped over the cheese, the string tightened, and the cheese is ready for the drying house. This is situated farther up the stream; it is about 40 x 60, with two floors; a railroad leads to it from the making-house; it runs from the latter 100 feet or more, where there is a turn-table, then there are two tracks, at a right angle, one to the first floor, and the other on an inclined plane to the second story. The drying-house is well filled with trees similar to those described on page 7, Vol. 1., No. 1, of the CANADA FARMER. On these the cheeses are turned and rubbed with butter made from whey. The butter is melted and a little resin added; this forms a fine elastic rind, and prevents shippers doing any damage.

The buildings and all the apparatus connected with this factory will cost about \$2,000. This, for 400 lbs. of cheese per day, may not be considered a profitable investment; but I should judge that the premises are capable of making 1,000 lbs. per day without much additional outlay. Of course it would require more assistance to make this quantity. All the help Mr. Galloway now gets is from one boy, who churns the whey-butter, grinds the curd, attends the fires, &c. In the small amount of labour required, lies one advantage of the factory system, with all its facilities; but another equally conspicuous is the uniform quality of the article produced, ensuring a market at remunerating prices. I would advise all who are interested, and especially those who intend making cheese, to visit one of the factories now in operation in this county. Several farmers in this locality have commenced cheese-making with dairies of 20 to 30 cows of their own, and there is one on the system pursued in the South Riding. If Oxford legitimately loses the right to be styled the "garden of Canada," I trust it will speedily and fairly acquire a name equally honourable and even more creditable, viz., the "Cheddar" of Canada—the banner county in the dairy business.

East Zorra, June 26th, 1865.

R. W. S.

Cheese-making in the County of Oxford.

To the Editor of THE CANADA FARMER :

SIR,—In these times of depression it is pleasing to notice the opening up of new and profitable branches of industry, more especially in connection with the agricultural interests of the country. Any remunerative system of farming which will divert producers from the too exclusive growth of grain, and thereby afford an opportunity to recuperate to their exhausted lands, must be beneficial; and nothing would seem to be better adapted to this end than the manufacture of cheese on an extensive scale by the establishment of factories, as is now being successfully tried in this county.

The plan adopted is for a number of farmers to unite in a sort of Joint Stock Association, choose a Board of Directors, and appoint one of their number to act as Manager. The Manager engages a competent cheesemaker, provides the buildings and apparatus; all the labour, and all the materials required, except the milk. He is paid a certain sum (two cents per lb., I believe) on the quantity of cheese produced. The remainder of the proceeds of the cheese, which is of excellent quality, and readily saleable at ten cents per lb., at the factory, is divided among the contributors, in proportion to the quantity of milk supplied. The milk is delivered at the factory twice a day during the season, which lasts about six months. The first factory in Canada was established within the last two years, in the Township of Norwich, where the two largest in the Province now are. One has recently been got into operation in the Township of West Oxford, near this village, which, through the politeness of Mr. Harris, the worthy proprietor, I have to-day had an opportunity of inspecting. The factory premises, which will be much enlarged before another season, at present consist of a large two-story frame building erected for the purpose, divided on the ground floor into two rooms, one for manufacturing and the other for storing; the upper flat being exclusively used for storing. Here is brought daily the milk of about four hundred cows, about forty being owned by the proprietor. The milk is shot from the bright tin cans of the farmers into a large vessel, where it is weighed. Each gallon of milk weighs about ten pounds, and it was estimated that each ten pounds would produce one pound of cheese, but it is found that a fraction over nine pounds is sufficient.

After being weighed the milk is run off into an oblong rectangular vat, capable of holding about 500 gal-

lors, which is furnished with a very ingenious contrivance for cooling and heating the milk by means of cold and hot water, conveyed under and around its entire surface. It is unnecessary to describe the process of cheese-making, but I may say that it is quite an interesting one, and is well worthy of a visit to see. Various labour-saving apparatus are used, so that comparatively little manual labour is required, while the most scrupulous cleanliness is preserved. The whey is strained off and conveyed by pipes outside the building, where it serves as food to about a hundred hogs, who greedily devour it. After being pressed into the usual well-known shape, each cheese is transferred to the store-room, where I counted one hundred and thirty-six, ranged on frames specially prepared, each bearing the date of its manufacture. Nine of these cheeses are produced per day, each weighing from eighty-five to one hundred pounds.

As an enthusiastic agriculturist and worthy friend who was present observed, it was, indeed, a most gratifying sight. I would strongly recommend farmers in other parts of the country, who have felt so severely the failure of the wheat crop in past years, to visit Mr. Harris's factory, and go home and do likewise. Let me say in conclusion that the prospects of an abundant harvest, not only of wheat, but everything that is grown, are, everywhere between this and Toronto, most flattering; in fact, never were better.

J. H. MASSEY.

Ingersoll, June 22, 1865.

The amount of butter made in the United States last year is estimated to be not less than 511,000,000 lbs., valued at \$82,270,000.

CHEESE LEGISLATION.—I see that the Legislature has passed a law for the protection of the Cheese Factories, to prevent the adulteration of milk. One of the provisions imposes a fine of \$25 for not putting the "strippings" with the rest of the milk. They are much richer than the first drawn milk. I wish they would pass a law that every person employed to milk cows who neglected to strip them clean, should be publicly horse-whipped! You do not only lose the richest of the milk by their carelessness, but the cows soon dry up.—*Harris's Walks and Talks.*

HOW TO CONDENSE MILKING.—The best dairymen curry, as well as feed, water, and turn out their cows regularly: feed and water should be given daily when in the stable at the same or corresponding hours: if a cow refuse to eat, remove the feed at once: never pamper to any extent after calving. At milking time the master or mistress should be present, if not as milker, to see that it is quickly done and without talking: much depends on this: the last drop is richest, according to an old saying: this is wrong, as the drop from a good milker never comes: milkers are seen pulling at the teats for the 'last drop': in stripping a cow it is usually done with the right hand by taking the teats in rotation and getting what milk can be obtained; and when he gets hold of a teat, if he can get milk twice, he must try that teat again, after he has gone round. All drawn after this comes from the milk veins, and is no richer than that first taken, or of the average quality. If a dairymen intends to follow his business and make it most profitable, he or his wife must milk or be present during milking. One of the best of dairymen always did the stripping after his regular milkers. A garrulous milker should be silenced or exercised from the stable or yard where the cows are milked. Note this, and insist upon a strict observance of the rule.—*Boston Cultivator.*

MILKING THE WRONG COW.—The Hon. Grantly F. Berkeley, the English hunter and naturalist tells the following execrable story of Lady Haggerton's scheme to charm the Regent: Her ladyship had at her residence a miniature farmyard, and those pretty little Alderney cattle. When the prince and his friends had arrived, she came forward from the side of a wicket as a milkmaid, for the purpose of making a syllabub for the prince. She had a silver pail in one hand and an ornamented stool in the other. Lady Haggerton tripped along, with ribbons flying from her dainty little milking hat, that hung on one side of her graceful little head, and the smallest little apron tied below her laced stomacher, till she came opposite his royal highness, to whom she dropped a really graceful courtesy. Then passing lightly over the beautiful platted straw, her tucked up gown showing her neat ankle, as well as her coloured stockings, she placed her stool and pail convenient for use. Leaning against the flank of one of the crossiest looking of the Alderneys, she was attempting to commence her rustic labours; but not having selected the right sex, the offended animal did not seem to fancy the performance, for at first he kicked out then trotted away, nearly upsetting stool, pail, and Lady Haggerton, who covered with confusion, made a hasty retreat for her dairy, whence she did not appear again.

Sheep Husbandry.

Influence of Soil on Wool.

We come now to the consideration of one of two other points which we have noticed in other articles. We have stated that ewes have weak wool, and it is not possible for it to be otherwise, for during the period of gestation the protein and gelatin are required to form the future lamb, and when she is in milk, flesh producing substances, fatty matter, and heat producing substances are all heavily drawn upon, and if the lamb is dropped very early in the season, except the ewe receives a large supply of food abounding in heat producing elements, the fleece will be seriously cotted as well as weak. But the lamb requiring but a small amount of earthy matter, compared with the other materials which it draws upon, the wool will be as harsh as though fed upon soil producing the largest amount of lime.

Old age produces harsh, weak wool, because mastication is deficient, and fails to produce the best elements for the wool, and the system being well loaded with earthy matter, the greater part it receives goes to the wool. Sickness must produce weak wool, for then the material for supplying it with growth is cut off, and wool suffers the same as anything else when the supplies are stopped.

We learn in this connection why meadow hay produces such results. For these sedges, to which we have already referred, contain little nutritive, oil producing, or heat producing elements, yet abounding in lime. Hence we do not wonder at harsh, cotted, light wool, as the result of such feed, nor are we surprised that more nutritious food should give heavier and better fleeces. It will be remembered that we noticed previously that a sheep after being fed one winter on meadow hay, and the following winter on good feed, its fleece gained one and a half pounds, and was worth five cents a pound more; we now understand the reason why. Some farmers make a boast that they can keep a few sheep through the winter without any additional expense, because the sheep can be fed on what the horses and cattle leave in their racks. Now we have no objections to raise to this as a matter of economy; but we are of the opinion that the leavings of the horses or cattle are not very good, or they would not leave it, and that sheep fed on nothing else would suffer seriously. As a matter of profit we would recommend a few more sheep kept than sufficient for such purpose, and these supplied with a little of the best food. When we consider that roots contain from ten to twenty per cent. of heat producing substances and fatty matter, we can readily understand why roots fed along with meadow hay would save the fleece from being cotted, though they could not save it from being harsh; and if a little oil cake was added to the feed, which contains about twenty-six per cent. of flesh producing substance, it would supply the wool with protein and gelatin, while its oily matter would furnish oil sufficient for the wool, but not, perhaps, to neutralize all the lime, if it did it would produce a soft and mellow wool. While an examination of the table of analysis shows us what a difference would be found in two flocks of sheep, one fed upon the best grasses, and another upon the worst, and a like difference would be found in all the other live stock, we think it will also be easily understood, in view of the facts presented, how different soils affect the character of the wool.—*Tyro, in New England Farmer.*

SHRINKAGE OF MERINO FLEECES.—A correspondent of the *Prairie Farmer* sends to that journal the following table, as the result of a sheep shearing which took place in Parke Co., Ind., May 27th. Some of the sheep had been sheltered, others had not. "The several fleeces were scoured and dried at a woolen factory, in the neighbourhood, and were weighed accurately before and after scouring, as I can of a truth testify, being present at both weighings. Now for the result:—"

Nos.	Age of Sheep Years.	Weight of Sheep lbs. oz.	Gross Weight of Wool lbs. oz.	Net Weight lbs. oz.
1,	2	78	10 6	4 2
2,	1	80 8	10 7½	4 3
3,	2	120	10 11½	4 6
4,	2	90	15 1	4 5
5,	1	74	8 8½	3 1
6,	4	107 8	9 13½	3 15
7,	1	67	8 1	2 15
8,	4	162 8	15 3½	4 12½
9,	1	70 8	14 5½	3 7½
10,	2	50	8 7	3 9

Taking the 10 fleeces together it will be seen that their average weight, as shorn, was 11 lbs. 1 oz.—the average as cleansed, was 3 lbs. 11 oz.—a shrinkage of a fraction over 65 per cent., or not quite two-thirds waste to one-third wool.

The ram "Young Gold Drop" bred by the Hammonds, of Vermont, sheared 23½ lbs., and on washing at the woolen factory, the fleece only weighed 7 lbs., a still greater shrinkage than the above.

Legal Protection of Sheep from Dogs.

To the Editor of THE CANADA FARMER:

Sir,—The war of dogs on sheep has been commenced here pretty freely within the last few days, notwithstanding our present Act of Parliament, which is practically a dead letter. A cur of no value, and which can be traced to no owner, may kill in one night from fifty to one hundred dollars worth of sheep. Now, our sister Province of Nova Scotia has an Act in this behalf that has real force. There no man can keep a dog without taking out a license, and in order to obtain the license he is compelled to give a certain amount of security. I cannot mention the sum, but \$50 would not be too much. The fact of such a license being required has the effect of greatly lessening the number of dogs, as none are kept by persons who do not keep them for some useful purpose. I think our Legislature, at its next session, might well be called upon by the farmers for a similar Act in this Province. The Act could be easily enforced by the Inspector of Licenses, who might, with great propriety, have this added to his present duties, as well as the enforcement of the law with reference to the destruction of noxious weeds, as parties do not wish to inform against their neighbours.

AGRICOLA.

Cayuga, June 23rd, 1865.

NOTE BY ED. C. F.—We thoroughly approve of the suggestion respecting a Dog License, and commend it to the attention of our legislators. The havoc made by ownerless dogs is one of the greatest existing discouragements to the progress of sheep husbandry.

Sick Lambs.

A correspondent of the *Maine Farmer* gives the following:

Having lost quite a number of lambs, in former years, from the following cause, and hearing of frequent cases the present spring, and having found out, to my own satisfaction, the cause of the disease, I will give you my mode of treatment.

Symptoms.—The lambs are taken with weakness in their limbs and voice, falling down of the neck before the shoulders, rounding up their back, and bloating up, lay around two or three days and die. Lambs are not usually taken before they are two or three weeks old, and the best and fattest are usually the ones that die. I formerly attributed it to high feeding of the sheep, have changed from barley to corn oats, potatoes, beans, &c., but it did not hit the case.

Cause.—Upon examining the stomach of a lamb dying so, you will find a ball of wool from the size of marble to a walnut, lodged in the lower part of the stomach, unable to pass out, and stopping the passage of all food. This wool the lamb gets into its mouth, and swallows little by little, when hunting after the teats.

Remedies.—For a preventative, take the sheep shears and clip off all wool which will prevent the lamb from having free access to the teats of the sheep, before or as soon as they drop their lambs. If a lamb shows symptoms as above, dose immediately with castor oil, which will generally cure, if taken in season. Give two teaspoonfuls three times a day, if the case is a desperate one.

REMEDY FOR THE SCOUR IN LAMBS.—Take the seed of the common dock, make a strong decoction, sweeten with loaf sugar, add half a teaspoonful cayenne pepper to the quart. Give to each lamb a wine-glassful three or four times a day until a cure is effected.

FOOT ROT IN SHEEP.—Permit me through the *Farmer*, to tender my thanks to Mr. J. D. Kirkpatrick, of North Liberty, Pa. He offered, through the *Farmer*, to send (free) a recipe for curing foot rot in sheep to those who desired it. I wrote to him, and he kindly sent me the directions. I consider his plan the best I know of. I will give it briefly, for the benefit of sheep raisers.

Parse the hoof well, taking all the loose horn off. Put butter of antimony on the sore first, then ordinary blue vitriol, dissolved in water; then tie up the foot with a rag, to keep dirt out of the sore; keep the sore foot from the ground, and repeat this operation once or twice a week, and I will guarantee a cure for the worst cases. The ordinary blue vitriol will do for common cases. The difficulty is, where the cavity in the foot is put bare on the ground, even after the disorder has been removed, dirt works up into the cavity, and irritation and soreness ensue again.—*C. G. Genesee Farmer.*

Veterinary Department.

Worm in a Horse's Eye.

AMONG the many ills which horse flesh is heir to, is that of worm in the eye. This disease is believed to be peculiar to India. It has never been known in Britain, and, as far as we can learn, has not been noticed in Canada. The earliest veterinary accounts of this curious phenomenon were published in the *Veterinarian* about the year 1838. For these accounts the profession is indebted to Mr Skeavington, late veterinary surgeon to the Bengal Horse Artillery, and to Mr. Gibb, surgeon to the Honorable East India Company's stud at Porzah. Mr. Percivall, in noticing this disease, mentions that the latter gentleman, during a residence of sixteen years in Hindostan, had about an average of twenty cases to treat annually.

For a description of the worm within the eye, and also to account for its presence therein, we are indebted to Percivall's excellent work on diseases of the horse. In describing, he says:—"The worm in the eye is plainly visible. The intruder is clearly seen in some instances, even at a short distance off, swimming about in the aqueous humour within the interior chamber of the eye, apparently in the full enjoyment of its natural element; except at any time that it may happen to take a swim through the pupil to visit the darker regions of the posterior chamber, and then, for the time of its stay, it becomes of course invisible." Mr. Gibb has "more than once seen two worms in the same eye, at one time, and has also seen a second worm make its appearance in an eye from which one had been extracted some months before." Mr. Skeavington liberated a worm from the near eye of an officer's charger in September, 1831, and in September, 1832, the same horse was brought to him with a worm in the off eye. Sir Everard Home informs us that this species of worm is found in the circulating blood of the horse, and that he is disposed to believe that they get into the aqueous humour through the arteries of the ciliary processes, which, in the horse, are of comparatively large calibre. This opinion is supported by the notorious fact of worms being often discovered within the cæliac artery of the ass. Mr. Gibb is of the same opinion as Sir Everard:—"I have always been disposed," says he, "to think that the worm in the eye must find its way through the circulating system, and not from without." Mr. Skeavington's opinion is, "that the worm is taken up at the time of drinking in so minute a form that it is capable of being absorbed into the circulating system.

We have already mentioned that the presence of this filaria in the horse's eye is unknown in Europe, and as far as we can learn, no notice has been taken of it in this country. We have no doubt, however, that this singular phenomenon now again occurs in Canada, and it is with the view of eliciting information on the subject, that we bring the following case under the notice of our readers.

The subject of this communication was a Chesnut gelding, six years old, and of the heavy draught breed, the property of Mr. Armstrong,—a farmer residing in York township. In the month of May, 1864, the horse was brought to this city, and we were requested to look at him. On enquiry, we found that Mr. A., some five or six days previous, had observed something amiss with the near eye. The next day the eye appeared worse, and on a closer examination a moveable body was detected within the eye. When brought under our notice, the worm was seen very distinctly, and the cornea was becoming opaque. The opacity, however, was not to such an extent, but that every movement of the filaria could be plainly seen. It appeared to move in every direction, and with remarkable quickness, and a more lively little creature one could scarcely behold. This was the first and only case of the kind we had seen, but being conversant with the phenomenon through reading

and hearing it alluded to in lectures, we had not the least difficulty in our diagnosis. In giving an opinion on the case, we recommended the removal of the worm from the eye by an operation, and had the horse immediately brought to the infirmary. Before operating, we acquainted our friend Mr. Williamson, veterinary surgeon, Royal Artillery, then quartered in this city, who kindly offered his assistance. We had the horse thrown in the usual way, and properly secured, and with a small lancet at once made an incision through the antero inferior part of the cornea, and out came the aqueous humour, and with it the little worm. After the operation, the eye was covered with a wet cloth, and the horse was taken home. We saw him three days afterwards. The cornea was opaque, but the eye did not seem very painful. The horse was put to his usual work on the farm, and when we last saw him, about two months ago, the eye was perfectly clear and well, with the exception of a small speck where the incision was made.

The worm in length measured one and a half inches, and was thicker in the middle, tapering towards either extremity. In this case the worm appears to have been very rapidly developed. The spring of 1864 was remarkable for heavy rains, and in India this phenomenon appears to be most prevalent in wet seasons.

Scratches in Horses.

It is my purpose in this writing to give a few practical hints to avoid a troublesome disease, known as *Scratches or Grease*. It is generally caused by bad stable management. It seldom attacks the fore legs, and horses with white legs are more subject to it than any others. Strict cleanliness is the only prevention. To-day's dirt should not be left for the morrow's cleaning. A man that is truly fond of his horse will attend to his being properly cleaned at the proper time—he will say it is not good for him to sleep in his sweat. I well know the benefit of an hour's work at night.

Suppose a man with a four-horse team—and it is heavy horses that are more subject to greasy heels, with a curry comb in one hand and a brush in the other, for he can use two hands in cleaning horses, though a good many drivers appear ignorant of the fact—spends one hour industriously on his horse's sides and legs, he will be surprised in the morning to see how much sleeker a horse looks, than if he has been in the habit of feeding, hanging up his gears, and calling his work done. He will from this time devote one hour for cleaning—that is but just enough to save greasy heels—when opportunity permits, do the work well regardless of time. I am not a stranger to the job—just get on your knees, with a corn cob and a handful of straw, rub off every speck of dirt, and continue rubbing after the dirt is gone. The stable is the place to make your horse look well. When you have him out he has got to work, and he can perform that work better if he has been properly cared for over night. The first appearance of grease is a dry scurvy state of the skin of the heel—in white legs it will show a blue shade under the hair. Custom has very properly retained the hair on the horse's heels. It guards the heels from the rough surface of our ploughed fields, creating a greater necessity to hand rub the dirt therefrom. It should never be washed, as the washing keeps the heels moist, and to prevent grease, the heels should be kept dry and clean.—*Maryland Farmer*.

ON SHOEING HORSES THAT OVER-REACH.—In the *Mark Lane Express*, a blacksmith, who has had much experience in the art of shoeing, contends that in order to prevent horses from over-reaching they should be shod as follows:—"Make the toe-caulks very low, forward, standing a little under, and the shoes set as far back as convenient, with heel-caulks, so as to let the foot roll over as quick as possible. On the hind foot I have the heel-caulk low, and the toe-caulk high, and projecting forward, keeping back the hind foot while coming up over a high toe caulk, thus giving time for the forward foot to get out of the way. If thus shod, the horse will travel clean, without a click, and his speed will be increased on a trot fifteen or twenty seconds in a mile." The *Express* has the following comments on the above method:—"The reverse of this rule is generally practised. The blacksmiths, in view of preventing over-reaching, usually set the forward shoes as far forward as possible, and set the hind shoes as far back from the toe as they conveniently can. It remains for intelligent blacksmiths to decide which is the best method."

Entomology.

A Dangerous Parasite.

We learn from *Galignani's Messenger* that a prize has recently been awarded, by the French Academy of Sciences, to Dr. Zenker, of Dresden, for his important researches on the *Trichina Spiralis*. The same journal adds the following particulars respecting the history and ravages of this insect:—

"This microscopic worm, which lives coiled up in a sort of cystus or pocket, was observed about 1835 by Prof Owen in the flesh of certain animals. In 1850, Dr. Herbst, of Göttingen, found by experiment that the trichina was transmissible from one animal to another by ingestion, and Drs. Virchow and Leuckart confirmed the fact. On the 12th January 1860, a young girl was admitted into a hospital of Dresden on the supposition that she was labouring under typhus fever, but there were some symptoms wanting to confirm this opinion. The girl died on the 27th, and Dr. Zenker, on dissecting her body, found to his astonishment many thousands of trichinae in a free state in the muscular tissue. Their not being encysted was a sure sign that they were of recent importation. In the intestines he found a vast quantity of adult trichinae, male and female, and perceived the bodies of the latter filled with living embryos similar to those existing in the muscles. Thus Dr. Zenker, for the first time, proved that in the same person there may exist adult trichinae in the intestines and their larvae in the muscles; so that the latter could only have got there by piercing the intestine, either by direct migration or by the blood and chyle. Upon inquiry he found that the girl had eaten pork from a pig killed on the 21st December 1859, and that both the farmer and his wife, with whom she lived, had been attacked with similar symptoms, but had recovered. From all these facts Dr. Zenker arrived at the conclusion that there exists in man a disorder resulting from the immigration of trichinae from the intestines to the muscles, and that this disorder becomes mortal when the immigration is too considerable in consequence of the ingestion of a large quantity of meat tainted with the parasite. No sooner did this discovery become known than it was confirmed by further observations throughout Europe. In Germany, especially in those places where raw pork is used, hundreds of cases were discovered, even assuming the form of an epidemic, where trichinated pork had been sold."

ARMY OF CATERPILLARS.—The *Lindsay Post* says:—"A most unusual incident was witnessed on Wednesday last on a grass plot belonging to Mr. James Hughey, lot 11, 6th con., Fenelon. An extraordinary colony of caterpillars, numbering millions upon millions, were seen moving along in a western direction, consuming thistles, grass, and every kind of vegetation they met with on their onward march. So completely did they demolish thistles, that nothing remained of those attacked save the roots and thorns."

INSECTS AND BIRDS IN FRANCE.—Besides the Insect plague noticed last week, it appears from the public journals, that in France cockchafer and caterpillars are making sad havoc. They have stripped trees of their leaves in the Bois de Bologne and St. Maur; and the hills from Champigny to Sucey, which supply the Parisians annually with so many thousands of pounds worth of excellent apples, pears, cherries, and plums, will, it is said, produce but little this year, thanks to the caterpillars. This is attributed to the fact that the peasants suffer their children to destroy the nests of the small birds, which are the only instruments that can effectually protect trees from caterpillars. It is calculated that there were formerly 10,000 birds' nests in every square league of cultivated land in France. Each nest is supposed to contain on an average four young ones which the old birds fed with 60 caterpillars a day. The old birds were supposed to eat 60, making 1.0 caterpillars a day altogether. This multiplied by 10,000 nests will give 1,200,000 caterpillars destroyed every day in a square league of a well-planted country. The peasants, one would suppose, would have sufficient common sense to protect the birds which render them such valuable service, but they appear utterly ignorant on the subject. The only bird respected by the peasants, and especially the Norman peasant, is the wren, and that from a superstitious motive.—*Gardener's Chronicle*.

The Apiary.

Caprices of Bees.

It is a peculiarity of bees that they will suffer someone to handle them with impunity. Wildman was a man who seems to have had unusual attraction for them, or command over them, as he termed it, though it is not easy to comprehend how a man could have command over four or five thousand insects. On one occasion he paid a visit to Dr. Templeton, the then secretary of the society for the encouragement of arts, to prove to him how completely bees submitted to his influence. He was brought to the city in a sedan chair, and it is presumed, into the doctor's room, for when he presented himself his head and face were covered with bees, and a huge cluster of them hung down like a beard from his chin. Notwithstanding this novel appendage, he conversed with the ladies and gentlemen who were present for a considerable length of time without disturbing the insects, and finally dismissed them to the hive, without anybody being stung. The fame of his performance having reached Lord Spencer, he invited him to Wimbledon to meet a large party of his friends. The countess had provided three stocks for the occasion. He first took one of the hives, and emptied the living occupants into his hat to show it was not necessary to destroy the bees in order to deprive them of their honey. He next presented himself with a colony hanging about his head and from his chin, and then stepping out of a window on the lawn, where he had directed a table covered with a clean cloth to be placed, he put them back into the hive. He then made them come back again and swarm in the air, after which he caused them to settle on the table, and from thence he took them up by the handfuls and poured them out of his hands as if they had no more feeling than pebbles, and finally concluded this portion of the entertainment by causing them to re-enter their hives. His lordship was too unwell to be present at these experiments, so late in the afternoon he was taken into his lordship's room, with all the three stocks hanging about him at the same time, one on his head, one on his breast, and the other from his arms, from which place he afterwards transferred them to his head and face so he was quite blinded, and was led in this condition to the lawn in front of his lordship's window. He next requested that a horse might be brought around, which was done, the horse having first been well clothed to guard against accident. First taking the bees out of his eyes that he might see what he was about, he mounted the horse with the bees hanging about him, and rode backwards and forwards repeatedly until the company had seen enough of his performance, when he dismounted and placed the bees on the table, from which he dismissed them to their respective hives. It is worthy of remark that, though there were a great many persons present on this occasion, yet nobody was stung. It is in reality impossible to explain why they should favour one individual more than another, but they certainly do so. It is related of a Duchess of Rutland that a swarm followed her all the way from the country to a house in Berkeley Square, where they were hived. Accident has sometimes led to what wisdom did not design. A woman named Bonnet, living near Birmingham, was heating a frying-pan with a key, to keep the swarm from going away, when they all at once settled upon her head, neck and shoulders. Luckily for her she was a woman of nerve, and instead of making efforts to shake them off, which would probably have caused her to be stung to death, she kept quiet, notwithstanding an occasional sting from bees which had crawled underneath her clothes, and which were probably irritated from being unable to get out. When evening came they were hived in the usual way.—*All the Year Round.*

BEES AND HONEY.—The agricultural population cannot be too strongly impressed with the expediency of keeping bees. In many parts of Russia the peasants have each 400 or 500 beehives, and make more profit of their bees than of corn; and, in Spain, the number of hives is incredible; a single parish priest, I was informed, possessed 5000. Honey possesses astonishing restorative power; at the point of death, when all stimulants and tonics fail, a teaspoonful or two, will, if given every hour, rally and save the patient's life. "My son, eat thou honey, because it is good, and the honey-comb which is sweet to thy taste."—Prov. xxiv. 13. In a recent communication to "The Times' Bee Masters," I have advised a trial of it in hydrophobia, in its concrete state, every hour, for relieving the constriction of the throat and abdomen, present in this most formidable disease.—*JAMES BROCK, in Scottish Farmer.*



Chess & Rye: The Transmutation Theory.

To the Editor of THE CANADA FARMER.

SIR,—As I know that new facts upon any agricultural question are generally acceptable, I send you one which is new, at least, to me. Last fall I sowed a piece of rye for spring feed, the first I ever sowed in my life, and as I have repeatedly heard the assertion that if you sow no fall wheat you will never have chess, I was curious to see whether there would be any among the rye. I observed this spring, that there was one spot, just the very place for it, and I felt that if there should be no chess upon that spot, I should be half inclined to become a proselyte to the transmutation theory, and to the idea that it is only wheat that will turn to chess. I cut my rye the third and fifth of June for fodder, at that time there was no chess headed out, but I noticed that there was plenty just ready to head out, and now June the 21st the rye has again headed out, and so has the chess. As I had commenced to plough the land, I sent for a neighbour (a firm believer in the transmutation doctrine) to witness the fact before I should plough it in. He could not dispute the existence of the chess, but he asked, "Does it come from the rye?" I replied, "That is the very question we want settled, in the case of chess among wheat, and I have as strong a reason to answer in the affirmative as you have with your wheat. But in both cases I should be inclined to answer in the negative." I had peas on the same land last year, and it is four years since there was fall wheat upon it, and then there was not half so much chess as there is this year among the rye. I can only account, in one of two ways, for the existence of chess upon that particular spot. Either both wheat and rye will, under favourable circumstances, turn to chess, or, it comes like any other weed, to fill up where the grain has been partially killed out. The last I think the easiest way of getting out of the difficulty. For if we grant that both wheat and rye may degenerate, it would be strange indeed if they should both produce the same thing, and we should be more perplexed than ever. I should like to see wheat or rye turn to chess in soil that has been boiled for an hour or two.

Yarmouth, Elgin Co., JONATHAN GLOVER.
June 21st, 1865.

A Plea for the Rook.

To the Editor of THE CANADA FARMER:

SIR.—In your issue of 1st May I noticed with much pleasure a communication on the subject of "Insect Destruction and Bird Preservation." It is very satisfactory to see that both sections of the Province agree in attributing the increase of grubs, flies, &c., to the wanton destruction of small birds; since, as we agree in the premises, we may perhaps arrive at similar conclusions. I cannot, however, agree in the opinion expressed, that legislation is useless, for, if enforced, the statute of 1864 will, in many districts, be very serviceable. Here it has already stopped the open sale in our markets of small birds, in cages, and thus the main object of those who trapped has been defeated; and, when it is considered how few of the captives survive long enough to reach a market, this point is more important than it may at first seem. It is a great pity that so few persons can be found willing to assist in enforcing the game laws in Canada, because the only object sought by our legislators is to give protection during the breeding season. Every one who has given attention to this subject knows how greatly such protection is needed. Thousands of wild fowl are destroyed every spring, in both sections of the Province, just when the breeding season is commencing. Other kinds of birds suffer largely also. The Jewish law* protects the dam, although the taking of eggs and young birds does not seem to have been prohibited.

In the letter above referred to, your contributor goes on to remark that the scarcity of small birds "is entirely attributable to our common black crow," whose numbers have also largely increased among "us, and which is quite a different bird to the rook of the old country. The crow here is entirely carnivorous." Now, I should like, as Mr. Midshipman Easy says, to argue that point. The common crow of Canada should not, I think, be too hastily confounded with the carrion crow of the old country. In the United Kingdom there are the rook (*Corvus frugilegus*), the carrion crow (*Corvus corone*), the hooded, or Royston crow (*Corvus cornix*), besides the raven (*Corvus corax*), and jackdaw (*Corvus monedula*). In the Northern United States and Canadas we have the raven, the common crow (*Corvus Americanus*), and, on the coast, the fish crow (*Corvus ossifragus*). Of the above, the carrion crow and the hooded, grey, or Royston crow, are well known to all sportsmen in the old country; to be very destructive to game, and are, consequently, shot and trapped whenever and wherever it can be done. But the common crow of the Northern States and Canadas is held by Audubon, no mean authority, to be a species different from the carrion crow of Europe, and has, accordingly, been named *Corvus Americanus*. Audubon's opinion is supported by another writer on American ornithology, who says "it seems a species more intermediate between the common rook *C. frugilegus* and *C. corone*; their gregarious habits and feeding so much on grain are quite at variance with the characteristics of the carrion crow."

Now, the rook is not always able to resist the temptation to suck a few eggs (pheasants' or partridges' chiefly), if we may give credence to the statements of several well-known sportsmen of Britain; do not, therefore, be too ready to condemn my glossy-coated friend, for though somewhat noisy, it may be even indifferent honest. He has many good qualities, and, as the writer just quoted says, in speaking of the farmer's wrath when his grain is felled, "the myriads of worms, moles, mice, caterpillars, grubs, and beetles which he has destroyed are altogether overlooked on these occasions."

CORACOPHILUS.

Quebec, June 27th, 1865.

*DECR., chap. 22, verses 6 and 7

Imported Wheat.

To the Editor of THE CANADA FARMER

SIR,—You published a communication from me last year (See CANADA FARMER, April 1, 1864), wherein I set forth the advantage of importing seed from abroad, and more particularly of getting it from certain districts in Central Europe. Acting on my own suggestion, I procured five different kinds of wheat from Switzerland, three of them being winter wheat and two spring wheat—the total quantity being less than half a peck. The winter wheat was sown at the same time and on land adjoining Soules wheat. There was little difference to be remarked between them till the snow cleared off in the spring, when the Soules wheat was found to be much winter-killed, whilst the other was full of life, not a plant having suffered. In a few days both will be ready for the reaper. The Soules wheat contains about a tenth part of smut, whilst the other is entirely free from any appearance of it. Last year my crop of Soules wheat was half chess. I have sent to Switzerland for three bushels of winter-wheat for fall sowing, and shall continue from time to time to import seed, as I am convinced that it is the only way to ensure a crop. Will not our government set about getting seed? The loss of Canada from the present defective system of sowing worn out seed is enormous, and, if persisted in, will work ruin to many a farmer.

G. RICHARDSON.

Arva, Middlesex, July 7, 1865.

THE DRAINAGE PRIZE SCHEME.—"Edwin Brown," Trafalgar, Co. Hants, recommends the prize scheme proposed by Mr. Osborne, in our issue of June 1st, to the careful consideration of farmers. At the same time he is of opinion that a 2-inch tile is sufficiently large. His dollar, however, is ready at any time to aid in forming the fund. He extends Mr. Osborne's proposal by the following spirited and generous offer of his own:—"If twenty farmers will subscribe one dollar each, I will give ten more, to be awarded at the County Show held at Milton in 1866, to the farmer who will put in the greatest extent of tile drains in the year ending September 1st, 1866, the tile to be not less than 2-inch bore, nor the drains less than 30 inches deep; to be open for competition to all farmers in the County of Hants."

THE FRENCH MERINO RAM, "WRINKLEY."—"Alex. Young," of Ryckman's Corner, communicates the following:—"I am the owner of a French Merino ram, which has always taken the first prize when exhibited. He has been shown at the following places and distinguished himself. When a lamb, he obtained the first prize in Toronto at the Provincial Exhibition of 1862; first prize as a yearling at Kingston, in 1863; first prize as a two year old, or aged, at Hamilton, in 1864. He is known by the name of "Wrinkley." He is not a heavy sheep, being only 127 lbs. live weight, but yielded when shorn on the first day of June last 17 lbs. of wool. I challenge competition with him in weight of fleece, taking weight of sheep into account. I have several rams much heavier, but not producing as much wool. I also have heavier ewes, five of which produced 53 lbs. of wool."

BUILDING SOCIETY REFORM. On this subject "J.L." writes. "Having drawn attention to some crying evils of Building Societies, allow me to suggest some remedies to be applied, in order to make them equitable to the borrower, as well as profitable to the investor. Of course the rate of interest should be reduced first of all, and the borrower told exactly what rate he is to pay, instead of being left under the impression that he only pays 6½ or 7 per cent. Then if he wishes to redeem before the expiration of the time of his loan, he ought to be allowed at least what the Society can make out of the same money, instead of from 4 to 6 per cent. less. It would also be very desirable to reduce the preliminary expenses of the survey of the property, &c., which add to the interest paid. There are some other abuses which might be advantageously reformed, such as fees and heavy fines on the members who do not pay regularly, sickness or any other valid excuse making no difference. If these Societies would either suspend their re-payments at such times, or convert them into those of a longer period, it would surely be a great boon to investors and borrowers."

SHEEP FARMING ON A LARGE SCALE.—"Sheep Farmer" writes from Toronto as follows:—"For the last few years I have been thinking of trying my hand at sheep farming on a larger scale than it is possible to carry it on in Canada. Now I am a true Briton, and as loyal as the Queen herself, but I do not think that I would succeed in Canada. Would you be kind enough to state therefore what district of the United States you consider best adapted for sheep farming, and what would be the probable cost of a world farm with the stock, &c. I may state that I am not without a small capital to start upon, and if I farmed at all would get a first class farm. By giving me the desired information through the columns of your widely circulated journal you will oblige."

ANS.—Our correspondent must contemplate a prodigiously large scale of sheep-farming indeed, if it be not possible to carry on his business in Canada. We know of no reason why he should not gratify his intense loyalty by staying in this country. There are as good regions for sheep husbandry in the Queen's dominions as in any other part of the world. Our advice to him is to pitch upon a suitable locality in Canada, begin his new business in a moderate way, enlarge it as he gains experience, and help to make this country what it must be some day,—one of the leading sheep regions of the world.

THE CAUSE OF RUST.—On this subject "W. R." writes as follows:—"I do not agree with your views on rust, expressed in the article on "Thoughts on Ploughs and Ploughing," in a recent issue. As far as my observation and experience go, rust is as prevalent on land that has neither been ploughed nor manured, as on land that has, and a slight shower, even a moist fog, that does not wet the ground half an inch deep, is far more apt to cause rust than a good day's rain, that would thoroughly wet the ground to the depth of the manure."

ANS.—Our correspondent will observe, if he refers to the article again, that the opinion there expressed as to the cause of rust, is merely conjectural. We are, however, glad to find that it has been the means of drawing attention to this important cereal affection. Discussion and difference of opinion are foremost

among the means of all true progress. Wisdom, said the wise man, is found in the multitude of counsellors. In the collision of ideas knowledge and information are generated, just as light and fire are produced by the brisk contact of flint and steel. On the subject before us, there is a wide field for difference of impression. It is not a little remarkable that "rust" comes down to us associated with some of the wierd superstitions of antiquity. Its destructive effects were experienced in the early ages of the world, as well as in our day; and the progress of two thousand years has failed to discover the true cause, or a specific remedy. The Patent Office Report says that the ancients held the rust disease of sufficient importance to appoint a special goddess as a presiding deity over it. To appease her anger, and save the grain from the dreaded visitation, they were accustomed to sacrifice a red bitch on her altar, each year. We trust other correspondents and readers will take up the many important agricultural questions that press themselves upon general attention. We want the views of practical men. Every attempt at the solution of a knotty question forms a stepping stone which may render good service to other investigators.

DISEASED TURKEYS.—"Dorcas" writes as follows:—"I wish to know if you, or any of your readers, can explain to me a malady which attacks my young turkeys? They grow suddenly weak in the legs, scramble and stagger for a day or so, and finally "squat down," unable to raise themselves on their legs any more. They sprawl out their legs in vain, trying to get up, and cannot. At the same time the middle joint is swollen; six have been so taken one after the other, out of twenty-five; for the rest they seem quite well, and eat heartily, fed on fresh curds, but they die. Nobody here seems to have seen the complaint before."

ANS.—The disease described by our correspondent is probably megrims or dizziness. Too full feeding and want of air and exercise will sometimes occasion this malady. At the same time there are no more fruitful causes of disease in fowls than impure water, neglecting to effect a frequent change of diet, and a deficiency of green food. A large teaspoonful of castor oil will probably relieve the sufferers, observing not to expose them to the glare of a scorching sun.

The Canada Farmer.

TORONTO, UPPER CANADA, JULY 15, 1865.

The Season.

The confident anticipations of an abundant return indulged in by many of our correspondents and contemporaries, prior to the date of our last issue, have since undergone considerable modification. Although the harvest, upon which we have already entered, promises to be at least an average yield, there is no disguising the fact that the devastations of the midge have been pretty extensive, and the consequent forebodings rather gloomy. The continuance of drouth, too, has checked the full development of the spring-sown grains, on all but deep, well-cultivated soils. With these facts before them, some of our local exchanges speak despondingly of the harvest prospects, and express the belief that in many sections the return will not much exceed that of last year. Others again describe appearances as cheering and encouraging. In the face of the very conflicting testimony which is before us, it is impossible, at the present time, to express a decided opinion as to the issue. The truth will most likely lie somewhere between the two extremes, and probably the crop, as a whole, will be quite an average one. In order, however, that our readers may judge for themselves, we cull a few extracts, exhibiting both sides of the question, as viewed by the contemporary press.

The Merickville Chronicle says:—"We are again doomed to short crops on all the light land in this vicinity. Our best farmers will doubtless harvest a fair crop, but we much doubt if poor tilled land ranges much in advance of last year. Two such seasons as this and last have never occurred in the memory of the 'oldest inhabitant.'" *The Barnia Obser-*

ver remarks: "The midge has done considerable damage." *The Dundas Banner* "regrets that the midge has been creating fearful havoc." *The Stratford Beacon* learns that "this troublesome pest (the midge) has eaten its way into, and destroyed nearly all but the real midge-proof wheat." *The St. Mary's Argus* states that "grubs have been very numerous, and that fodder will be scarce this winter." *The London Prototype* hears "startling reports of the ravages of the midge in the eastern sections of the country." *The Galt Reporter* is informed that the midge has committed sad havoc with the wheat crop in that section.

The foregoing reports, it will be observed, are all of a dismal character. It is somewhat re-animating to turn to the following: *The Morrisburg Courier* declares that "the prospects of a rich harvest are flattering in the extreme." *The Brockville Monitor* says, "every description of grain crops looks luxuriant." *The Guelph Mercury* states that "the crops throughout Bruce promise a most abundant yield." Several other reports of a like favourable character lie before us, but limited space forbids our inserting them.

The harvest of the midge-proof variety of wheat was commenced in the western sections of the Province, nearly a fortnight since. In the majority of instances, it has wholly escaped the attack of the destructive pest. The result of an experiment conducted in the vicinity of Toronto, with this description of wheat, and instituted for the purpose of testing its ability to resist the attack of the insect, seems to prove that its immunity is owing to its rapid growth and early maturity, rather than to any inherent quality. Two of the most approved varieties,—the Mediterranean and the Lambert—were sown in October last. The grain germinated well, and on the 22nd of June presented a most luxuriant appearance, being five feet in height, and in full bloom. By the 8th instant, however, many of the ears of both varieties were badly infected. Other heads, again, although exhibiting traces of having been slightly pierced, had apparently escaped any positive injury. As specimens from the crop in question were exhibited at this office, the facts above stated may be relied on. Several other samples of midge-proof wheat have also been submitted to our inspection during the past week. In every instance they had been early sown, and no traces of the midge could be detected. The producer of one choice sample, nearly ripe, informed us he had sown his in the latter part of August. Seeding at this date, in many cases, may be earlier than is necessary or convenient. Still the practical lesson taught by this year's experience, is to sow early if the crop is to be saved.

Spring cereals, as already hinted, have suffered from drouth. This unfortunate circumstance will undoubtedly decrease the yield of grain and curtail the quantity of winter fodder. There are encouraging reports of the flax crop from those of our farmers who have sown a patch this season. We have seen several fine healthy specimens, grown at different points, averaging fully four feet in length. Next year we venture to hope its cultivation will be more general. Hay-making has been briskly proceeded with during the past fortnight. As a rule, the crop has been secured in splendid condition, while the yield has been almost unexceptionably good. Early-sown turnips, in most sections, were entirely destroyed by the fly. In some places where they were resown they give promise for a fair crop. Their ultimate success, as well as that of our other esculents, will, of course, depend on the weather. In the meantime, it may be well to remind some of our farmers that they rather hurry their turnips into the ground. With our peculiar climate, we are disposed to believe that none should be sown earlier than the middle of June. This idea is strengthened by the fact that, in every instance in which we have had an opportunity of obtaining information, those sown after the 20th of June have, this season, had perfect immunity from the attack of the fly

Reports of our fruit prospects are somewhat varied. In some sections, we learn, apples will be almost a failure. In others the crop promises to be abundant. Crops of other autumn fruits are likely to be about an average. On the whole, although the results of the season may not, in some localities, be such as to warrant the jubilant exultation indulged in by a portion of the Canadian press, we yet believe that there will be a sufficient return to reward the farmer's toil, and lead us to raise our hearts in humble gratitude to the "Lord of the Harvest."

Morton on Agricultural Education.

THAT eminent British agriculturist, John C. Morton, at a recent meeting of the Royal Agricultural Society, read an able paper on the education of young men for farmers. After enumerating the various kinds of knowledge needful to make a good and successful agriculturist, he proceeded to say, that as a ground work, there should be "that elementary, general, and so-called middle-class education" which was afforded by "an ordinary good school training." As a useful supplement to the ordinary school exercises, he recommended the study of botany and entomology, and the practice of drawing from nature. He contended very strongly that agricultural education, to be perfect, must begin early on a farm, and quoted the opinions of a number of eminent practical men in support of this position. Before sending young men to an agricultural college, he would give them three or four years' residence upon a farm at home or elsewhere. At college they should not only have opportunities for becoming acquainted with the sciences, and their relation to the art and business of the farmer, but should be occupied to some extent in actual farm labour. The routine of work upon the college farm would thus keep alive their familiarity with practical details, and they would be constantly applying scientific principles, and so learning their use and value. He sums up by saying:—"A young man of twenty-one or twenty-two about to enter on a farm is unusually well qualified both to make his business answer for himself, and to make it respectable in the eyes of others, who, having up till fifteen or sixteen been well educated at a school, has since that time been resident on a farm, or what is better, been resident on more than one farm, obtaining a practical acquaintance both in the field and in the market-place with all that the farmer orders and his labourers do; and who during the last year or two has been at such a college as Cirencester; especially if during all this time upon these farms he has been taking some interest in those sciences taught there to which agriculture is especially related; and especially, also, I will add, if all along he has also taken a reasonable degree of interest in all the social as well as strictly professional duties, occupations, and enjoyments of country life."

Mr. Morton strongly objects to the education of the sons of farmers in schools specially designed for them as a class. He considers it advantageous that boys of city and country origin should commingle in school life. Rather than have the sons of farmers educated by themselves, he thinks it desirable that they should go where the peculiarities and conceit of home life may be rubbed off, and some knowledge acquired from the beginning, that good sense and agreeable companionship exist in other walks of life beside the agricultural.

Much weight deserves to be attached to the views of such a man as Mr. Morton, and it is satisfactory to find that new as is this country, it affords many facilities for gaining the kind of education which the farmer needs. An elementary, general, middle class education is put within the reach of all by our public school system. Ample opportunity exists for becoming acquainted with the practical details of farm work. A college which shall combine scientific instruction with skilfully-directed manual labour is

yet a desideratum, but in the meantime there is provision for acquiring a knowledge of scientific agriculture, and the principles and practice of the veterinary art, of which but very limited use is made by the rising generation of Canadian farmers. We hope to see great improvement in this direction ere long.

Bath and West of England Agricultural Show.

THIS annual gathering was held the present year at Hereford, during the week ending June 10. Delightful weather made the show a social enjoyment as well as an agricultural success—a collection of paintings and works of art—a horticultural show and musical performances being features of it. The entries in the live stock department were as numerous as usual, owing especially to the large and excellent classes of Hereford cattle—described by the English papers to have been as good an illustration of the breed as was ever brought together. The implements exhibited formed the largest and most striking collection of agricultural machinery ever witnessed in the show-yard of this Society. All the leading manufacturers were present; the long row of locomotive steam engines engaged in threshing, grinding, sawing, pumping, &c., in the department of machinery in motion, forming one of the most extraordinary sights ever exhibited at an agricultural meeting. In the trial grounds, mowers, reapers, hay-tedders, and ploughs and cultivators, worked both by horses and by steam, were shown at work. Messrs. Fowler's steam plough and cultivator, drawn by their so-called 8-horse power steam engine, and Messrs. Howard's steam plough and cultivator, drawn by Clayton & Shuttleworth's 10-horse power engine, made excellent work. One of the most interesting of the items exhibited was the self-delivering reaper on Hussey's principle, shown by Messrs. Hornsby; the grain being delivered in sheaves by a set of travelling chains which carry the cut grain at intervals off the flat platform on which it falls, leaving it in well-made sheaves upon the ground, well out of the way of the horses.

Guelph Horticultural Show.

THE Spring Show of the Guelph Horticultural Society was held in the Town Hall on the 29th ult., and comprised a highly creditable assortment of plants, flowers, vegetables and fruits. In addition to the ordinary productions of the garden and greenhouse there were one or two novelties. Mr. David Allan exhibited a fine specimen of the heath-plant, and Mr. W. Stevenson showed a bay laurel. The cut flowers were very fine, and the competition in bouquets among the amateurs was unusually spirited. Among the vegetables were early potatoes, of good size, pinach, beans, peas, some extraordinary heads of lettuce, shown by that veteran prize-taker, Mr. W. Benham, of Provincial fame, and some unusually forward onions. The fruits exhibited prove that Guelph is by no means deficient in the choicer products of horticultural skill. Strawberries that cannot be beaten anywhere—gooseberries equal to any grown in Lancashire or Yorkshire—an immense variety of currants—and several excellent samples of cherries—testified to the skill of the various exhibitors, and the suitability of the locality for fruit culture.

Important Sale of Shorthorns at Redkirk.

Mr. Syme's herd of Shorthorns has long held a very high position among agriculturists in Britain, and animals from it have even found their way to Canada. We gather from a late Scottish paper that, for reasons not specified, Mr. Syme determined to part with the greater portion of his valuable herd. The sale accordingly came off at Redkirk a few weeks since. A large attendance of agriculturists from all sections of the country, was present on the occasion. Six bulls and thirty-three cows were brought to the hammer, realizing fair prices and furnishing a remarkable instance of the profits which result from careful and judicious breeding, backed by only moderate means.

Large Prices for Shorthorns.

We learn from *Bell's Messenger* that the sale of the Dawpool Herd of Shorthorns was recently conducted by Mr. Strafford, at Willis's Rooms, London. It would appear that the event had been the subject of much discussion, and more or less confident predictions. Some anticipated complete success, while others foresaw only low prices and little demand. The result however showed that the expectations of even the most sanguine were short of the mark. The sale, by its character and results has marked a new epoch in the history of Shorthorn breeding, as the following account culled from *Bell's Messenger* will show:—A little before one o'clock, a considerable number of gentlemen possessing tickets of admission assembled about the entrance to the appointed sale-room; and shortly after one the guests brought together at the luncheon numbered probably, from 120 to 130.

The chairman, Lord Feversham, in the course of a few brief comments on the occasion of the meeting, bore testimony to what he considered the unequalled value of Bates blood, and described the commonly acknowledged signs (perceptible through the touch) of good thriving and fattening properties in cattle.

Mr. Strafford then commenced the business proceedings of the day. After intimating the wish of the late Mr. Hegan that the female portion of the herd should not be dispersed, and his own impression that it would not be advisable to separate the "Grand Duchesses," he alluded to the plan of the programme, in which the cows and heifers, 12 in number, were arranged in four lots of three each—the bulls to be offered singly. The herd remained at Dawpool. The circumstances of the sale, Mr. Strafford shewed, were peculiar, involving an experiment of remarkable novelty. Every lot would be offered without reserve and in perfect good faith, and all the faults of the animals would be mentioned. The first lot contained one cow of a doubtful character as to breeding—Grand Duchess 7th.

The first bid for Lot 1 was one of 400 gs., and the competition went on in hundred-guinea advances until the price reached 1500 gs., when the sand-glass was produced. The offers after this point were made less quickly, but steadily, until the sum stated in the subjoined list of prices was attained. Lot 2 was "put up" at 1000 gs.; Lot 3, at 750; and Lot 4 at the selling price. The names of purchasers, when demanded, were announced as follows for the four lots respectively:—Hammond, Lancaster, White, and Watts. Mr. Strafford explained, however, that he should presently have something to state on the subject; and when Imperial Oxford became the property of Mr. Betts, the information that the bull would accompany the Grand Duchesses was no longer withheld. The two youngest bulls, calves of September and November last, were in some way crippled. Captain Gunter, however, ventured to secure the elder of them. The other, after being offered without provoking a bid, was withdrawn. It was understood that the Duke of Devonshire, Mr. R. E. Oliver, Mr. Sheldon, and Captain Gunter, were the principal competitors with Mr. Betts for the possession of the Grand Duchesses.

We add a list of the prices obtained:—

COWS AND HEIFERS			
Lot	Duchess	Purchasers	£. s. d.
Grand	Lot 1. 5th)	Mr. E. L. Betts, Preston Hall, Aylesford, Kent.	1995 0 0
	Ditto 7th)		
	Ditto 8th)		
Grand	Lot 2. 9th)	Ditto	1265 0 0
	Ditto 13th)		
	Ditto 18th)		
Grand	Lot 3. 10th)	Ditto	1390 0 0
	Ditto 15th)		
	Ditto 17th)		
Grand	Lot 4. 11th)	Ditto	1260 0 0
	Ditto 12th)		
	Ditto 14th)		
			46510 0 0
BULLS.			
Imperial Oxford (18664),	Mr. E. L. Betts	472 10 0
Grand Duke 6th (18676),	Mr. G. Bland	136 10 0
Grand Duke 9th (18679),	Mr. T. Walker, Coventry	325 10 0
Grand Duke 10th, the Duke of Devonshire	630 0 0
Grand Duke 13th, Capt. Gunter	105 0 0
			1600 10 0
			6510 0 0
Total			54170 10 0

Agricultural Intelligence.

[FOR THE CANADA FARMER.]

Notes from Lower Canada.

FRANKLIN, Huntingdon Co., C. E.,
July 12, 1865.

TOBACCO—AN EXPERIMENT WITH THE "HAVANNA."

Some farmers grow tobacco for their own use. The samples I have tried are of strong, coarse flavour, and most tobacco users, not inordinately wedded to "the weed," would rather, I fancy, give up the indulgence altogether than fill their pipes with this home-made stuff. The inferiority of the product, I presume, is partly attributable to the coarseness of the variety planted, and partly to the inability of the producer to "cure" it properly.

I learned recently that Mr. Alfred Pinsonneault, a gentleman who owns a Seigniorie near Laprairie (not the M.P.P. of the same name), has been going largely into the experiment of tobacco growing. Having tried various methods of "making farming pay," he is now giving a trial to the tobacco crop. I am told he visited the South to see for himself the most approved methods of growing and curing, and last year he had six acres planted. Not satisfied with his own knowledge of the subject he got a gentleman from Connecticut to come and instruct his workmen. The varieties he selected were the "Havana" and "Connecticut Seed," and, so far as the growth of the plant was concerned, the results were most satisfactory. The product, I am informed, averaged 2,000 lbs. of leaf to the acre. The "curing" is a business which occupies considerable time, and I shall endeavour to ascertain and apprise you of the final results of the experiment. People passing the field in which the "Havana" was grown, were regaled as with the perfume of a first-rate segar. Some seed from Mr. Pinsonneault's stock has come to this neighbourhood, from which plants have been raised in a hot-bed, a few of which I have obtained and planted out.

OUR SOIL.

As I have already mentioned, the soil in this part of the country, is generally of a light, porous, gravelly nature. The land shelves down towards the north, and on the levels between the ridges we have generally deposits of alluvium, tolerably rich and free from stones. On the range south of this road, and higher up—stretching along the boundary with N. Y. State—the ground is mostly a sandy loam, pretty well adapted for wheat and oats, but not so suitable for the growth of corn, potatoes, &c. To the west and north, the valley of the Chateauguay river, which runs through a large portion of the County, is a clay soil, as well adapted for wheat, barley, &c., as some among the best wheat-growing districts, in the older settlements at least, of Upper Canada. But in this clay country, which extends also into the County of Chateauguay, they cannot raise successfully the potatoes, corn, and fruit, which all thrive well in this higher district. Their roads are impassable in spring and fall when ours are good, and their ground in spring is much longer wet and cold, so that operations commence later. Altogether, our farmers on this comparatively poor soil, get along as comfortably and prosperously as their brethren on the richer lands in the clay region, if not more so.

IMPLEMENTS.

Not much progress has been made here in the introduction of the most approved labour-saving implements. On rough, stony land, cultivators, seed-sowers, reaping machines, *et al genus omne*, cannot be used. We have a good serviceable iron plough for rough land made by Mr. Nelson Manning, of this township, which costs \$7, and answers its purpose—here at least—better than would a plough embodying all the latest improvements and costing double or treble the money. The harrow most in use is the A. drag, having from 16 to 20 inch or three-quarter inch teeth, about a foot long, and pointed with steel. A log of elm or beech, cut into proper shape, makes a good roller. Horse hoes, for turning up the soil both ways in hoeing potatoes, &c., are occasionally used. But any more refined implements for the cultivation of the soil are next to unknown, at all events

in this immediate vicinity. Having some carrot seed to sow, I wished to borrow or buy a seed-sower, but, after making enquiries in various directions, and sending to the most likely points, I was assured that there was not such a thing in the whole township! So the carrot seed had to be sown in the old-fashioned way through the fingers, and the superphosphate which I put into the drills I applied by streaming it from a bottle, which, as an extempore manure-distributor, answered the purpose tolerably well.

BEES.

A good many of these are kept throughout the County. Some bee-keepers have the improved cap-hives, or section hives, with glass boxes, &c., but the majority still content themselves with the old, simple box-hive, smothering a certain portion of their stock at the end of the season to get their honey, and wintering the rest for another season's operations. Swarming this season has been unusually early, giving many an opportunity of testing the truth of the first line in the old triplet—

"A swarm in May, worth a load of hay;
"A swarm in June, worth a silver spoon;
"A swarm in July, not worth a fly."

The following are examples of the experience of bee-keepers in this vicinity. In one case, where five hives had been wintered, between the 26th May, when the first swarm issued, and the 11th June, each of the five had swarmed once, and two of them twice. In another case, where seven hives had been wintered, between the 19th May, when the first swarm issued, and the 9th June, four had sent out eight swarms. The "good luck" in this case is to be accounted for by the fact, that the bees were taken particularly good care of during winter. In another case where fifteen hives had been wintered, thirteen new colonies had been founded by the 9th June. Last year was a poor one for swarming, but in this neighbourhood a good one for honey making. It is to be hoped that a reversal this year of the first of these characteristics, will not be accompanied by a reversal of the other also. I paid a visit a few days ago to the apiary of Mr. Robert Middlemiss, of Rockburn, in the adjoining township of Hinchinbrooke, who commenced this season's operations with 27 swarms, which he had wintered successfully. He intends, if fortune favors him, to go on increasing his stock until it numbers 100 colonies, being satisfied that bee-keeping may be made a very profitable business. Last year he netted an average of \$3 for every swarm with which he commenced the season, from the honey he sold, in excess of what was required for family use, and had besides the number of his swarms one half greater at the close of the season than at the commencement. Mr. Middlemiss uses the common box hive, caps being placed on the top-board to cover one, two, or four boxes with glass ends, in which the bees make the honey that is intended for market. A single inch-hole furnishes ingress and egress to the bees between the hive and each box. In '62 and '63 Mr. Middlemiss sold his box-honey in Montreal for 20 cents a lb. Last year, being rather later in sending it to Montreal, he realized only 10d. a lb., but even that price, as may be inferred from what has been stated above, left a good margin for profit. In the County of Clinton, N. Y., adjoining this County, there are some extensive apiaries. I am told that Mr. Miner, of Mooertown, in that County, keeps no fewer than 300 stocks—not all at one place, however, but distributed among several localities, so that the bees may not, in gathering their honey harvest, have their range overstocked.

Some further "Notes" which I have upon root crops, fruit growing, stock-raising, &c., in this part of Lower Canada, must be reserved, with the editor's permission, for another communication.

AGRICOLA.

(To be continued.)

Important Meeting of the Heads of Agricultural Societies.

The Presidents and Vice-Presidents of the several Agricultural Societies in the counties of York, Ontario, and Peel, met pursuant to a previously arranged invitation on Wednesday the 21st inst., at the Agricultural Hall, Toronto, for the purpose of discussing and adopting such measures as might be deemed conducive to the advancement of their Societies and the interests of Agriculture generally. Seventeen gentlemen, representing Societies in North and East York, West York, South Ontario, Peel, and the City of Toronto, assembled. On motion, Archibald Barker, Esq., of Markham, was called to the chair, and John Sheil, Esq., of Whitby, was appointed Secretary.

After some time spent in consultation. It was on motion of Col. Denison, of Toronto, seconded by Mr. Shier—

Resolved—That the Fall Shows of the several Societies represented be held as follows: South Ontario, 27th and 28th September; Peel, 3rd and 4th of October; East York, 5th October; Scarborough, 6th of October; North York, 10th and 11th October; Pickering, 10th October; West York, 11th and 12th October; Whitby, 12th October; Whitchurch, 13th October; Gore of Toronto, 18th October; City of Toronto, 19th and 20th October.

On motion of Mr. Shier, seconded by Mr. Jones, Whitchurch, it was—

Resolved—That this meeting, composed of Presidents and Vice-Presidents of Agricultural Societies in York, Ontario, and Peel, having had under discussion the two Bills introduced into the Legislature for the purpose of amending the Agricultural Act, approves of that introduced by the Hon. Mr. Alexander, and especially recommend the clause having reference to the election of the Members of the Board of Agriculture on the evening of Thursday, in the week of the Provincial Exhibition.

On motion of Col. Denison, seconded by Mr. Shier, it was—

Resolved—That in the opinion of the meeting it would be desirable, and to their interest for the township societies to join with the parent society in the Autumn Shows. First: because it would add greatly to the prize list. Secondly: because it would lessen the amount of expenses. And thirdly: because it would have the effect of reducing the amount of labour of Directors and Judges.

On motion of Col. Denison, seconded by Mr. Major, Mr. Barker was voted from the chair, and Mr. Armstrong of Yorkville having been called thereto, the thanks of the meeting were tendered to Mr. Barker and Mr. Shier for their exertions in bringing about the meeting, and for their zeal in promoting the cause of Agriculture.

The meeting then adjourned.

FLOUR, made from new wheat, is reported in the Southern markets. In some sections the yield is said to be the heaviest ever known—a fact which may be accounted for by the surrender of cotton land to the culture of grain.

BAT GUANO.—A letter from Vesoul, Haute Saône, France, states that a deposit of guano from bats has just been discovered four leagues from that town, in a grotto belonging to Commandant de Beaufond. It appears that this dark cavern has been for ages frequented by bats, and that the matters accumulated exceed 800 cubic metres. According to the chemical analysis this guano possesses considerable fertilizing powers.

A CURIOSITY.—Mr. H. D. McCobb has presented to the museum of Santa Clara College, California, a small section taken from the heart of a redwood tree, containing a sound and perfect acorn, firmly imbedded in the solid wood. The tree was cut about two weeks ago, in the hills fifteen miles southwest of Santa Clara, and was eight feet in diameter and three hundred and forty-eight feet high. The acorn must have been lodged in the tree not much less than a thousand years ago.

DESTROYING INSECTIVOROUS BIRDS.—We learn from the *Montreal Witness* that two boys were lately fined in the court of Special Sessions, held in Montreal, for setting a snare over the nest of a yellow-bird. The offence was committed on the mountain, and the boys had with them a basket specially adapted by means of a network over it, for carrying away small birds. The information was laid by the Montreal Fish and Game Protection Society, who are resolved hereafter to seek for the heaviest penalties in these cases.

SAD ACCIDENT WITH A MOWING MACHINE.—The *Brampton Times* records the following occurrence, which should be a lesson of carefulness to all who have to do with mowers and reapers:—"The many friends of the Rev. Wm. Pickard, of Esquering, will regret to learn that that gentleman has met with another accident, of a very serious nature. On Wednesday last, while cutting hay with his mowing machine, he stopped the horses to regulate some part of the harness; when in the act of doing so the horses started, whilst he was directly in front of the machine, and before he had time to get on or out of the way the blade cut him across the hind part of both feet, near the ankles, inflicting a deep gash in the heel of one, and dividing the sinews of the ankle in the other. Other hands were in the field at the time of the accident, but none near enough to render him any assistance. He was carried home as soon as possible. The pain experienced by the dividing of the cords near the ankle is said to be intense, and the great fear was that lock-jaw might set in. Strong hopes are entertained that he will recover from the severe shock."

British Cleanings.

CHURCH GOING BEES.—At a church in Dorsetshire, England, lately, a swarm of bees took possession of the chancel, and the officiating clergyman was unable to read the communion service at the altar in consequence.

SINGULAR OCCURRENCE.—We learn from an English exchange that "a gentleman was informed a few days ago by his groom that a favorite horse hung its head and refused its food. Some drops of blood were found in the horse's nostrils, and a veterinary surgeon recommended bleeding. The gentleman, however, decided to send the animal out for quiet and exercise and on its return to the stable a live mouse came out of its nostrils!"

INTERNATIONAL DOG SHOW.—The third annual show of dogs was opened on June 2, at the Agricultural Hall, Islington. The display comprised between 1,400 and 1,500 dogs of nearly every breed, and the exhibitors included the Prince of Wales, Lord Caledon, Lady Cardigan, Lord Loughborough, Lady Norbury, Colonel Lindsay, and the Hon. F. Cadogan. There were about 150 prizes, ranging from 20l. to 3l., among the 60 classes entered. The sporting division including pointers, greyhounds, mastiffs, St. Bernard's and all the large classes of dogs, were exhibited in the lower part of the Hall, while the toy dogs occupied the gallery.

FUNERAL OF A BEE.—A correspondent of the *Glasgow Herald* transmits the following:—"On Sunday morning last I had the pleasure of witnessing a most interesting ceremony, which I desire to record for the benefit of your readers. Whilst walking with a friend in a garden near Falkirk, we observed two bees issuing from one of the hives, bearing betwixt them the body of a defunct comrade, with which they flew for a distance of ten yards. We followed them closely, and noted the care with which they selected a convenient hole at the side of the gravel walk, the tenderness with which they committed the body, head downwards, to the earth, and the solicitude with which they afterwards pushed against it two little stones, doubtless 'in memoriam.' Their task being ended, they paused for about a minute, perhaps to drop over the grave of their friend a sympathizing tear; and then they flew away."

BRITISH CROP PROSPECTS.—Our British exchanges all speak hopefully of the forthcoming harvest. We extract the following from the column of "Agricultural Notes," which *Bell's Messenger* regularly supplies to its readers:—"The weather continues very fine. Wheat is coming rapidly into ear, and there is a prospect of an early harvest. Should the dry weather continue much longer the bulk of straw will be much smaller than usual, but the yield of grain, on the whole, will, we think, be a full average. Haymaking is being proceeded with under the most favourable conditions. In many parts the crop will be very light, in others unusually heavy. Speaking generally, the turnip fly has not committed so much havoc as it frequently does; but rain is much wanted for this important crop, as well as for mangolds. A failure of the root crops this year is a calamity most earnestly to be deprecated."

MEMORIAL TO THE LATE MR. FOWLER.—The memory of this eminent agricultural machinist, whose name is inseparably associated with the steam plough, is to be preserved by a suitable memorial. The committee appointed to carry into effect the public resolutions have lately issued a circular containing five forms of memorial. Subscribers are asked to state which form they prefer. They are enumerated and commented on by *Bell's Messenger* as follows:—"1. The Fowler Memorial Benevolent Institution. 2. An annual prize given through the College of Civil Engineers. 3. A statue. 4. Almshouses for the widows of men employed in the manufacture or use of the steam-plough. 5. Plate or other memorial of that kind to be selected by Mrs. Fowler as heir-looms to the family. The committee have received from 92 subscribers about £650; but should those who have signified their intention to subscribe, but who have not yet mentioned the sums they will give, subscribe in the same proportion, the committee will have at their disposal about £1,300, a sum totally inadequate for the building and endowment of almshouses or for the establishment of a Benevolent Institution, such as was originally contemplated."

ON ARRANGING GROUNDS WITH SHRUBS.—In the *Scottish Farmer*, "J. McN." makes the following judicious suggestions on laying out grounds, which we commend to those of our readers who are desirous of heightening the attractiveness of home by a tasteful ordering of its surroundings:—"It ought to be a primary object when arranging grounds with trees, shrubs, and grass, to make them appear from the neighbouring windows like a well-balanced landscape picture, having a partially open foreground, with a distanced background, where the outline of the trees can be well brought out. Many gardens have anything but a landscape effect, although they possess the requisite material for the purpose. In order to arrange grounds in a satisfactory manner, broad spaces of well-kept grass, with fine shaped trees standing upon it, will be found infinitely more pleasing than a dense thicket of foliage."

LONDON SEWAGE.—The gigantic scheme which has been elaborated, to utilize the sewage of modern Babylon, is viewed by a large section of the British community with distrust; and the opinion that much of the sewage will return with the tide, appears to gain ground. From a recent issue of the *Budler*—a really practical and reliable authority—we quote the following:—"Of late years, from different causes, the chief of which is the abstraction of the river water by the water companies, the sea water has been ascending higher than before; it has been found at Wandsworth; and even sea-weed has been noticed at London Bridge; hence it may be inferred that sewage would be returned also, diluted, and possibly, or to some extent, otherwise—recollecting that it is lighter than sea water. The belief that the sewage will return as far as Chelsea, is known to prevail even with some of those who conduced to the adoption of the system which Mr. Bazalgette has been engaged in carrying into effect."

FOOD MANUFACTURE.—The *Scottish Farmer* has the following excellent remarks on the mission and importance of manures:—"It is not merely that the extra manuring induces the extra crop—the manuring furnishes the very building material out of which the increased produce is made. Those very atoms of nitrogen and of phosphorus you are adding in guano—those very particles of potash and soda you are detaching from impracticable positions in the soil by the influences which drainage has brought to bear upon them—those very atoms of carbon which your plants, vigorous owing to more thorough cultivation, are extracting from the air in the sunshine, may travel various roads, but they will come to an ultimate residence side by side in the flesh and the blood of the fattening animal. The various additions you make to your soil, the fertility you extract from it, may indeed be said to 'occasion' the increased produce of meat which succeeds them, but it is in the same way as the stone and the lime occasion the buildings of which they are the very substance and material."

GIGANTIC PIG FEEDING TROUGH.—The following description of a trough for feeding pigs is copied from the columns of the *Dorset County Express*.

"At the establishment of Mr. R. Hazel, in this town (Dorchester), there may be seen in process of construction, the largest pig feeding trough, we should think, upon record. It is being made for the inventor, W. Manfield, Esq., and is to be fitted with elevators at one end, and connected with steam power, for placing the food (previously cooked) in the trough without manual labour. It is calculated that one feeder will be enough for 2000 animals; whereas it would require ten men in the ordinary way. The trough is for the use of 2000 pigs feeding and fattening for the market, and presents an aggregate length of 500 feet of feeding trough, arranged in the form of a horse shoe. The animals are penned in small divisions inside the inner curve, and also outside the larger, so as to obviate all necessity for the sub-divisions within the trough, which is cylindrical in form, and fitted together uninterruptedly. The trough has no foot-rests, but the cylindrical bottom will be embedded in chalk. This immense iron range has been entirely made by Mr. Hazel, who, in the summer of last year, constructed a very novel cooking apparatus, also invented by the proprietor of what the *Times* calls 'the English Porkopolis,' by means of which many tons of food can be daily cooked, simply by an ingenious method of catching the exhaust steam from the engine which grinds and prepares the corn, pulps the roots, and drives the various machines required for pig feeding on a large scale. We ought to get pork cheaper, seeing that in one year 10,000 pigs can be fattened at this one trough only, in the monster swinery."

ANTI-MALT-TAX RESOLUTION.—At a recent meeting of the Hertfordshire Anti-Malt-Tax Association the following resolution was unanimously adopted:—"That this meeting, while it expresses its disappointment that the Chancellor of the Exchequer still refuses to recognize the claims of the advocates for the repeal of the malt-tax, hereby pledges itself to renew the agitation in the next session of Parliament, and to use every legal and constitutional means to obtain its early and total extinction."

In relation to this proposed future action, *Bell's Messenger* writes thus:—"With this object distinctly in view, the farmers of Hertfordshire have resolved to send to the next Parliament men in whose fidelity and determination in this matter they can place implicit confidence. If the other counties and the agricultural boroughs throughout the country would pursue the same course, it would be impossible for any Ministry successfully to resist the righteous demand, that a tax which presses upon the producer of barley to the extent of from 70 to 80 per cent., and which seriously interferes with the natural course of his cropping, should cease and determine."

THE IMPORTANCE OF AGRICULTURAL CHEMISTRY.—The interesting and suggestive passage which we subjoin, occurs in a paper published in the *Journal of the Royal Agricultural Society of England*. Professor Voelcker, in treating of the importance of the results determined by means of analytical investigations into the nature of soils, says:—"There was a time when I thought, with many other young chemists, that soil analysis would do everything for the farmer; three or four years of further experience and hard study rather inclined me to side with those men who consider that they are of no practical utility whatever; and now, after 18 years of continued occupation with chemic-agricultural pursuits, and, I trust, with more matured judgment, I have come to the conclusion that there is hardly any subject so full of practical interest to the farmer as that of the chemistry of soils. The longer and more minutely soil investigations are carried on by competent men, the greater, I am convinced, will be their practical utility."

REMARKABLE TAMENESS OF A ROBIN.—The following interesting circumstance, related by a correspondent of the *London Field*, shows what familiar relations may be formed by kindness, between the little feathered warblers and ourselves:

"A friend of mine, a farmer in Cambridgeshire, employs an old man to job about the farm as a carpenter. The shadow of the old rook trees is his shop, the birds are his companions. Many little beady eyes are flashing about when the old patriarch spreads his frugal meal upon his knees, and a general scramble takes place for the crumbs. But one robin disdains to eat the refuse, and takes his portion from the old man's mouth; after being properly prepared, it is presented to him upon the tip of the old man's tongue, when Bobby hovers and suspends himself in the air, and carries off the tempting morsel in a moment. This he will repeat until his hunger is satisfied, and then he will sing his merry song of thanks, and amuse the old man with his saucy tricks for the rest of the day."

A GAUSTIC CORRECTION.—One of our British exchanges contains the following:—

"A Breeder,' who wrote in a contemporary paper a few weeks ago, speaking of Prince Imperial (15095) the son of Second Grand Duke and the exquisite Bridecake by Crown Prince, said:—'The Prince Imperial cross, a bull unfortunately used by Mr. S. E. Boiden to improve Bates' Duchesses, seems to choke off and settle breeders who have watched the injury this bull Prince Imperial has done.' To say nothing about the grammar of this sentence, in which a cross is called a bull, we beg just to observe—and no better answer can be given to the assertions of the writer—that Duchesses 5th, 7th, and 8th, who made a sum-total at the Dawpool of 1900 guineas, and an average of £665, though one of the three is hopeless as a breeder, are all by Prince Imperial; that Grand Duchess 10th, whose price was £630, is from Grand Duchess 5th; and that Grand Duchess 15th, and Grand Duchess 17th, are from Grand Duchess 10th, and accordingly great granddaughters of the much calumniated sire. Among the Grand Duchess bulls, the highest priced were those which have the cross of Prince Imperial—Grand Duke 9th, and Grand Duke 10th; the former sold for 310, the latter for 600 guineas. Grand Duke 9th is a son of Grand Duchess 5th, a daughter of the anathematized bull; and Grand Duke 10th was got by Grand Duke 4th, whose dam was by the same abominable and ruining beast."

The Household.

Rabbits.

THESE little animals are chiefly valued as domestic pets; and as a source of innocent amusement to the boys of a family, and a means of teaching responsibility, thrift, attention, and management, they are well worthy of being kept in every household. They are not, however, destitute of value in a utilitarian point of view. Their fur enters largely into hat and other manufactures; their flesh is a light and palatable food; and their dung is an excellent manure for clayey soils, and is particularly serviceable in the culture of many fibrous-rooted greenhouse plants. The rabbit being a general feeder, is, like the fowl and pig, a kind of save-all; consuming what would otherwise go to waste. Garden refuse and kitchen scraps, will with the addition of a moderate supply of other food suffice to keep a little stud of rabbits. The objection sometimes made to them on account of the unpleasant smell emitted from the hutch, can be obviated by maintaining a proper degree of cleanliness. A like objection arises out of neglect in the case of all the animals domesticated and kept by man, whether for use of pleasure.

The rabbit belongs to the class Mammalia, or suck-giving animals; and to the order which is called *Incisores*, because they cut their food with the front teeth of their upper and lower jaws. They do not grind their food like the horse or ox, because they have no grinders, or molar teeth. The male rabbit is called "a buck" and the female "a doe." Rabbits are polygamous; one male being sufficient for thirty or more females. In warrens, only one male is allowed to a hundred. The bucks are troublesome from their wild, mischievous, and quarrelsome disposition, and in order to success in rabbit-keeping, they must be closely watched, or they will do injury. Does may be allowed to breed at six months old. Their period of gestation is thirty or thirty-one days. A fortnight after littering, they are ready to breed again, and may be suffered to do so. They multiply in winter as well as summer, and will therefore increase very fast. At a moderate calculation, six litters in the year may be counted on. The male and female should be kept in separate hutches, and put together for a night at the breeding periods. The buck will harass the doe if allowed free access to her, and will also often kill the young ones. The number produced at a birth, varies from two to a dozen. Six or eight are quite sufficient for the strength of the mother. An account should be kept of the time the doe is expected to bring forth, and a few days beforehand a large handful of coarse but sweet hay should be thrown into the hutch. With this she will form her nest, and

will line it with fur stripped off her own belly. The previous litter must always be removed before the doe has a second; the hutch must be kept scrupulously clean; and care taken not to touch or handle the newly-born rabbits, as unnecessary disturbance is apt to make the mother destroy her progeny. The little rabbits come into the world blind and helpless, covered only with a fine down. On the fifth day they get their sight, and soon after begin to be active. At a month old they eat alone, and at six weeks they ought to be weaned. After weaning, their management will depend on their destiny. If meant for the table, they must be fed well so as to fatten quickly.

with the right hand, and support the rump with the left. Does with young should be handled with especial gentleness. The mode of keeping rabbits must depend somewhat on the number to be taken care of. Warrens, courts, and pits are only adapted for large numbers. For ordinary rabbit-keeping, the hutch is most convenient. Our space does not admit of going into lengthy details; suffice it to say that comfort, convenience, ventilation, and warmth must be kept in view, and especially facilities for keeping clean. A simple box may be made to answer, or an elaborate hutch may be constructed. In reference to feeding, only a hint or two can be given. They

should have a meal twice a day,—at morning and night. If green food is given, it should be thoroughly dried first. Refuse of such garden vegetables as are not too watery will be suitable, but *wet herbage must be withheld*, as it is most injurious to them. The leaves and roots of carrots, all sorts of leguminous plants, the leaves and branches of trees,—in short almost any green thing may be given them. A proportion of dry food is also necessary. Oats once a day is excellent diet for them. Wheat bran, and grain of all kinds, are relished. For winter feeding, hay, potatoes, turnips, beets, the haulm of peas and beans, bran or grain, are suitable. A little salt occasionally is requisite. Variety of food, and plenty of it, are what is needed. Attention must be paid them, and regularity in feeding must be observed, if success be desired. There are several breeds of rabbits, but we cannot now particularize them. Suffice it to say, that the lop-eared variety, like that shown in the small engraving, is chiefly delighted in by fanciers. The object aimed at is to breed them with as long and even sized ears as possible, and showing a perfect lop. Ears of enormous length have been obtained; in some instances from twenty to twenty-two inches. A great deal of interest is often excited at shows, and rabbit-keepers vie with each other for the production of the best specimens, just as breeders of Shorthorns, and Leicesters do with animals of a larger growth and higher value.



About three months old, the males must be castrated to prevent mischief. Some allow all the weanlings to herd in one apartment, and others take care to keep together all the rabbits of the same month. From the fifth to the sixth month those meant for the table should be ready to be so disposed of. Of course

possible, and showing a perfect lop. Ears of enormous length have been obtained; in some instances from twenty to twenty-two inches. A great deal of interest is often excited at shows, and rabbit-keepers vie with each other for the production of the best specimens, just as breeders of Shorthorns, and Leicesters do with animals of a larger growth and higher value.



the handsomest and best tempered must be kept for the breeding stock. Does will continue prolific until they are five years old, and the whole term of the rabbit's natural life is only from six to nine years.

Rabbits require tender and careful handling. The proper way to take hold of them is to grasp the ears

only to wash with salt and water, filling the cracks where they frequent with salt, and you may look in vain for them. Salt seems inimical to bedbugs, and they will not trail through it. I think it preferable to all 'ointments,' and the buyer requires no certificate of its genuineness."

SALT FOR BEDBUGS.—A correspondent of the *Olean Advertiser* thus presents to the editor a remedy for that kind of vermin so often found in the beds taken by travellers on steam boats and at hotels as well as in private houses. He says:—"If any of your readers need a sure remedy for bedbugs, they can have mine, and cleanse the house of this troublesome vermin without expense. They have



Upper Canada Fruit Growers' Association.

The Fruit Growers' Association of Upper Canada held a special meeting at the County Council Chamber, in the city of Hamilton, on Friday, 23rd June. The President, Judge Logie, took the chair at one o'clock. The minutes of the last meeting having been read and confirmed, it was resolved that the Secretary be instructed not to issue notices for any meeting in July next, and that he notify the Fruit Committee that they are desired to obtain minutes of the exact date of the ripening of the several varieties of grape, and submit the same in a report to the October meeting; and that they also report the name of the best and latest ripening variety of strawberry. The Jenny Lind strawberry was struck from the list for general cultivation, and the Monroe Scarlet from the list for trial. La Constante exhibited by Mr. Wildes seemed to be such a promising late variety that it was placed on the list for trial. Russell's Prolific had been found by the members who had given it a trial to be so hardy, vigorous, and enormously productive, that it was unanimously placed on the list for further trial. The Duc de Malakoff, sent by Mr. Vice-President Graydon, created a sensation by its enormous size and monstrous forms. The Trollope's Victoria had been found to be a valuable late variety in many soils and localities.

There followed a very interesting discussion on the best methods of cultivating the strawberry, the soils best adapted to its perfect growth, and the best methods of winter protection and summer mulching. It seemed to be the opinion of a majority of the members that the Early Scarlet and Wilson, when allowed to run not too thickly together, and cropped for only two seasons, give the most satisfactory results. On the other hand, they preferred to grow the Triomphe de Gand, Hooker, and Trollope's Victoria, in hills or stools, not less than eighteen inches apart, to keep the runners all cut off, and crop as long as the plants remain vigorous.

A communication was read from the Secretary of the Montreal A. & H. Society relative to a proposed convention of Fruit Growers to be held in the city of Montreal during the coming autumn. After some discussion, the Secretary was directed to say to the Montreal Society that, inasmuch as the proposed time of holding such convention would likely coincide with the time of the Provincial Exhibition, to be held at London, it would be inconvenient to send delegates, yet, being desirous of promoting the objects of such convention, this Association will take much pleasure in forwarding named samples of fruit, if desired to be used and examined at the sessions of such convention.

A vote of thanks to the County Council for the use of their pleasant and commodious Council Chamber was then passed, and the Society adjourned, to meet in Paris, on Wednesday, the 4th day of October, 1865.

There was a fine collection of strawberries and cherries on the tables, shown by Messrs. Freed and Wildes, of Hamilton, A. M. Smith, of Grimsby, and Vice-President Graydon, of St. Catharines.

Wise Fruit Trees.

I was talking to-day (April 29,) with a Huntingdonshire cottager, and was saying how cold the day had been after our previous hot weather. "Yes," said my friend, "you must expect the summer to come all at once. The wise tree would have told you better than that. I was up again the hall this morning, and saw those two wise trees that grow nigh to the fish-stews, and they had a spat out a mossel o' show." And what tree may the wise tree be?" I asked. "It's what some folks call the Mulberry."

was the reply; "but the wise tree is the name as I've always known it by ever since I was a child." "And why do you call it the wise tree?" "Why, because it isn't silly like some trees as puts out their leaves early, and then gets nipped; but the wise tree, on the contrary, always waits till the frosts has gone right away, and aint to be deceived by a stroke o' fine weather coming early in the season. But when it's sartin sure that it be fine weather and well settled, then it puts out its leaves. Oh yes, sir, you may rest content on the wise tree telling you when you may be safe against frosts."—(OCTUBER BEDE in *Notes and Queries*.)

This attribute of the Mulberry is mentioned by Pliny, who says, "Of all cultivated trees, it is the very last to bud, and it does not do so until the cold weather is entirely passed: hence it has been called the wisest of trees." Even the Herald's have accepted this, for old Guillim remarks that "this fruit is an hieroglyphic of wisdom, whose property is to do all things in opportune season." The Court-Pendu-Plat Apple is called in some places "The Wise Apple," because it opens its blossoms later than any other variety, and, consequently, they are less liable to be injured by frosts.—*Cottage Gardener*.

Fruit Growers' Society of Western New York.

The summer meeting of this Association was held in Rochester, on the 21st ult. The attendance was good, and there was a creditable exhibition of strawberries, cherries, &c. The question,—"What are the best six varieties of strawberries for private use?" was discussed at some length, when the members were asked to decide the matter by ballot. There were thirty three votes cast, with the following result:

Triomphe de Gand,	30	Brighton Pine,	6
Early Scarlet	24	Jenny Lind,	4
Russell,	23	Crimson Cone, (for canning,)	3
Wilson,	23	Agriculturist,	3
Hooker,	22	Langworth's Prolific,	3
Hooker,	8	Austin,	2
Raye,	5	Bartlett,	2
Burr's New Pine	12	Buffalo,	2
Trollope's Victoria,	5		

Red Alpine, White Alpine, Catter's Seedling, Jaland, Snow Flesh, Jenny's Seedling, Autumn Jaland, Alpine and Genesee received one vote each.

Triomphe de Gand and Wilson were preferred for market berries. The subject of raspberry culture came up, and Mr. Downing expressed the opinion that a raspberry plantation will last ten years, and that it is more profitable than the strawberry. Mr. Thomas demurred to this and urged the trouble of pruning, covering canes in winter, contending that this was equal to setting out new strawberry beds. No vote was taken as to the best raspberries, but Messrs. Hooker and Downing enumerated Brinck's Orange, Hudson River Antwerp, Franconia, Knevit's Giant, Hornet, Black Cap, Clarke (a new variety), Vice-President French, and Fastoff, as good varieties.

"How to exterminate the currant worm?" was the next question. Hellebore in powder and solution,—also a mixture of hellebore and lime in equal parts, were recommended by different members. The insects and diseases to which the grape is liable were then discussed. Several complained of the "thrip." Dr. Trimble said a strong solution of tobacco would destroy the pest. Another member recommended a solution of tobacco and whale oil soap applied with a syringe. Pear blight next came up for consideration, but nothing new was elicited in regard to this troublesome disease. "Do the Seventeen Year Locusts attack fruit trees?" was the seventh question debated. The general opinion was that they do not. Question 8, and the answers to it are worthy of special note:—

"Is the man who allows the caterpillar to multiply in his apple orchard a good neighbour?"

Mr. Crane said he should vote an emphatic "nay."

Dr. Trimble would go further. Such a man was not only a poor neighbour—he was a nuisance. He hoped this Society and every Agricultural and Horticultural Society in the land would agitate the question till we had a policeman in every town who would bring such a man to justice!"

A happy Jerseyman raises 7,000 quarts of strawberries from two acres of ground this year.

As much nitrate of soda as can be held between the thumb and finger, it is said, if thrown in a vase of water, will preserve flowers for the space of a fortnight. This may be an interesting fact for the ladies.

CURRANT WORM.—A solution of a pound of copperas in one gallon of hot water, diluted with five or six gallons of cold water, and applied with a watering-pot, has been found fatal to the currant worm, by a correspondent of the *Utica Herald*.

TRANSPLANTING CURRANT BUSHES.—Currant bushes can be transplanted any time when not in a growing condition. If done when the leaves are green, they should be stripped off, unless the roots are lifted out entire. Cuttings are better if made in autumn before the leaves fall than if taken off the following spring. They will form a callous, and frequently some roots before winter.—*Co. Gent*.

PLOUGHING AMONG TREES.—In ploughing among trees, and where it is desired to throw the furrow from the row, a plough with a moveable beam, and set as "wide" as possible, enables one to plough much closer to the trees. When it is desired to throw the furrow towards the trees, the same plan is equally advantageous, but of course it should then be set as narrow as possible—i. e., the beam should be turned to the left.

STRAWBERRY CHALLENGE.—The *London Advertiser* acknowledges a few strawberries from Mr. J. Wyckoff 3½ inches in circumference, and challenges any one to beat it. The *Ingersoll Chronicle* received a few from Elisha Hall, Esq., 3½ inches. The *Norfolk Reformer* had a present from Mr. Duncan McIntosh, of Woodhouse, of the delicious fruit, 4 inches. We received, on Saturday, "a few" from Mr. J. H. Lawrence, Collingwood, some measuring 5½ inches, 5, and 4½.—*Globe*.

PROFITABLE CULTURE OF THE STRAWBERRY.—One of the finest plantations of the strawberry that we ever saw, was that of O. J. Tillson, of New Paltz Landing, Ulster Co., N. Y., when visited towards the close of last summer. A short account of this plantation was given in the *Country Gentleman* at the time. The rows were about three feet apart, and the plants or "hills" fifteen inches in the row. The runners were cut off once a week with a pair of sheep-shears, and as a consequence, the growth of the plants far exceeded, in size and vigor, the same under ordinary treatment. A letter just received from a gentleman at that place informs us that this method has proved a "perfect success, and that he will clear \$2,000 this season." The plantation, we understand, consists of about two acres.—*Country Gentleman*.

REMEDY FOR THE RAVAGES OF THE CURRANT WORM.—H. Stanton, jr., of Syracuse, N. Y., under date of May 24th, sends us the following:—"We have recently made an important discovery here which we wish to make public for the benefit of everybody in general, and their currant bushes in particular. The ravages of the terrible currant worm can be completely stopped, and the enemy destroyed by the simple application of road dust. We tried it last year with perfect success, and the same this year so far. Gather the dust when it is dry and fine, and keep it for future use. As soon and as often as the worm makes an attack sprinkle it on and throw it up under the leaves so that it will adhere to both sides. The best time is when the dew is on in the morning. Remember, road dust from the street or highway. Try it."—*Rural New Yorker*.

MUSTARD TREE OF SCRIPTURE.—A plant of considerable interest was that sent by Mr. Bull, as the Mustard tree of Scripture (*Salvadora persica*), and which was the only species in the genus. He had his doubts, however, whether this plant was really the one alluded to in the parable, for the name of one plant was sometimes in the course of time transferred to another; thus the old Primrose was our Daisy, and the old Eglantine was certainly not our Sweet Briar. Dr. Royle, however, who was the botanist that had bestowed most attention on the plants of Scripture, considered the one before them to be the true Mustard tree. It certainly grew to a tree 20 feet high on the shores of Lake Tiberias, where the parable was spoken, but Dr. Hooker had informed him (Mr. Berkeley) that when in Palestine he saw *Sinapis nigra* all over the country, that it there grew 10 feet high, and that the *Salvadora*, on the contrary, was a rare plant, and he (Mr. Berkeley) thought that the balance of evidence was in favour of the Mustard of Scripture being the same as our own.—*Report of Royal Horticultural Society*.

LET FRUIT RIPEN ON THE VINE.—Almost all fruits are gathered too early. With the Albany Seedling Strawberry, and the Lawton Blackberry, this is now well understood.—but it applies to all fruits. Mr. J. E. Mitchell has just placed on our table some Chasselas Grapes, that are quite equal to the best Frontignans in flavor, as we usually get them,—and some badly colored Hamburgs, that do no discredit to the well-earned reputation of that variety for good character. No doubt the good quality of many grapes when sent for Editorial opinions, beyond what one often afterwards finds from fresh fruit taken off, is caused by their ripening a little on the way.—*Gardeners' Monthly.*

HEALTH AND LONGEVITY OF THE APPLE TREE.—Rev. H. W. Beecher speaks of these characteristics of the apple, as follows:—"Healthier than the pear, no blight or disease, affects it; worms and insects may lodge upon it, but unbuckling its bark, it exposes them to the wind and storm. An acre of potatoes will not produce so much as the same area in orchard, with five times the labour. The grub only is a formidable enemy, but is so easily exterminated by a flexible wire, that if you have burers you deserve to be bored. Farmers never think of nursing their orchards. And as for longevity, I have a tree now growing on my farm at least five hundred years old. Two ladies, now eighty years of age, say that in their childhood it was called the old apple tree. At twelve feet from the ground it is fourteen feet ten inches in circumference; the fruit sweet and pleasant, though not large."

THUMB AND FINGER PRUNING.—This is the best of all pruning. It does not disturb nature. It is, in nearly all cases, done judiciously. It must be done when the shoots are in a soft and succulent state. It is done to regulate the growth, the form of the tree.—If a branch grows too rapidly—is likely to usurp too much space: it must be pinched back to allow the rest of the tree to come forward. Every tree can be made symmetrical and perfect in form by a little care in pinching in, if done when the tree is young. Every one can prune in this way. It requires no particular skill—only the exercise of a little common sense. The finest standard pear trees we ever saw, had never had a knife or saw about them. The thumb and forefinger had only been used. The trees belonged to Wm. Saunders, of Germantown, Penn., one of the first horticulturists in the country. He has now charge of the Government Gardens at Washington City.—Rub off all unnecessary buds that grow in a tree—and remove as they appear. This keeps the tree clean, and the growth in the proper channels. It is easily done.—*Colman's Rural World.*

AN ILLINOIS FRUIT FARM.—The following notice of the orchard of W. C. Flagg, Esq., near Alton, Ill., Secretary of the State Horticultural Society, is taken from a late report of the proceedings of the Horticultural Society of Alton:

"Mr. Flagg's farm occupies about 1,100 acres of land of which about 80 acres are in orchard, 220 under the plow, 200 in woodland, 300 in meadow and 300 in pasture. The following fruits are in cultivation:—4,500 apple trees, 150 pears, 1,200 peach, 100 cherry, 60 plum, 20 apricot, 12 nectarine, half an acre of grapes, and about 2 acres of small fruits. The most profitable thus far has been the Janet, which fourteen years planted has yielded 600 bushels per acre. The Newtown Pippin and Pryor's Red are also favorite varieties. 150 varieties of apples, 5 of apricots, 12 of cherries, 7 of currants, 14 of grapes, 5 of nectarines, 26 of peaches, 30 of pears, 14 of plums, 6 of raspberries, are under trial, but are mostly too young to judge of results.

CLIMBING PLANTS.—Mr. Charles Darwin, F.R.S., recently read before the Linnean Society a paper on the movements and habits of climbing plants, an abstract of which has since appeared in the *Natural History Review*. He describes the peculiarities of these plants as divided into three groups—viz. twining plants, leaf-climbers, and tendril-bearers. He presumes that plants become climbers in order to reach the light, and to expose a larger surface of leaves to its action and to that of the free air. This is effected by them with wonderfully little expenditure of organized matter in comparison with trees, which have to support a load of heavy branches by a massive trunk. Twining plants are furnished with revolving nodes; leaf-climbers possess the power of clasping an object with their petioles or sensitive tips, associated with revolving internodes; and tendril-bearing plants, Mr. Darwin considers to have been primordially twiners, or descendants of plants having this power and habit. "The perfection of the organization of plants," says Mr. Darwin, "is forced on our minds by the study of the many kinds that climb."—*Scottish Farmer.*

Poultry Yard.

On Breeding Poultry in Large Numbers.

The idea of rearing poultry in very large numbers has a great attraction for persons who have had but little practical experience in poultry-breeding; and in consequence, every few years some fallacious project is started for the establishment of a poultry farm. Not long since a paragraph went the rounds of the papers respecting the success of a large poultry establishment near Paris, where many thousands of poultry were said to be reared annually at a very large profit to the promoters. It will not surprise those of our readers who are practical men, to be told that the whole account was a pure invention, there not being, nor ever having been, any such establishment in existence.

A few years since Mr. Cantelo started a poultry establishment near Chiswick, and although he had the advantage of great experience and one of the best artificial incubators ever designed, the whole concern came to an untimely end.

During the time of the Cochin mania, when every Cochin hatched and reared had its value reckoned in pounds sterling, numerous speculators tried rearing in large numbers, but not one of them succeeded.

The Americans, who are at least our equals in poultry-breeding, for practical if not for fancy purposes, have tried the plan repeatedly, and each time it has failed. Not long since it was worked in connection with the Astor House Hotel, and the usual termination ensued.

There are two reasons for this inevitable result; one is, that when a large number of fowls are crowded together or kept in one place, the ground becomes tainted with the manure, and disease invariably breaks out. This is more particularly true of chickens; for in every attempt to rear a large number in a confined space, the mortality is excessive.

The employment of an incubator in this climate will always be found a failure, for this simple reason, that it is impossible to rear the chickens when they have been hatched. The hatching process is sufficiently easy; but chickens are of no value whatever without you have hens to brood them. The only manner in which an incubator can be usefully employed is by hatching an extra number of eggs, so as to give each hen a full brood of chickens. Used in this way, we have known small incubators very serviceable; but when employed to hatch chickens that are to be reared by artificial mothers, we have never seen them used with advantage.—*London Field.*

On Eggs.

I write on this subject in order to correct some erroneous ideas that have always been entertained in relation to eggs. The sex—how long an egg will retain its life and vigour enough to hatch strong chickens—whether an egg will hatch unless you have a cockerel with the hens all the time. What I shall say on this subject has been gained by actual experience and close observation with my own fowl. I deny that a round egg will always produce a pullet, and that a long egg will always produce a cockerel, and I do not believe there is any way of ascertaining to a certainty I have, by watching closely, observed that some hens always lay round eggs; others a long egg; now it is simply absurd to say from this, that one hen's eggs being round will produce all pullets; the other laying all long eggs, all cockerels. I do not wish to be understood that I would not select eggs for sitting—on the contrary I always select those for one nest that are the largest, and as near of a size as possible. Some contend that if a cockerel is separated from hens that the eggs will not hatch. I have tried this in order to test the point, and set one hen that there had been no cockerel with for two or three weeks, and twelve out of the fifteen had chickens in them; but I would not advise the trial after three weeks. Eggs that are to be set should be handled as little as possible; and not removed from where they are laid if it can be helped. The secret of a hen that steals her nest, as the saying is, they are not disturbed from the place they are laid, and the hen is perfectly quiet and seldom breaks her eggs.

As to the real value of eggs for market, they ought to be sold by weight, not that a large egg will weigh the most in proportion to its size, but it is often to the contrary. I have weighed Brahma eggs that were considerably larger than a Dorking, and a dozen of each weighed exactly alike. We see and read of great weight of eggs. I have eggs I think that go to the two extremes; one the largest by a Brahma, weighing four ounces, the other by a Spanish, at one-quarter of an ounce each. I think the grey Dorking will lay more weight of eggs and richer, than any other fowl, and the Hamburg the most in number.—*Westbrook, in Maine Farmer.*

HENS EATING EGGS.—Hens may be cured of eating their eggs, by blowing out the contents of an egg, and filling it with mustard made into a paste. Make a hole in each end, blow the contents out, and when filled paste paper over the hole. One taste of the mustard effects a cure.—*Country Gentleman.*

CARE OF GOSLINGS.—On the first day after the goslings are hatched, they may be left out, if the weather be warm, care being taken not to let them be exposed to the unshaded heat of the sun, which might kill them. For food, grain is prepared with some barley or Indian meal, coarsely ground, bran, and raspings of bread, which are still better, if soaked and boiled in milk, or lettuce leaves and crusts of bread boiled in milk.—*Broune.*

SWELLED HEAD IN TURKEYS.—I notice in the *Co. Genl.* of Feb. 16, an enquiry as to a swelling over the eye of turkeys. My son, (age 15,) has been in the habit of curing it for several years, by opening it (when large enough to discharge) with a penknife and cleaning out the matter thoroughly. We have never lost any by this treatment. I do not know the cause of the disease. We have one now upon which we shall "operate" in a week or two.—*AARON HILL, in Country Gentleman.*

VERMIN RAPACITY.—The following extraordinary instance of the wholesale destruction of poultry by vermin is related by a British contemporary:—"On Thursday night Mr. Buckenham, miller, of Ashill, fed his poultry and secured them for the night by locking up the fowl-house; but on the Friday morning, on going to feed them, he missed a great number of chickens, although the door of the place was found locked, and to all appearance as he left it on the previous night. Mr. Buckenham, believing that some one had stolen the chickens, drove over to Watton and gave information to Inspector Watson, who returned with him to Ashill; and, after very carefully examining the place, and making certain enquiries, a hole was discovered between the ground plate and the floor of the building, large enough to admit his arms. He felt in this hole and pulled out one or two chickens. A pickaxe was then procured and the floor picked up, and in a large hole extending to some distance under the floor of the adjoining building he took out no less than 43 good-sized chickens, most of which were more or less gnawed upon the breasts and other parts. Some idea of the size of the chickens may be formed, when it is mentioned that when taken out of the hole they would more than fill a bushel, and were worth about one shilling each. It is supposed to have been the work of a polecat or other vermin of the kind."

PROFITS OF POULTRY.—"An Old Norfolk Farmer" writes to the *Mark Lane Express* on this subject, as follows:—"We are afraid that the good ladies of the homestead consider the poultry-yard rather beneath them as a source of profit, although many of them keep some choice specimens as fancy birds. If they, however, want a precedent as an example, we can adduce that of our beloved Queen, who has a splendid fowl-yard at Osborne, which she superintends herself, and takes great interest in it. The fowls, of course, are of the best breeds; and are tended with great care by her Majesty, as will be credited when we state that she has discovered a remedy for a disorder that attacked her turkeys, which she has made known to the public without obtaining a patent. The profits said to be gained are enough to make a farmer's mouth water. Twenty-one pounds for birds sold, less four pounds for fresh blood and [only] four more for keep, leaving a nice little balance for the good hen-wife of £13 for the half year, besides a plentiful supply of eggs and chickens for the house. This, too, was a small yard, and only one breed kept. It must be borne in mind, however, that fowls, as well as every other kind of live stock, will not pay with neglect, inattention, or parsimonious treatment. They require room according to their size and numbers. Cleanliness is also a condition of health to a fowl as well as to any other animal; and the better and more solid their food the more will they thrive. The fact is, fowl-keeping is like every department of husbandry—it must be well attended to, and a liberal economy practised towards them, or they will not pay. To feed them upon meal made from off-corn barley is a downright cheat, and potatoes are quite as bad. The best barley or maize is not too good for them; and they will pay if kept upon either, when with inferior food they will not pay. We are aware that, after all, it rests with the females of the farmer's family whether the system can be carried out or not, as the farmer himself has but little time to devote to it. Lord Byron's celebrated maxim holds good in this case as well as every other:—

"If she will—she will, you may depend on't;
And if she won't, she won't—and there's an end on't."

Miscellaneous.

Hints for the Proper Preservation of a Carriage.

BY THOMAS R. STAREY, CARRIAGE BUILDER, ETC., NOT TINGHAM.

A CARRIAGE should be kept in an airy, dry coach-house, with a moderate amount of light, otherwise the colours will be destroyed.

Whenever standing for days together, a carriage should always have on it a large linen cover, sufficiently strong to keep off the dust without excluding the light.

When a carriage is new or newly painted, it is better for it to stand a few weeks before being used. It will, however, even then stain or spot, unless care be taken to remove the mud before it dries on.

In washing a carriage, keep out of the sun, and have the lower end of the seats covered with leather. Use plenty of water, which apply (where practicable) with a hose or syringe, taking great care that the water is not driven into the body to the injury of the lining.

To remove spots or stains, a few drops of furniture polish, restorer or even linseed oil, on a dab made of woollen rags (using as little of the fluid as possible), will generally suffice.

Examine a carriage occasionally, and whenever a bolt or clip appears to be getting loose, tighten it up with a wrench, and always have little repairs done at once.

Keep a small bottle of black japan, and a brush, always handy, to paint the treads and steps when worn by the feet; nothing makes a carriage look more tidy than this.

As a general rule, a carriage with gentle work, retains its freshness better than if standing for long periods in a coach-house.

A good carriage kept as here recommended, will always be a credit to everyone concerned.

Go slowly to the entertainments of thy friends, but quickly to their misfortunes.

Twilight is but day getting black in the face from drinking night-shade.

"Idleness covers a man with rags," says the proverb. An Irish schoolmaster, thinking to improve on this, wrote a copy for one of his boys with the proverb thus altered. Idleness covers a man with nakedness.

CLEANING OIL-STONES.—A correspondent of the American Artisan says:—I send you a practical recipe for the cleaning of oil-stones and hones, which may be worth publishing in the Am. Artisan for the benefit of those who use edge-tools.

Poetry.

The True Aristocrats.

Who are the nobles of earth— The true aristocrats— Who need not bow their heads to lords, Nor doff to kings their hats?

Markets.

Toronto Markets.

"CANADA FARMER" Office, July 12, 1865.

Another week of fine weather has come and gone, and we are still pleased to observe that the excellent prospects of good crops have not to any great degree been dispelled.

Business on the street market has been almost at a stand still, and will remain so until after harvest and the new crop is brought in.

The following are the current prices of produce, &c., in this market.—

Flour—market dull with few transactions, fresh ground from Canada wheat, held at \$4 50 to \$5, extra do. at \$5 50 to \$6, superior extra at \$6.

Fall Wheat in fair demand and steady, at \$1 to \$1 05 on the street.

Spring Wheat—quiet; selling on street, at 95c to \$1 00.

Barley quiet and nominal, at 60c to 65c per bushel.

Pease steady, at 70c to 80c.

Oats dull at 42c to 45c.

Corn unchanged.

Provisions—inactive; Butter scarce at 17c to 18c per lb. for rolls; dairy, in tubs, 14c to 15c per lb.

Cheese—more plentiful, wholesale 11c to 12c per lb, retail 14c to 15c per lb.

Eggs—market steady, with small supply; fresh 15c per dozen wholesale.

Potatoes—Scarce, but of excellent quality, with fair demand, wholesale, 70c; retail, 80c.

Beef—in demand, but lower, primo cuts 8c to 10c per lb., stew and corn pieces 6c to 7c per lb.

Mutton—More plentiful and in good demand, at 7c to 10c per lb.; hind quarters 10c per lb.; fore quarters 8c per lb.

Liver Stock—dressed weight, 1st class \$5 to \$6 00; 2nd class \$4 to \$4 50, inferior, \$3 to \$3 60, calves more plentiful, \$5 to \$6 each, fair quantity in the market; sheep, \$3 60 to \$4 60 each per car load; do. yearlings, \$3 to \$3 50, lambs, \$2 to \$2 60.

Hay—unchanged, with small supply at from \$10 to \$13 per ton.

HAMILTON MARKETS, July 11.—Flour quiet and firm, with quotations unchanged from last report, No. 1 superfine at \$4 75, extra do. \$5 to \$5 25, double extra, \$5 75 to \$6.

LONDON MARKETS, July 11.—Fall Wheat, \$1 to \$1 05 Spring Wheat, 90c to 92c. Barley, 60c. Oats, 55c to 58c.

GALT MARKETS, July 11.—Wool, 41c to 42c. Flour, \$2 50 to \$3. Fall Wheat, \$1 03 to \$1 10 Spring Wheat, \$1 to \$1 10.

Goderich Markets, July 11.—Spring Wheat, 90c. Fall Wheat, \$1. Oats, 40c to 45c. Flour, \$5 to \$5 50.

Buffalo Markets, July 11.—Flour, steady, and in fair demand, red water Ohio at \$7 25, XX white at \$7 75.

HOUSTON MARKETS, July 10.—Flour—Market steady, with a fair demand, sales of western superfine at \$5 75 to \$6, common extra, \$6 50 to \$7 75, medium do. \$7 to \$8, good and choice do. \$9 to \$12 per bbl.

NEW YORK MARKETS, July 12.—Flour—Receipts, 8,272 barrels; market 5c better; sales 6,500 barrels at \$5 60 to \$6 00 for superfine State; \$6 65 to \$6 75 for extra State; \$6 80 to \$7 85 for choice do.; \$5 55 to \$6 00 for superfine Western; \$6 65 to \$6 85 for common to medium extra Western, Canadian flour 6c better and quiet; sales 200 bbls. at \$6 60 to \$6 75 for common, and \$6 80 to \$8 25 for good to choice extra.

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