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A Word or two in Season.

Thanks to a kind Providence, the labors of farmers have this season been blessed with reward. The crops in general have unusually abundant, and in no section of the Province that we have heard of, but more than an average amount of produce has been secured. This, coupled with a price that would fail to be remunerating, will tend to sustain and confirm a return to prosperity, which of late has been slowly dawning upon us: it is devoutly to be wished that nothing will be allowed to transpire from the folly of man, or even a momentary gloom over the bright prospects that are now happily beaming upon our country. Farmers are now busy in reaping their grain for market; and there is no doubt that remunerative prices will be realized. The latest accounts from the United States still complain of the continuance of unfavorable weather, which was also being experienced by a large section of northern Europe. The crops must have suffered seriously, especially in some instances it has been found necessary to kiln-dry wheat, before it can be used at all. A good demand therefore will be made for our dry and superior kinds of wheat, especially when compared with those of inferior value of British origin. To ensure a sample of flour of even ordinary quality.

The crop in some sections of the Province, on account of the dryness of the spring, was below an average, while in other districts it

was more abundant, and secured in prime condition. What, however, with the large growth of straw of all kinds, and a liberal yield of turnips, mangels, &c., farmers will be able by the exercise of an enlightened economy, to sustain their stock through the approaching winter without difficulty, and bring their animals out in spring in good condition. We are glad to find that root-culture is constantly extending, in most parts of the country. The turnip matches which have been in operation for the last few years in different places have unquestionably been the means of extending the culture of that important root; and we are glad to find that similar attention is now being directed to the Belgian Carrot; the results of two or three competitions, for the present year, we hope to publish in our next issue.

We beg just to remind our readers of the importance of paying the closest attention to the manner of storing their roots, either in places constructed for the purpose, or in pits or clumps in the field. The best way, perhaps, is to put them into small lumps as they are pulled, covering them slightly with earth, straw, or leaves; and after the expiration of two or three weeks collect them into larger and permanent heaps. By such means the roots will not be so likely to ferment, if judiciously covered. We shall probably go more into details relative to these matters in our next.

Fall ploughing should now be prosecuted with all possible dispatch. The breaking up and exposing as large a portion of the surface as

practicable, to the action of frost, snow, and air, is a most beneficial practice, and is largely followed, in several parts of the country. Heavy lands are more particularly benefitted by being thus exposed in winter, and are found far more easily managed in spring; thus securing a finer tilth and an earlier seed bed. The underdraining of such lands as require that most efficient means of amelioration and permanent improvement, can, from want of funds, and other causes, be only gradually carried out. But much may be done towards the attainment of this important object by furrow draining, either with the plough or spade, so as to relieve the surface from any considerable quantities of stagnant water.

On the Non-contagious Nature of Epizootic Diseases.

BY PROFESSOR DICK, EDINBURGH.

(Continued from page 488.)

As already stated, when the report of the new plague or cattle pest reached this country, more than a year ago, my attention was directed to the subject, and, from the various detailed accounts of it in the newspapers, I came to the conclusion that it was an epizootic arising from some general cause or causes acting on the digestive organs of the cattle in the countries where it prevailed, and that, unless these causes existed in this country, the disease would not make its appearance here. As this cattle-pest had committed great ravages in the east of Europe, and was supposed to be approaching this country, and to be highly infectious, it excited great alarm amongst owners of stock. The alarm rapidly extended, and a proposal was made—by, I believe, the Royal Agricultural Improvement Society of Ireland, which was afterwards followed up by the Royal Agricultural Society of England—to send a veterinary surgeon to the Continent to investigate the nature of the disease. The Directors of the Highland and Agricultural Society having been solicited to join in the project, I was requested to attend a meeting of the Board to give my opinion on the propriety of joining in the expense of sending Professor Simonds, who had been proposed by the English Society. I stated that I considered such a mission to be unnecessary, as we could get every information regarding the disease from the veterinary surgeons on the Continent—a highly-educated body of men who had given the subject profound attention, and a translated *precis* of whose works would, it appeared to me, be more serviceable than any such mission as was projected. I moreover stated that I apprehended Professor Simonds'

journey would prove to be a kind of wild-goose chase, and that he would probably have to travel far and wide before meeting with a case. The correctness of that opinion is shown by the report now published, Professor Simonds having had to travel nearly 1500 miles before seeing a single case. I had been led to form such an opinion from the accounts I had received of the disease, and particularly from the information obtained in a letter from the Vice-Consul at Memel, near to which the disease had approached. In that letter it is stated—

“I could not be in a place more fitted to obtain for you the information which you desire, seeing that this celebrated cattle disease is at present within forty miles of us; and, moreover, the day after my arrival here, I was called upon by the Earl of Clarendon to answer the same queries, and obtain the same information as the now desired by you, and which I am now, of course, perfectly prepared to answer, having obtained the facts from the best and most authentic source. The symptoms of the disease are: The animal, when attacked, becomes extremely lively for a short period; the appetite is lost; the body trembles; the gums become inflamed; the eye becomes very dull, and discharges matter; the hair becomes very rough and the glossy pile disappears. Towards the latter stages the animal suffers from severe diarrhoea, death ensues in from eight to twelve days. On dissection the food will be found in the third stomach, a powdery dry mass. The stomach of the healthy animal is rose-coloured but when attacked by the disease, it assumes a dark-red colour, and the veins become black. No cure is ever attempted for the disease in this district: but I am informed that, in various parts of Russia, the animal has been subjected to a process of *steam bathing* (that is, placed under the influence of steam), which has in several cases proved successful. The only method adopted in this vicinity to stop the progress of the disease is by immediately instituting a *military guard* round the farm or estate where it appears, and neither man nor beast is allowed to pass this guard until the last vestige of the disease has disappeared. The disease is undoubtedly contagious, and may be conveyed from one place to another by goats, or sheep, or even human beings. I have asked permission from Lord Clarendon to visit the district where the disease is at present raging, which, if granted, will enable me to give you more definite, although not more authentic, information. I shall be at all times happy to furnish you with any further particulars on the subject, if desired.”

The symptoms detailed in the foregoing letter are very condensed, but they embody all that is described by Professor Simonds. It specifies one prominent symptom, which has been in a great measure overlooked. In the letter it is stated that the animal, when attacked, “becomes extremely lively for a short period.” This is given as a general symptom: but, with the

ception of the second case which Mr. Simonds details, no mention of it is made. In that case he says, "the countenance, however, was more animated than is generally seen, even in the early stages of the malady." But if the symptom referred to be one which is "generally seen," its omission in his other cases and general summary is the more remarkable. On the contrary, he says, "the expression of the countenance does not denote much acute suffering." Among the first symptoms given in the first case, it is stated "there were tremors of most of the voluntary muscles." These "tremblings" affected the hind extremities most severely. The animal stood with back arched, and legs gathered under the body. *The head was extended, ears lopped, and coat staring.* She was remarkably dull, and greatly indisposed to move. On the second day she was dull and dispirited; and on the third day the conjunctiva uninjected, at the eyes somewhat intolerant of light; and on the fourth day her head drooped, and her eyes closed as in a state of drowsiness.

In the second case the animal stood with back arched, his legs gathered under his body. There was a little turgescence of the conjunctiva, but no intolerance of light. On the second day the eyes are heavy, and when he is down he appears sleepy. On the third day "the eyes are watering, and a thick jelly-like mass, of a pale aw-colour, has accumulated at the inner angle of the eyes, yet the vessels of the conjunctiva are not turgid with blood. On the fourth day a discharge from the eyes and nostril is augmented in quantity; on the fifth day, discharge from the eyes and nostrils the same." In the third case we have the trembling and spasms, the discharge from nose and eyes; and in the fourth case the discharge was also present, and there was excess of fluid in the ventricles of the brain and spinal sheath. In short, discharge of mucus or mucus from the eyes is generally present, as stated in the foregoing letter; but we do not find in Mr. Simonds' description any mention of the inflamed gums, or the redness of the appearance. The change in the appearance of the coat is to be expected; and all agree that there is first diarrhoea, and then anæmia, producing death in from eight to twelve days.

As Professor Simonds' general summary we take that the "loser durre," or hard impactment of the third stomach, though it may be often absent, is as often present. That such appears to have been the case in some of the few cases examined, I have no doubt. In No. 1 it is said there was no "loser durre." In No. 2, however, he says, "the contents of the omasum rather dry from retention, but no struch-change had taken place in the stomach." Would Professor Simonds tell us in many of the "twenty other diseases" in which hard impactment of the third stomach takes place, he has found a structural change in the stomach itself? In his third case he states

that there was some "rather dry ingesta" in the stomach; a similar state of things was met with in both the reticulum and omasum, but no true "loser durre." But he has forgotten to tell us what he means by true "loser durre." In the letter from Memel it is stated that "the food will be found in the stomach a powdery dry mass;" and Professor Simonds says, that "we have seen men of ability, who have been called upon to make *post mortem* examinations, hesitate to pronounce a decided opinion of the existence of the pest, when the third stomach has been found healthy." Professor Simonds says that hardness of the contents of the third stomach is not a speciality attaching to the affection; can he explain why the opinion so generally prevails? As two out of the eight cases he examined had such a dryness of the contents from retention as to require notice, the cause which led to that retention might have been investigated; and, after having travelled 1500 miles, it is to be regretted that he did not extend his journey a little farther, and make inquiry as to the cause of the frequent suspension of the functions of the third stomach. The cases he gives are in my opinion anomalous ones; and the absence of the impactment of the third stomach appears, in some of the cases, to have arisen from the spontaneous discharge of the contents by increased secretions from the stomach. It appears, from the imperfect information furnished, either that the experience of Professor Simonds has been limited, or that the disease presents a considerable variety of forms. But whether there is impactment of the third stomach or not, I think Professor Simonds will allow that, from whatever cause it has arisen, the disease is one in which the digestive organs are chiefly affected; and it becomes us, therefore, to inquire whence the irritation has arisen which acts with so much virulence on cattle. Professor Simonds says: "It is difficult to speak with certainty of the true nature of the Rinderpest; but it is evident that the morbid matter on which it depends, having entered the system through the medium of the organs of respiration, soon acts upon the blood, by converting some of the constituents of that fluid into its own elements, and that, while this process is going on, the animal gives no recognisable indications of being the subject of the malady. This period constitutes the incubative stage of the disease." But suppose that, instead of the cause, or causes, entering the system through the organs of respiration (of which there is no evidence), it or they were taken into the stomach—or if the usual articles of food necessary for exciting the healthy action of the digestive organs, were either not to be procured or were withheld—is there anything very mysterious in these organs becoming diseased, either in a chronic or acute form? Is it not most reasonable to suppose, that if the food of cattle is of an inferior quality, or deficient in quantity, that the organs of digestion should be the first parts of the body most likely

to suffer? Common sense and every day's experience prove the fact. Infection, and infection alone, seems to be the leading cause—nay, the exclusive principle—referred to by Professor Simonds, to the neglect of every other cause, in explaining the origin and propagation of the Rinderpest. Almost nothing is said as to the kind of food on which the cattle he saw were fed, or the kind of exposures to which they had been subjected, or the fatigue they had undergone—in short, nothing like a description of the local circumstances under which the Rinderpest seemed to originate. He seems to have relied too implicitly on the opinions of the people as to its cause. No doubt he admits that the disease is said to be of spontaneous origin in the steppes of Russia, from whence it is spread all over the east of Europe; but in which steppe, or whether in all the steppes, he does not state. In the *Encyclopædia Britannica* it is stated, that in the steppe called Baraba, or Barbinska, a peculiar disease prevails, called the Siberian plague. In this steppe some lakes are salt, and occasionally the surface of the ground is covered with saline efflorescence. This is a peculiarity which would account for the spontaneous origin of any disease with which the bowels of a herbivorous animal may be affected: the superabundance of saline matter “occurring occasionally” would, as a matter of course, so impregnate the food, or would be taken in such quantities as to cause an epizootic with all the symptoms and effects on the bowels described by Professor Simonds: and hence, not improbably, the spontaneous origin in the steppes—if such a condition exists in the other steppes; but this, it may be said, will not account for its spread over the other countries of Europe. There are, however, evidently many other causes, and among these especially, the kind, quality, and quantity of the food must be considered as exercising an important influence in producing the disease. It is said to have followed the tracks of armies, and naturally so, not less from the destruction of food than the exhausting marches of a destroying invader. Without adverting to its effects, Professor Simonds gives a fearful account of the destitution in Kamienica. He says: “In consequence of the occurrence of this case, and of No. 1 in the same quarantine station, the commissioners determined to slaughter the rest, consisting of five head of cattle, reserving only the animal in question for our special purposes. This resolve was taken on May 8th, and was somewhat hastened by the circumstance that *all the animals were in a very low condition, and of little value.*” “The greatest difficulty also existed in procuring sufficient food for the animals; and poor women, the wives of the proprietors, could be daily seen standing in the mountain streams for hours together up to their knees in water, with scarcely clothing sufficient to cover their persons, washing couch grass which had been picked from off the land in order to feed these cattle. The step was doubtless

rendered necessary by the circumstances; it was nevertheless most painful to witness the lamentations of the poor women on its being carried into execution.” What were the circumstances? I say the *want of proper food!* Remove the cause and the effects will cease. Had the authorities ordered and enforced the importation of proper food, and given it to the animals, I have no doubt the disease would have subsided. No attempts, however, are made to effect a cure: it is considered so highly contagious that it is thought that the only way to prevent the spread of the disease is to kill all the cattle that come in contact with a diseased one, and hence the number of victims are enormously increased: but it is evident that if the disease depends on the food, the destructive remedy, while it may prevent the spread of the disease by the great reduction of the number of its victims, is an absurd and erroneous policy: for, if the views have taken of the nature and causes of the disease be correct, it may both be prevented and cured.

I have already observed that one of the symptoms of the disease, as generally understood, is an impactment of the third stomach, the “*los durre*” of the Germans, as described by my correspondent at Memel, but of which Professor Simonds seems to have met with no well-defined case, and the causes may be accounted among the steppe cattle which are brought from Russia. My opinion is, that those cattle which have been fed upon saline pasturages, and brought to other countries, where that kind of food does not exist, suffer from the entire want of the condiment that they have been accustomed to, the change causing indigestion and deficient secretion in the third stomach, the chief feature of the disease. There is succeeded, in consequence, irritation of the various organs of digestion, with the inflammation and slight ulceration described. In the same manner, such indigestible matter as couch grass, other over ripe and woody herbage, cannot act upon the digestive organs of cattle upon them, either by their acrimony, producing diarrhoea and dysentery at once, as appears to have been the case with the cattle Professor Simonds saw; or, if they possess a less acrimonious property, by simply drying up the contents of the stomach; and this dry condition, after a short time, will begin to act as a stimulant, producing diarrhoea and dysentery, the ultimate effect being nearly the same. The impactment of the third stomach frequently takes the same course in other diseases, as in red fever, depending upon the particular kind of herbage and the plants mixed with it destroying their action on the kidneys and digestive organs, and in which a diarrhoea almost invariably prevails in the early stages of the disease, while the third stomach will be found, on dissection, to present the true “*loser durre.*” But other cases occur, in which the omasum is found affected, and where most of the sympt

ged in the Rinderpest are developed. In 1857 several reports reached me of cases of that kind; a gentleman in Dumfriesshire lost six oxen, which the stomachs were so affected. Several recovered, but as I only saw one of them which recovered, and soon got well, and as notes the *post mortem* examinations had not been made, I can only form an opinion in that case the state I found the one which was convalescent.

Mr. McCall, veterinary surgeon, when at Glasgow in July last, wrote to me an account of several cases of an analogous disease which tend to show the spontaneous nature of the Rinderpest. He says: "On the 9th I was called to a cow belonging to Mr. Weir, Meadowbank, Darnodonald, which had been ill for three days. The symptoms were a staring coat, back well, extremities cold, drawn under the body; pulse all but imperceptible; head and neck well and drawn back, and a little to the left; apparent paralysis of the optic nerves; *twitching of the muscles*, more especially of the hind; general trembling of the whole body; tongue hanging from the side of the mouth, but paralysed; throat and lips in constant motion; mouth full of foam. The animal stands in the same spot, occasionally moves the head, but is unconscious; bowels irregular, *feces* dark-coloured and voided in small quantities, smell offensive. On the following day the animal was found, unable to move; head drawn to the side, trembling and *twitching* of the hind legs; unconscious; *feces* fluid, dark-coloured and slightly offensive in smell; died that day."

Post mortem examination showed the contents of the stomach pulpy. In the two first, the ingesta, but the other too full; in the third, here and there red congested patches, and ulceration. Gall bladder distended; viscera healthy. On the 15th July, at the same place, a second cow was attacked; respiratory; *wild look*; *staggering gait*; secretions of milk gone; *feces* fluid, and dark colored; did not ruminate; pain on pressure on the abdomen; pulse sixty, and weak; died on the 16th.

Post mortem appearances the same as in the first, but contents of the omasum hard. The case at the same place recovered from treatment adopted.

The fourth case occurred at Ardurmain, near Glasgow. Cow milked at 7 A.M., but gave no milk and appeared giddy and moaning a little, was sent to the field with the others. At 10 o'clock was observed to be pushing with her quarters against the hedge, bellowing and kicking at the mouth. She was taken with difficulty to a straw shed; saw her within half an hour; her hind-quarters were pressed back against the corner of the shed; back arched; head drawn up, and thrown back towards the back; shivering and trembling; *twitching of the muscles of the face and anterior extremities*; coat staring; apparent paralysis of the optic nerves; bellowing, and foaming at the mouth; died in half-an-hour. *Post mor-*

tem: lungs slightly congested; stomach, with the exception of the third, healthy. But between the layers of the many plies the contents were hard and dry, and so firmly glued to the coats, that most of the mucous membrane came off attached to the caked food, and the rest left the impression of the papillary surface on the dried matter. Brain healthy, and not presenting the slightest trace of inflammation.

"Other two cases occurred next morning early, with the same symptoms, but much mitigated, and they recovered under treatment in a few days. Another case occurred at a farm belonging to Mr. Howie, Kilwinning. Cow had been off her feeding for two days; had little passage in her bowels, and was bled; pulse forty-five, regular, but languid; grunting; extremities cold; coat staring; abdomen rather tympanitic, and pain with pressure; bowels constipated; was sent for six hours afterwards; found her bellowing, foaming at the mouth, blind, trembling, *twitching* of the facial muscles, and indeed all the muscles of the body, but more especially those of the fore extremities; head drawn back; hind-quarters pressed hard against the corner of the barn, into which she had been put. The whole body at times was in violent motion. She died in about an hour afterwards, and the *post mortem* appearance was found the same as those already described."

In what has been called Fardel-bound, the symptoms of the affection of the head seldom occur, but diarrhoea always ensues. Such cases as those related occur in many parts of the country during autumn, and appeared to arise from the dryness of the season, causing a want of water and a withered woody condition of the herbage—a condition which very probably existed where the Rinderpest prevailed, but of which, whether or not it did exist, we have no proper account. This condition of the herbage during last summer gave rise in many situations to what is commonly called stomach staggers in farm-horses. Now, if we look back to the description of the cases as given in Professor Simond's paper, and in the letter I have quoted, it will be seen that the most prominent symptoms are trembling of the body and *twitching* of the muscles. These are also prominent symptoms in Mr. McCall's cases. The animals stood with back arched and legs under the body; the head extended, the coat staring; remarkable dullness, and indisposition to move. All these symptoms are also found in Mr. McCall's cases. The eyes are somewhat intolerant of light, and afterwards were closed, and the animals were in a state of drowsiness. In the cases at Irvine the eyes became insensible to light; both cases, therefore, showing an affection of the brain, which was also manifested by the animals countenance "being more animated than is generally seen." In those cases related by Mr. McCall the excitement of the brain is only a more prominent symptom, but which, by the

report from Memel, is always present. Hence we have all the symptoms of Rinderpest shown, except diarrhœa and dysentery, in those cases of Mr. McCall's. The bowels, however, were in a loose state; and although diarrhœa did not occur, it was apparently only in consequence of the animals having been cut off by the greater violence and rapidity of the disease. But diarrhœa and dysentery are nothing uncommon in this country, and are well known to arise from matters taken into the stomach. Hence these diseases, one of which is generally a consequence of the other, must have been produced by the food on which the animals are fed, perhaps combined with other causes, such as fatigue and want of water, or water of bad quality. These affections of the stomach and bowels at once explain all the other symptoms and conditions. The kind of discharge from the eyes and nostrils, the state of the blood, the flakes of lymph found in the air-passages and elsewhere, and the ulcerations, extending through the digestive organs, are only the natural consequences of the depletion and consequent weakness invariably produced by diarrhœa and dysentery.

From what I have advanced, as well as from the facts of the disease related by Mr. McCall, and which occur every dry season in this country, I think must appear that the Rinderpest and the disease I have noticed correspond; and as nothing like contagion has produced it in this country, neither can we be satisfied that it is so produced on the Continent, and I believe that it will ultimately be found to arise from causes similar to those prevailing here, and that we have a much safer guarantee against its being brought to this country than either the wholesale slaughter of the cattle, or the cordons drawn round the localities where the disease may have appeared. Instead of merely looking to the means of preventing contagion, we should endeavor to prevent the spread of those general diseases (which I contend are all epizootic) by investigating their causes, and adopting proper means for their prevention or cure. In many of these cases the simple allowance of a portion of common salt in the food, and sufficient water to assist digestion, will be all that is required, and ought to be generally adopted at the season of the year when disease is most apt to occur. Such a plan I recommended in the case of the cattle in Dumfriesshire, already mentioned, and I am informed, with perfect success.

It is a convenient and comparatively easy mode of accounting for almost any general disease by imputing it to contagion; but the measures taken, in consequence, may be very serious. In this country we have not, as yet, gone the length of destroying animals even suspected of taint, but very inconvenient restrictions were placed on various articles of produce, and, at one time, the farmer was threatenen with an advance on the price of his bonedust in return for an imaginary protection against disease. About a

year ago there prevailed in Ohio a most destructive disease among swine, exhibiting many of the symptoms of Rinderpest; and because a corresponding disease broke out in some places in Scotland, as well might I, on contagion principles, attribute its introduction to the importation of hams made in Ohio, as suppose that Rinderpest could be propagated by importing the hides, horns, and bones of cattle that had died of it in Germany. Let it not be supposed that this address is dictated by any desire to criticise Professor Simonds' Report. Though referring on the subject of contagion, I entertain high respect for that gentleman; but I deem my duty not only to direct attention to what, in my opinion, are the real causes of disease, but to allay, so far as in my power, an alarm, founded in itself, and inconvenient, commercial and otherwise, in its results.

Experiments on the Growth of Different Kinds of Flax, &c.

BY JAMES BUCKMAN, F.G.S., F.S.A., ETC.

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Everything connected with the natural history of the Flax-plant is so generally interesting, both in an agricultural and economic point of view, and more especially in the commercial relations of this plant to the sister isle, that I take this opportunity of laying before our readers a detail of some experiments upon the growth of Flax, now in progress in our experimental garden at the Royal Agricultural College. We have this season four plots of each of two and a half yards square, which are described as follows:—

Plot A. *Linum usitatissimum*, clean seed

“ B. *Linum usitatissimum*, dirty seed purposely sown with *Dodder cuta epilinum*.)

“ C. *Linum perenne*, sown in 1855.

“ D. *Linum perenne*, sown 1858.

A. At the time of our writing, this is in full perfection, and nearly, if not ripe; it is thirty-four inches in height between the rows, and apparently of very fine quality. It is remarkably free from weeds, which may be accounted for from the circumstance of the cleanest possible seed having been used taken altogether, it is the best possible specimen of the value of clean seed.

B. This plot is at some distance from the main garden, and in a very foul state, and besides there was mixed with, purposely, a small quantity of the *Cuscuta epilinum*, the Dodder previously sown in our columns. In this case it is but about a quarter of a crop, and is that is so borne down by the Dodder as

se to be next to useless, and besides, the best of the doddered Flax-plants is only found measure twenty-four inches. As the plot then, speaks so favorably of the clean flax, so the plot B offers equally important evidence of the folly of sowing dirty seeds; and, besides, it shows how Dodder really is induced from seed like any other plant, seeing, that by sowing its seed, we can produce it at pleasure, and that it has been introduced with crop-seed few botanists will doubt; for though it is found in most dirty Flax patches, it is not found elsewhere, and it is so little indigenous that though a Flax crop will sometimes scatter thousands of seeds of Dodder, yet the succeeding crop is not affected by it, nor do we think that if clean Flax-seed again took its place in the rotation, we ought to expect it to be doddered, as our experiments show that flax when sown germinates as readily upon the absence of heat and moisture as any other seed, not having its foster parent near it dies within two or three days after germination.

The *Linum perenne* (perennial flax) has never been an object of our earnest attention, as we have been anxious, if possible to procure a perennial plant. In this we have fully succeeded, though the present example, from the soil in which it has occupied the plot, and the immense quantity of ripened plant and seed we have taken from it, now show evident signs of decay: for it should be remembered that we have yearly taken a crop and restored nothing in the shape of manure, and hence its permanency is really a matter of surprise.

This, which was sown in 1858 from seed raised from plot C, is in a most vigorous state of growth, measuring forty-one inches in height, and stooling out so plentifully that we counted as many as 147 stems to a single root. We, then, we conclude, that so far we have secured a freely growing perennial flax plant. It, however, is very small and comparatively useless. What its fibre may be we have had no means of determining, but what its relative value in this respect when compared with the usual crop or annual flax, we are quite sure that much may be done to ascertain its characters in any direction in which it may be desired; and, as the changes which we have already affected in the appearance of perennial flax in only two generations is so great, it quite leads us to the hope that still more important ones may yet reward further experiments. The nature of these changes have been reported to members of the British Association for the advancement of Science, from which we extract the following:—

In 1854, I sowed one of my plots with seed of *L. angustifolium* gathered at Hele, in Cornwall. It came up very well, and in 1855 we have been seen its plants in rows with stems a few inches long trailing along the ground, some with light, others with dark-blue flowers, somewhat small when compared

with the *L. usitatissimum* or *L. perenne*. In this state it presented little to recommend it as a cultivated plant. In the past year it had advanced to a strong and vigorous upright plant, somewhat more than two feet in height, with handsome dark-blue flowers, indeed rivaling the *L. usitatissimum* in size and beauty. As regards its fibre, I have as yet had no opportunity to make experiments; but if in this respect it should equal the annual flax, I cannot help thinking that we shall have in the *Linum perenne* a plant of great economic value.

“As regards the specific distinction of the *L. angustifolium* or *L. perenne*, I must after these experiments express great doubts; nay, I am almost inclined to think that *L. usitatissimum* is but an annual form of *L. perenne*, so that this year I shall collect the seeds of my perennial patch with a view of commencing an annual cultivation. At all events, should I fail in proving this point, we may fairly expect other changes of great interest, seeing that so much has already been done in bringing a little straggling linseed from its wild habitat, and cultivating in a different soil and climate, not by imitating its wild conditions, but by making for it a new soil, and planting in rows, so that one row has the effect of inducing the upright growth of its neighbor—a fact readily seen in examining the growth of my plant as it shoots first start in a trailing method—a circumstance which shows that, in order to test the capabilities of some plants for a crop, we can only do so, not by growing single specimen examples, but by planting a quantity side by side.

“As subjects for experiment, it fortunately happens that the linseeds are readily affected by cultivative processes, so that we possess in them subjects capable of affording much information as the result of carefully conducted experiments, which leads me to remark that, as there are some tribes of plants which we cannot so easily act upon, permanency of our appointed species must not be concluded from the failure of our limited experiments, though, on the other hand, species must give way in those cases where, as the result of properly conducted experiment, the seed of one plant can be made to produce what has been considered as a distinctly specific form.

Watch Manufacture.

Our fame as a clock-making nation is world-wide, for where can we travel—in Africa, Australia, India, or China—that a Yankee clock is not to be found, reminding the inhabitants of “the land of steady habits.” With regard to the manufacture of watches, we have also begun to do something creditable; still it is well known that the works of nearly all the watches sold in the United States are imported from abroad. The manufacture of cases for them is carried on extensively in a few places, but they are only lids to foreign mechanism, while a

great number of watches are imported entire. We are informed, upon reliable authority, that five times more watches are sold annually in North America, than in any other portion of the globe containing the same number of inhabitants. We ought therefore to be a punctual people, since we are so careful in our observations of "fleeing time." In 1857—before the "panic"—we imported watches and their works to the value of \$3,281,000; in 1858, the importation was valued a \$2,207,000, but since that period this business has been very dull.

A very useful little book on this subject has lately been produced by H. F. Piaget, of this city, a practical watch maker of 19 years' experience. He commenced his efforts at fabricating watchwork in Switzerland, when he was only seven years old; he also made watches in London for several years and has followed the same craft for a considerable time in America, so that he can speak authoritatively on the subject. The whole operations of a watch are dependent upon the retractile elastic force of a coiled steel spring—that is its moving power. The operation of moving the hands on the dial regularly, to measure time are due to devices which control the coiled spring so as to permit it to "run down," with regularity. A train of small wheels, gearing into one another, receives motion from one wheel on the spindle of the main spring; and this gives the requisite number of revolutions to the time hands on the dial. A watch is a very simple machine, so far as it relates to the *principles* of its operation; but the construction of its parts and their arrangement call forth the highest exercise of mechanical skill.

The above-named author says that the English were really the first successful manufacturers of watches, and that "all the escapements applied to good ones, whether at home or abroad, were invented by them." The best of these are jeweled with rubies, the art of boring which (for pivot holes) was discovered by M. Fazio, of Geneva, in 1790. He could not get his invention adopted in Paris, however; so he then went to London where he was well received. Rubies are the hardest stones which can be drilled, and are therefore the best for pivots; but garnets and various other crystals are used for the more common sort of watches; the English and American ones have generally a diamond jewel set over the upper part of the balance.

The Swiss are the largest manufacturers of watches in the world, and all the cheap showy varieties which are seen in jewelers' windows are principally of their manufacture. From recent statistics which we have examined, the making of watches gives employment to 36,000 workmen in the Alpine Republic. England and Switzerland are the only countries which export their time-keepers to any great extent; those which come from the former are the most accurate in their movements; those from the latter are the neatest and cheapest, yet some of the

Swiss watches have also a very high reputation as being accurate time-keepers. One of the very best and finely finished that ever M. Piaget saw had been made at Geneva, and was sent to California. The plates and bars for the wheels were of nickel, the wheels were of gold, it had a compensation balance, an isochronal hair spring, and anchor escapement.

The opinion of an experienced and skilled artisan, as to the character of our American-made watches, is of great value. We are told by M. Piaget that "the American watch recommends itself for simplicity of construction, and it will be continually *improving* if the manufacture remains in the hands of persons who will make it of good quality without regard to the price." This is timely and appropriate advice: it is an injunction to strive for excellence rather than cheapness in such articles. The advice is particularly good, at this time, because very great efforts have of late years been made to produce cheap rather than good watches. When we consider that this country affords such an extensive market for foreign watches, it certainly opens a large field for those of domestic manufacture; they can be produced of equal quality at the same prices. This is a question for our people to solve. They have the natural mechanical genius to invent, and with patience and application they will finally succeed in this and in many other important branches of manufacture.—*Scientific American*.

Correspondence.

Pleuro-Pneumonia.

EDITOR AGRICULTURIST,—The earnest and unremitting efforts which you are putting forth to inform your readers on this subject are extremely praiseworthy. To prevent, suppress, or counteract a disease which has made such fearful ravages in our herds wherever it has made its appearance, is an end much to be desired, and the individual, who by his undivided energies accomplishes that end, is as great a benefactor to his country as if he had caused the blades of grass to grow where only one had grown before."

I can scarcely imagine what kind of an idea those people can have of diseases that are "catching," as they term them. I suppose is some peculiar kind of *mythologica* animal which take their position in some portion of an animal organism and there continue to feast. A new object presents itself, or the life of an animal which they have attacked is extinguished. After giving the matter a pretty thorough investigation, I am inclined to arrive at a similar conclusion to the boy who was asked "what was the earth's axis?" to which he replied, "it is an imaginary line running through the heads of old philosophers;" and possibly imaginary animals are running through the heads of those who entertain such vague notions.

In a previous article I intimated, that where animals were subjected to the beneficial influences of Hygeian, in its various departments, they were not liable to be attacked with the disease; and the various articles on the subject which have appeared since, most of which convey the idea that it is contagious, have not changed the opinion which I then expressed. In the transmission of disease by contact two things are to be considered; first, the condition of the animal which transmits, and secondly, that of the animal which contracts the disease. If the effete matter, which is cast off from the system of a diseased animal by the depurating organs, is extremely poisonous, and the vitality of an animal, which exhibits no symptoms of disease, is impaired by impure blood, the latter would be likely to contract disease by contact with the former: but if the blood of the latter was in a healthy condition, containing no impurities, excepting what naturally results from the wear and tear of the system, it would not be likely to become diseased by contact with the former. Thus, *in proportion as the blood of an animal is vitiated will it transmit disease, and vice versa, in proportion as the blood of an animal is vitiated will it contract disease.*

The reason why Pneumonia appears like congestion in cattle, while it does not in horses and humans, is, that in the former more putrid or poisonous matter accumulates than in the latter. Their other habits being good, horses and labouring men digest their food better, and the exercise which they take makes respiration more thorough, and they exhale a greater amount of carbonic acid gas, their circulation is better, and their skin and other depurating organs expel more effete matter. This being taken away, their undigested food is properly assimilated; and, consequently, they are kept in a healthy condition. The necessary exposure to which they are subjected by times, not unfrequently, produces pneumonia: but as soon as the circulation becomes purified, there being little foreign matter in the system, the disease disappears, and there is no contagion to alarm the people.

Animals thus treated acquire large, well developed muscles, or a large amount of lean flesh and little fat. They have a slow and regular, strong pulse; and the young produced by animals thus treated, are valuable for the large amount of vitality or life principle which they possess. If animals were thus treated from generation to generation, pneumonia, as well as other diseases, would soon become extinct, and elasticity and gracefulness of motion would lend their aid to a natural beauty, which no sculptor's chisel could surpass.

On the other hand, cattle that are fed a superabundance of carbonaceous or fat producing food, with little exercise, and consequently a small proportion of oxygen, presents the following picture: they do not take sufficient exercise; consequently their circulation is poor. In want of a vigorous circulation the effete

matter, which results from the wear and tear of the system, is not carried off. This being left undone, proper assimilation is impossible, and the circulating system becomes full; the animal has a poor appetite and does not eat. Then, apparently to make the matter worse, it is given a dose of Thorley's, or other condition powders, which stimulate the digestive organs, creating an unnatural desire for food, while at the same time it diminishes the action of the depurating organs. Now the animal eats, looks plump, and is supposed to be well. Go back to where the animal has a poor appetite, and the following portion of the above scene is played over an indefinite number of times, with the conditions mentioned previous to that being nearly the same.—Now the system is full; nature will suffer such things no longer; natural function ceases; and the vital or life forces are set to work to expel this offensive and putrifying matter from the system. The circulation becomes rapid; breathing is short and quick; pure air, that great necessity is withheld, and the animal is forced to breathe the same viscid atmosphere over and over again. The internal organs become congested, with cough husky, eyes dull, extremities cold, hide bound, nose (with a view to furnish the lungs with oxygen) protruded, and the animal dies—by interposition of Providence—I suppose. Or it may have been killed by order, for there are certain bipeds clothed with authority; but of course none have been killed but those that have been knocked on the head.

Then follows the post mortem examination. The animal is opened; and what are the grand discoveries that are made? Did I say before the death of the animal that the internal organs were congested? How is a person expected to know that? Or that the *heart* has become enlarged by pumping such a current of filth through and through the system; or that the *lungs* had become *tubercalised*; or that there was *gangrene in various parts* of the system; and that there would be, almost immediately, a *general effusion* from all the *internal viscera*. Notwithstanding, it is found to be the case when the examination takes place. The above is no exaggeration of what has happened in more instances than one, in the year of grace 1860.

When animals that are hygeianically treated are attacked with pneumonia it is the result of a disturbed circulation; but when treated as previously described, it is the result of putrid filth, that has been suffered to accumulate in their life domain. Cattle in the same herds, and not unfrequently in the same neighborhood, are generally treated alike. And when one becomes attacked, what reason have we to expect that all will not be? If any do escape, it is because of their superiority of constitution; or, probably, some accidental hygeianic advantage with which they may have been favoured.

But let us examine the results, supposing that this unphysiological treatment is not carried to

a sufficient extent to produce pneumonia, or any other malignant disease. Under such treatment the blood becomes impure: the muscles become soft and pulpy: the lean flesh is wasted away; and its place is supplied by fatty matter. The young produced by animals subjected to such treatment possess a fund of vitality far inferior to the preceding generation. And this treatment continued for a few generations would destroy every valuable quality which animals should possess: and, ere long, young animals would not possess sufficient vitality to arrive at maturity. Indeed, can we make ourselves certain that, already, this disease may not be traced back to hereditary transmission? There is every reason to believe that it can be.

Some writers have intimated that government should take hold of the matter, and appropriate money to pay for cattle, which they think should be slaughtered, as soon as attacked, as well as to pay commissioners for making post-mortem and other examinations; and cite us as examples the actions of the government of the State of Massachusetts for the current year, as well as that of the British Government of a century ago.

Now, I would not protest against such a course without due consideration; but if we are to believe the reports which have appeared from time to time, stating the enormous losses that have been sustained since those appropriations have been made; I think you will agree with me, when I say, that the remedy is quite as bad as the disease.

When a case becomes desperate, prompt action is necessary; but, unless we act in the right direction, we may as well not act at all. We may as well remain a certain distance on one side of a mark and not act, as to go as far on the other side and do a good deal. In order that our actions should be in the highest degree beneficial, *we must come down on the scratch*, and then, work with a will. If legislative action become necessary, let sanitary laws be passed, based upon truly hygienic and physiological principles, and then see that those laws are not violated; thus, by sustaining those laws, improve the health of our domestic animals, and through them the health of the people who partake of them as food.

To prevent or suppress this malignant disease, devolves itself upon every stock-raiser throughout the land, not only as a duty to himself, but to the community in which he lives. Then let every individual who has the care of stock, see that his stables are properly ventilated; that all miasmatic producing substances are removed to a proper distance from his cattle; that their food is of a purely healthy nature, and that it is given in proportion to the exercise which they take; that their water is what it should be; and that their daily exercise is not neglected. When these, and all of these things are strictly attended to, legislative action will be uncalled for.

Yonmans, in his class book of chemistry,

says that, "fat constitutes one-twentieth of the weight of a healthy animal." Then let stock-raisers beware how they clog their animals with fat; but let them increase their weight by development of bone and muscle. This, in the present order of things, may be contrary to the demands of our pockets, notwithstanding it is a preventive against pneumonia, as well as other diseases. I will hazard an opinion that Jonas Webb's herd of short horns will not be attacked with pneumonia, for it is evident from the story of his celebrated cow "Dodona" that he knows how to manage his stock, while the majority of stock-raisers appear to know how to mismanage theirs.

To suppose that an infinitely wise Creator would produce a piece of mechanism so wonderful in all its proportions (for examine the ear, the heart, the lungs, or any individual organ and we find it beautifully adapted to its function) as an animal, without, at the same time, instituting laws to govern it, would be to the grossest profanity. When animals were created, laws were instituted to govern them, and those laws cannot be violated without penalty: and just in proportion as the laws are violated will sickness or death result.

Yours, &c., ISAAH B. PLEASANT HILL, Port Hope, C. W.
Oct. 8th, 1860.

The Provincial Exhibition. Judges and Exhibitors thereat.

EDITORS AGRICULTURIST,—It is with reluctance that I impose upon myself the pleasant task I have now assumed. In spite, however, of that reluctance, and of my reluctance at being a fault finder, when individuals have endeavoured to do their best for the benefit of the country, I cannot refrain from offering some remarks and suggestions, when I am daily reminded of the numberless complaints of exhibitors at the late Provincial Exhibition, at the unjust decisions and awards of the unlearned and incompetent judges.

I believe it is fully and freely admitted on all sides, that there never was an exhibition of the industry of the country where such large mistakes were made in the awards as at the Provincial Fair, held at Hamilton, and that the question is, *how is the evil to be avoided in the future?*

I well know the difficulties which the Board of Agriculture has to contend with in the selection of competent judges in the various classes of exhibitors: and I am equally aware of the various modes that have been tried to surmount those difficulties. The great trouble is, that in many of the classes, *the exhibit* is not what it should be, and the very men that are needed for judges in those classes, are shut out, by the cause, from the services of the most competent men to be found as such. Hence the Board experiences in the selection:

ph to make. This, there is no help for, and I could here suggest the procuring of judges, for one of the most important classes, from our basins across the lines: but I am well aware that has been tried with ill success.

However, I do not quite despair of some improvement being effected on the present system by choosing the judges, provided more pains be taken by the officers of the several county societies, when applied to for judges, in making themselves more fully acquainted with the actual requirements and faculties of the individuals intended sending down to the different classes which they are solicited to act. It strikes me we cannot have been the requisite and indispensable attention necessary, paid to this matter. The Board should also be better versed in the propriateness of its application to different classes for such and such judges. For instance, should not commit the error of sending into the west the backwoods for judges of Durham &c. or other improved breeds, as the great liability is, that there are not perhaps three in the whole county or township with the practical experience requisite to become a judge in such important classes.* Nay, the probability is, that many not have bred or owned an animal in their whole lives of the breed they are required to adjudicate upon!

Again, with regard to implements, a judge should be not only a practical farmer, but a practical mechanic, to enable him to discharge his duty well and efficiently in such a class.

The same remark may also be applied to the selection of grain—for instance, it does not follow that a farmer, who has not been in the habit of sowing barley should be a competent judge of article at a Provincial Show. Nor should a farmer, who has been accustomed for years to grow but one or two kinds of wheat, consider himself (with perhaps very limited experience of the growth of that grain as well,) quite competent to decide upon so important a class as the Canada Company's, and the Society's prizes in article. Indeed, such men should have the sense and resolution enough to decline the honor, where, in some cases, they must be bound by conviction of their own incompetency to discharge so onerous and responsible a duty. But in many instances the desire for a *ship*, with some men, is so powerful and compelling, that any considerations of self-interest is ignored altogether.

I could of course carry these observations to a greater length, but it is not necessary: alluded to the evil, and having suggested a remedy that occurs to me at the present time, I hope that some one else may be able to throw more light thereon.

I have little doubt, Messrs. Editors, that you will quite think with me, that there cannot be much importance attached to the selection of competent judges! Indeed, it may be

considered the mainstay of our agricultural societies—for who, let me ask, after a succession of disappointments and wrongs will continue to have resolution sufficient to impose upon himself the trouble, expense, anxiety, and, in some cases, severe loss which exhibitors are doomed to suffer.

There is one other circumstance which I shall think it necessary to allude to before I close my observations, connected with the duties of the judges in the several classes in which they are engaged. It is the permitting, and in some instances, almost courting the presence and interference of parties who are, themselves, exhibitors in such classes. Nay, to such an extent is this carried, that I have myself witnessed exhibitors accompanying the judges in the classes in which they are more immediately interested (particularly in stock) through the whole of their examinations. Can this practice, I would ask, be sufficiently deprecated?

The evil, I am sorry to observe, has not pertained to the Hamilton Show alone. I have witnessed it at other Provincial Shows, but it certainly ought not to be tolerated. We permit nothing of the kind in our county and township shows, and let us hope it will be effectually guarded against in future by the proper authorities at our Provincial Shows.

Hoping, Messrs. Editors, that the few remarks proffered, may be received with the same kindly feeling they are given, and prove productive of some good, I beg to subscribe myself,

A WELLWISHER TO THE PROVINCIAL SOCIETY.
County Wellington, Oct. 10th, 1860.

Communications from Practical Farmers Valuable—Grape Culture.

EDITORS OF THE AGRICULTURIST.—Now that the long evenings have arrived, I trust that many of your readers may be induced to use their pens, and communicate, through the columns of the *Agriculturist*, their experience and observations of another year. For the past two years I have been a subscriber to the *Albany Country Gentleman*, and no department of that paper was so much relished by the writer as that portion containing the "Correspondence." Nor do I believe that in any other way the same amount of valuable information could be brought together: for the simple reason that these facts and observations come from practical farmers, not theorists.

Believing that example is better than precept in this, as in every thing else, I shall, from time to time, (with your permission) address you. Not that I am so vain as to believe that I can enlighten the dullest of your readers, but that by enquiries and observations on what appears in your columns, I may induce others to communicate fragments of their hidden stores of knowledge.

*A list of pure bred stock were asked for, except from those where such stock were known to be bred and raised.

I have read with avidity the correspondence relative to the introduction of grape culture into Canada. I may here mention that I visited a neighbor in August last, who had a vine (*catauba* I think) growing in the open air, which had several bunches of beautiful grapes upon it—this being the second year of planting. Feeling inclined to try a vine or two by way of experiment, I should deem it a favor if some of your correspondents would answer the following questions:—

One end of my house (30 feet wide) faces the south-west,—how would this exposure do for vines? and how many should I plant on a trellis that length, 30 feet? The soil is a reddish clay—pretty stiff,—but the subsoil being coarse gravel, it is naturally very dry. What would be the best preparation for the border?—best time for setting the plants, &c? and last, though not least, what is the hardiest grape, or grapes, fit room for more than one?

I am thus particular in my enquiries, as I am inclined to think that the culture of the grape in this country, must, for some years, be confined to experiments on a small scale,—and upon these experiments will greatly depend the solution of the question “whether Canada can become a wine producing country or not.”

Experimentalists should therefore take every precaution to secure success, if that be possible—as the results will be a matter of no small moment to Canada's future wealth and happiness.

H.

Peterboro, October 12, 1860.

Agricultural Intelligence.

American bred Bull Exported to Ireland.

We learn from a statement in the last number of the *Country Gentleman*, that F. W. Welsh, Esq., of Limerick, who has been travelling on this continent, and who is said to be himself a breeder of Shorthorns, selected from the celebrated herd of Mr. Thorne, one of Lalla Rookh's calves, by Grand Duke, six months old, for the sum of *one thousand dollars!* This is said to be the first instance of a Shorthorn, or any other pure variety bred in America, being carried back to Great Britain. It is a fact highly creditable to Mr. Thorne, and shows to what great perfection this noble breed can be brought on the western side of the Atlantic.

We also learn that Mr. Thorne has recently imported a splendid South Down Shearling Ram, that obtained the first premium of the Royal Agricultural Society of England, from the world renowned flock of Mr. W. Rigden, of Sussex.

THE POTATO CROP IN SCOTLAND.—We the potato crop in England and Ireland this year is more or less seriously damaged by blight, it in Scotland is particularly good. It is said that Mr. Wallace, of Berwick Mains, in East Lothian has made £4197 10s. by the sale of seven or three Scotch acres of them. A very nice sum of money from that quantity of land.

MIGRATION OF SEED.—In general, a change of seed from a colder to a warmer climate is not too wide in latitude. It is to be preferred to change from a warmer to a colder. In case of seed-wheat obtained from Essex or Kent to the Carse of Gowrie, mildew has appeared there since sowing, but not when re-sown. Was this the result of the spores of the blight being attached to the seed, or to delicacy from being grown in a warmer climate? In the case of the half-field being sown with English seed from the other half with Scots home seed the same day, the growth of the English was to some extent blighted, and that of the Scots free from blight, both being white wheat very similar variety, but when the produce of the English was re-sown no blight followed. I need not mention that a change of seed potatoes from Scotland to the south of England is highly advantageous, it is much more so to Spain, where the first and second plantings give good quality; but if replanted a few years more, the quality deteriorates, and the produce acquires the rank agreeable flavor and watery cucumber tendency of the common Spanish. The re-impotation of seed potatoes into France, Italy, and even Germany, would be highly beneficial to these countries, and form a profitable export to Scotland. Change from high altitude, as from the higher Alps and Pyrenees to these countries, might be advantageous, the effect of high altitude is to dwarf the plants to some extent, and might not be so efficient in giving a higher tone of health and luxuriance, change from a higher latitude, where the summer during its growth is strengthened by greater length of day and continuance of sun's rays—the great developer of superior *Mark Lane Express*.

“FEEDING OFF” BEEVES AT THE WEST.—A writer in the *N. Y. Daily World*, gives the following description of the process of feeding corn into beef and pork with the least possible amount of labor:—

“It is a grand sight to go into one of the great corn farms at the west, and see the proprietor manages with a herd of first class cobs which he is preparing for market. One of them—steers and spayed heifers—of one or three hundred, is brought in from the riant blue grass pastures, where they have grazed all the past autumn and summer; they are thrifty looking at a distance, in their be-

colors of red, white, spotted and roan, as they stand scattered or grouped on a rising plateau, like a vast bed of Tulips. Two large inclosed fields are appropriated to their use—one in which they lie and rest, the other in which they are fed. In the latter they have passed the night, and it is now morning. Soon after breakfast, which is an early one, one or more yoke of oxen are hitched into a large, long-reach wagon, two or three of them sometimes, if many cattle are fed, and with two men to each wagon, they go out into the corn-field, not far away, where the corn has been cut up near the roots and stacked," in the previous October or November. The corn, with stalks and blades upon it as it grew, is thrown into the wagon in an immense load, and driven into the feeding lot, where the man on the load commences throwing it off, as the driver passes slowly along, and distributes it thinly over the ground for a long distance, in circles or in rows throughout the enclosure. When a sufficient quantity is distributed for the day's feeding, the empty wagon and wagons are driven out and taken to their proper place. A gate connecting with the adjoining lot where the cattle are resting, is then closed, and if they are not already at the gate, which they probably are, being ready for their accustomed meal, they are called, and immediately enter. They then commence feeding at the corn in the husk, and blade, where they occupy themselves for several hours, and until they have eaten all they will. No danger of hurting themselves, for the corn is of the soft "gourd-ed" variety, and the husks and blades masticated with it, the very thing for them. When they have eaten all they want, which is in a few hours, they show it in a disposition to lie down. They are then driven out to their resting field as before, and a drove of store hogs from the same enclosure are let in as scavengers, which pick every kernel scattered or trampled upon by the cattle. Here the swine work for hours, thus getting all the corn which the cattle did not eat. When turned again where the cattle lie, they cover over their droppings, and take all the whole unmasticated corn which passes through them, so that nothing is lost. We here should, at first, call that a wasteful way of feeding; but when the value of the corn in the shock, the comparative value of labor and the distribution of such quantities of manure to enrich their other crops are considered, the practice is, not only economical. In all weathers, in that climate, the cattle are thus fed, until the expense is expended, or they arrive at the point of their greatest value for market, which is at any time during the winter or early in the spring.

DISEASE IN WHEAT.—The *Rural Register*, of Moore, notices that a new disease in the wheat plant prevails in Hanover county, Virginia. The symptom of disease is a rust in the grain that destroys it. Last year it was thought the heavy spring rains occasioned it. But this year it has been universally dry, and this

rust is working as freely as it did last year. It has even been observed to spread among the grasses, and has been observed in pastures.

Horticultural.

Hints for the Garden.

The bright and varied tints of autumn's beautiful foliage are now fast fading away, and soon will unmistakable signs appear that bleak and stern winter's sway is near at hand. The planting of trees and shrubs must now be finally concluded, and all operations connected with ground work as rapidly as possible pushed forward. Transplanting of evergreens had better be left till spring, and so had, perhaps, fruit and deciduous trees generally. A thorough preparation of the soil, the exercise of care in performing the operation, and of subsequent treatment, are among the indispensable conditions of success, in all kinds of transplanting. Where autumnal planting is from necessity delayed to a late period, pruning and shelter, combined with extra care in the subsequent treatment, will be found amply to repay in the results. With newly planted fruit or ornamented trees, or hardy herbaceous plants, a covering of muck or partially decomposed leaves around their stems, will be found particularly serviceable in preventing their roots being upheaved by the action of frost.

All the main winter crops, such as cabbage, turnips, beets, carrots, celery, &c., should be lifted and stowed away before frost sets in. Swedes and parsnips are not readily injured from this cause, and a portion of the latter it will be well to leave in the ground all winter, and they will come out in the spring, before renewed growth commences, quite fresh, and their quality unimpaired. A well ventilated *root-house* is an indispensable requisite in this country; although cabbages, Swedish turnips, carrots, &c., may generally be kept in pits in the open air, provided proper care is exercised in their preservation.

The present has proved the most productive season in fruit that we have experienced in Canada for many years. Apples, pears, and stone fruit generally, have proved unusually abundant, and of excellent quality. It has, however, been somewhat too cool for the proper maturity of open air grapes, which are generally small, and

of inferior flavour. Much skill and care are requisite in raising good fruit, and these requisites are likewise required in preserving it. Much of the fruit of this country is injured, and sometimes destroyed, by the bruising to which it is subjected in gathering, and afterwards in being stowed away in cellars that are either too warm or too cold. Apples should be thinly spread on shelves in a well ventilated room that will just exclude the frost, in an atmosphere a little moist to prevent their withering, and in a great measure excluded from light. Extra care in the gathering and preserving of fruit, especially of the choicer descriptions, will be found in the results amply to repay.

In the Flower Garden little now remains to be done but the clearing away of leaves and other unsightly matters, so as to leave the walks and borders clean; thereby giving, what is of so much importance in gardens, a tidy and agreeable appearance. Such flowering roots as require moving should ere this be taken out and carefully stowed away. Dahlias, Gladioluses, Tuberoses, &c., ought to be removed before their leaves and stems became affected by the action of frost, and gradually dried before they are finally stored up. Hyacinths, tulips, crocuses, and other bulbs intended for early spring flowering, should be carefully planted and protected in dry, warm borders, liberally treated with well decomposed surface soil, such as is found in woods, intermixed with manure from the cow-house. It is difficult to over estimate the influence of soil, manure, and treatment, on the size, color, and artistic appearance of flowers. The results brought out by some skilful and persevering cultivators are truly astonishing.

It is a practice much to be recommended, more particularly on heavy soils, to give the garden before winter sets in, a deep digging; exposing as much surface as possible, in a rough state, to the action of frost, snow, and rain. By such treatment the soil not only becomes more pulverised, and brought into a much better mechanical condition for working in spring, but it is actually sweetened and cleansed, and also impregnated with several fertilising matters, which, under other conditions, would be accessible only in a very small degree. In gardens that are wet, *thorough underdraining is an absolute necessity*; and not a day should be lost in commencing this essential operation. By this means an earlier and better seed bed will be obtained

in spring, and the general temperature of the soil raised several degrees; so much so, indeed, as to allow of the successful cultivation of crops, which under other circumstances, would end in failure. The mulching of every kind of newly planted trees and shrubs, is a practice highly commendable, as it tends to prevent the upheaving of the roots by frost, and gradually imparts to them nourishment and support. It is too common practice to leave the clearing up of gardens till spring, when there is commonly too little time to do the necessary work in good season. Nothing should be left till then, that can be done, and generally better done, nor Borders where necessary should be altered, walks repaired, and in short every thing accomplished to give a neat finish to the horticultural year, now so near its close.

Vines in City Yards.

Vines on trellises in city yards and small large gardens, may be most conveniently and profitably managed upon the single stem renewal system of training herein recommended. The borders for such vines in the city should, if possible, be formed of brick-work, detached from the adjacent cold, compact, and unproductive soil of the yard, and underdrained by tiles conducted into a cess-pool or culvert, in order to render them warmer and dryer, spring and fall, and a mulching of litter in summer will greatly assist in retaining moisture. Twice the number of vines will, of course, be grown as under the ordinary system, and only half of them fruit each year. Vines so managed will make astonishing growth in a single season, often reaching to the height of the tallest trellis, if supplied with appropriate fertilizers; while the foliage of the fruiting and the growing canes will afford quite as much shade as vines grown with long branches in the ordinary way; they can be much more easily and systematically trained, and produce more and better fruit. Vines on city trellises, allowed to run at will for the sake of shade, and supplied with proper nutriment, seldom fruit many years, and even when they do bear, fruit is of little value. But when grown upon our system, with a good exposure, they will only make ample shade, and present a pleasing object to the eye, but they can be made to produce large crops of the most delicious grapes every year.

The only variation that should be made in training for the high trellis, is this: the vines should not be stopped at the height of four or five feet, but should be allowed to run to the full height of the trellis, and if the wood to the full height should not happen to be strong

slid the first season, it should be cut back to the strong wood before fruiting the first time. After the vine gets older, it will make strong wood to the full height of the tallest trellis, in one season, provided it be well fed with proper fertilizers. We think this system of training for city trellises will be much admired when it has once been tried.

VINES ON ARBORS.

Vines on arbors, in villa and cottage lots, and small gardens, may be trained upon our system with great satisfaction and advantage. Plant the vines two feet or less apart, and train with a single stem, as in the vineyard, and fruit every other cane each year. If the border be good, and well fertilized, the vines will run to the top of the arbor in a single season, and afford immediate shade and abundance of fruit, far surpassing, in respect to beauty and profit, vines grown in the common way.

Vines on old arbors may be renewed by layers from the old stock, and trained upon this system with great ease and success, entirely renovating the old vines, and changing the system of culture in one year, to the great delight of the owner.

A very pretty arbor may be made upon the south side of a barn or house, by planting posts two feet high, say four or five feet from the wall or barn, and running rafters from these posts to the barn or house, just like the rafters of a vinery. Strain wires lengthwise of this arbor, plant and train the vines on the inside of the rafters, and you have a sort of out-door vinery, (minus the glass,) a very novel and interesting object, and a very admirable method of growing grapes. The bunches of grapes, when vines are trained on this plan, will hang under the foliage, affording a degree of shade which is very useful to them, and a current of cool, moist air will constantly pass through the arbor, which is highly beneficial to the vines; for the Catawba grape especially, this would be an excellent method; and if the borders were slightly elevated, and well drained, so as to be easily dried off in the fall, a sure crop of fine, well-ripened grapes might be obtained, every year, from such an arbor, at least as far north as Philadelphia. Further north, it might be desirable to provide some protection against frost, such as an awning, which could be easily removed for such a lean-to arbor. And here we may observe, that it will be found of great advantage, especially in working upon our system, always to bury your canes intended for use the next year, in winter, and to mulch well every cold weather.

Arbors may also be made with roofs pitching downwards, like a spar-roofed vinery, instead of upwards, with great economy and advantage, upon which vines will grow and fruit upon the one and the same renewal system with great success.

Vines may also be grown, upon this system, upon small stakes, say five or six feet high, anywhere in a small lawn or garden, just as

you would set out a dwarf cherry or currant bush, and much fruit may be obtained, of excellent quality, while the vines will form very pleasing objects in your grounds. Of course, two vines should be planted to each stake, one for fruiting, and one for growing wood: and, if you please, you may train them upon small pieces of wood nailed across the stakes, or, far prettier, upon the stump of a tree, or upon any sort of upright fancy trellises that your inventive faculty may suggest. This is a method of planting and training well adapted to any small piece of vacant ground in any yard or garden, where formal arbors or trellises would be inadmissible; and is quite as good a plan for obtaining fruit as any other, and more novel and interesting.—*Cincinnati*.

Domestic.

AERATED OR UNFERMENTED BREAD.—Within the last year or two it has occurred to a physician, Dr. Daughlish, that, by mechanical contrivance, the pure fixed air can be passed into the dough, and that flour unaltered by fermentation, and untouched by any chemical, unpolluted even by the touch of any hand, can be made into a spongy bread. Having developed his plan fully, he took out a patent, and already, at Portsmouth, and at Dockhead, in Bermondsey, extensive factories are engaged in the production of an "aerated bread," which, as to its substance, is, we believe, bread made perfect, though it is possible that there may be hereafter developed a less costly way of making it. The patent is worked wholly by steam machinery, of which we cannot attempt to explain all the ingenious refinements. The main principle is easy to be understood. According to the way usually adopted in producing the same gas for soda-water, carbonic acid is formed in a large receiver, far away from the dough. Thence it is forced into a great copper cylinder, containing water, fixed over the mixing vessel. At a high pressure, which is maintained also by the forcing of the same gas within the mixing vessel, the water in the cylinder is supersaturated with gas—is made, in fact into soda water free from soda. In that state it is then allowed to flow through a pipe over the due relative proportions of flour and salt, under the highly-condensed atmosphere of the closed mixer. The mixer is a hollow globe of cast iron, in which iron arms are made to revolve on an axis turned by the steam engine. The gas remains fixed, still under pressure in the water. In three or four minutes, or more, according to the quality of the flour, the mixture of the soda-water is complete. The paste then passes out through a tube gradually widening, and the gas expands in every pore of the dough, as the pressure is removed. The dough instantly rises as it passes into the tins, or wooden measures, which a boy holds under the spout, cutting off the measure of each loaf as it descends, and

immediately placing it on the edge of the oven, which is on the other side of him. The floor of the oven is an endless chain, revolving on two drums, of which the pace is regulated in accordance with the size and character of the bread to be baked. The loaves placed on one edge of the oven immediately begin to travel through its regulated heat, and in due time are turned out exactly baked upon the other side, close to the open door, at which carts wait to carry the loaves to the shopkeepers. Until the bread is baked not a hand touches it. An hour and a half is time enough for the conversion, by this process, and with the nutritive elements of the flour wholly untouched. In the ordinary process, four or five hours are required for the mere raising of the sponge. This prolonged action of the warmth and moisture upon many kinds of flour—as flour from wheat gathered in wet seasons—otherwise wholesome, changes the starchy matter into dextrine, and after all produces bread dark colored and sodden. It is to correct so great an occasion of uncertainty and loss, which has always prevented capitalists from embarking in the baking trade, that alum has been used. The rapidity of the new aerating process wholly avoids this risk; the result never is uncertain, and good bread can be made of flour otherwise almost useless to the baker. The unfermented, or, as it properly called, aerated bread, made according to Dr. Daughlish's patent, being entirely free from the acid which is always necessarily present in fermented bread, has been found actually curative in that numerous class of diseases which result from acid secretions or an acid state of the blood. This freedom from acid causes the bread at first to appear somewhat insipid, but it soon asserts its value. One of the most eminent of our physicians kept a loaf of it for a fortnight, and then caused it to appear at his breakfast table with a baker's loaf of the preceding day. The unfermented loaf, old as it was, appeared to be the fresher of the two. Experience has shown that working men who used the aerated bread eat more of it—sometimes even half as much again,—making hearty breakfasts, and being at dinner-time less hungry for meat.—*All the Year Round.*

HOW I MADE SORGHUM SUGAR.—A number of my neighbors having witnessed my success in making sorghum sugar, requested me to write out my process for the public benefit. If my experience is of any value, well; if not there is no harm done.

The sugar I send you is made from syrup manufactured last fall by Mr. John Donnan, of this vicinity. The cane was grown on sandy corn. Mr. Donnan took his cane to a Cook Sugar Evaporator, on an adjoining farm to be boiled down. As he only desired syrup for table use, it was made thinner purposely, than if intended for sugar. Happening to see some of it in May last, I said it would crystalize, if made a little thicker, and was told to try it. I did so; then set it away in a room at a temper-

ature of 78°. In two days' time it was a mass of crystals, and in three days I set it to dry. The result you see.

In the manufacture of the syrup no lime-chemicals were used; and I put nothing into whatever, when I undertook to crystalize. Had the syrup been made thicker last fall, and set away in a room at the proper temperature say 75° to 80°, it would have crystalized just readily then as now.

I have been equally successful with other samples of syrup. The difficulty is in knowing when it is boiled just right, before it leaves the Evaporator. The best test I know of is the appearance of the syrup, when allowed to drip from a paddle. When it falls in rather brittle flakes it will crystalize at once. When boiled to proper consistency, it should be put into cone-shaped sugar coolers, with a gate to draw off molasses, after crystalization. When the sugar has crystalized, it should be allowed to dry twenty to thirty days; then spread upon a wooden platform, exposed to the sun's rays until color and texture are satisfactory, being frequently stirred meanwhile. Sorghum sugar in this way ought not to cost over two to three cents a pound.—*Ohio Farmer.*

WALTER CARUTHERS

Miscellaneous.

WATCHES.—In buying a watch, choose a plain if you can afford it, and let it be as good as really can afford. Buy it of a man who has character to lose, and to whom you can look for redress in case of failure. Be suspicious of cheapness, and do not put too much faith in guarantees for a year or two years; beautiful watches made watch may go for a year or tolerably well, and yet, before you have worn five, may have cost you twice its value in repairs, and prove a torment and deluder instead of an honest friend and guide. In making selection, do not be led by ornament—by fancy backs or dials, or "jewelling in ten holes." Ten holes may be jewelled for a guinea, and a watch be none the better for it. With a respectable maker, the absence of needless ornament is often a concomitant of superior work.

Having bought your watch, remember it is worth taking care of. Wind it, as near possible, at the same time every day, preferably the morning to the evening. Avoid sudden jerks in winding, and do not turn the watch while you are turning the key, but hold it still and steady. Keep the key in good condition free from dust and cracks; it is not a bad plan to plug the orifice; a particle of dust or dirt the key may get into the watch, and put you to the expense of an extra cleaning. Keep the key in your bed-room, not in your pocket.

When a watch is hung up, it should be supported and at rest; when laid horizontal it should rest on a soft substance for support.

action of the balance may generate a pen-
sious motion of the wheels, causing a variation
time.

When a watch varies from atmospheric influ-
ences, or from some change in the mode of
wearing it, the hands may be occasionally set
right, but the regulator should not be touched;
if the watch gains or loses continuously, then
the regulator should be altered; but it should
be delicately handled, and moved but a little at
a time. In setting the hands, it is best to set
them forwards. In watches set or regulated at
back, the glass should not be opened at all.
The watch-pocket should at all times be kept
free from dust and accumulations of every kind.
Two years is quite long enough to keep a
watch without cleaning. If you cannot consign
it to that purpose to the hands of the maker,
send it only to some respectable and responsi-
ble person. The very best watches are often
made by the hands of blundering and incapable
workmen, while even a bad watch may be made,
by the treatment of a clever artist, to perform
its duty very well.

Let us take a lesson from your watch. That
machine, if you have taken the above ad-
vice regarding it, will be found constantly doing
its duty. Do you the same; work on with your
work as that does, "unhasting and unrest-

Let it teach you regularity and punctu-
ity; so shall you not be ashamed to look it in
the face, and be enabled, when your hours are
numbered, to give a good account of the
entrusted to your keeping.—*Country Gen-
eral*.

GREAT PLAINS OF AMERICA.—Mr. Wm.
Felt, in a recent book on the Central Gold
Fields, maintains the idea that the great West-
ern plains, where he has spent twenty years, in-
stead of being a desert, as is the common im-
pression, are the opposite, forming the pastoral
heart of the world, and the basis of the future
of commerce and industry of this Conti-
nent. They occupy a longitudinal parallelogram
more than 1,000 miles wide, extending from
the Gulf of Mexico to the Arctic coast, and from the
Rocky Mountains to the western border of Lou-
isiana, Arkansas, Missouri, and Iowa, an area
of the surface of twenty-four States be-
tween the Mississippi and the Atlantic, without
an abrupt mountain, timbered space, desert,
or swamp. There is no timber on this area, and
trees are scarce.

The soil is not silicious or sandy, but a fine
loam, and in places a rich mold. The country is thickly clad
with grasses, edible and nutritious, through the
land swarms with animal life. The climate
is comparatively rainless; the rivers, which
flow and which all run from west to east,
like the Nile, to irrigate rather than
to overflow their neighboring surface. From their dis-
position the author thinks they are
the *pasture fields of the world*, and that
the pastoral agriculture will become a
department of national industry. On

this belt of perennial pasture are found the in-
finite herds of cattle peculiar to North America,
whose aggregate number, it is estimated, ex-
ceeds one hundred million, the buffalo alone
being as numerous as the American people.
The plains embrace an ample proportion of arable
land, which may be easily and cheaply
watered by the various systems of irrigation, and
the soil being alluvial and calcareous, returns a
prodigious yield. They abound in fuel, and
materials for dwellings. The climate is favor-
able to health and longevity, intellectual and
physical development.

CALIFORNIA FARMING.—On the mammoth
farm about fifteen miles from Sacramento, in
Yolo county, partly owned by General Hutchin-
son of the St. George Hotel, was produced, this
season, one thousand acres of wheat, one thou-
sand acres of barley, and eighteen hundred tons
of hay. The full yield of wheat averaged thirty,
and barley forty bushels to the acre; the pro-
duce is estimated at 60,000 bushels, at \$1.50 a
bushel, or \$90,000. The hay would foot up
\$20,000. Thus this farm will yield a total of
\$100,000 this year. The California Farmer
states that the sales of fruit from the farm of G.
G. Briggs of Marysville, last year, "were greater
than any gold mine in California, amounting to
over \$100,000."

THE LESSON OF THE LEAF.—We men, some-
times, in what we presume to be humility, com-
pare ourselves with leaves; but we have as yet
no right to do so. The leaves may well scorn
the comparison. We who live for ourselves, and
neither know to use nor keep the work of past
time, may humbly learn—as from the ant, fore-
sight—from the leaf, reverence. The power of
every great people, as of every living tree, de-
pends on its not effacing, but confirming and
concluding, the labors of its ancestors. Looking
back to the history of nations, we may date the
beginning of their decline from the moment
when they ceased to be reverent in heart and
accumulative in hand and brain; from the mo-
ment when the redundant fruit of age hid in
them the hollowness of heart, whence the sim-
plicities of custom and sinews of tradition had
withered away. Had men but guarded the right-
eous laws and protected the precious works of
their fathers with half the industry they have
given to change and to ravage, they would not
now have been seeking vainly, in millennial
visions and mechanic servitudes, the accomplish-
ment of the promise made to them so long ago:
"As the days of a tree are the days of my peo-
ple, and mine elect shall long enjoy the work of
their hands; they shall not labor in vain, nor
bring forth for trouble; for they are the seed
of the blessed of the Lord, and their offspring
with them."

This lesson we have to take from the leaf's
life. One more we may receive from its death.
If ever, in autumn, a pensiveness falls upon us
as the leaves drift by in their fading, may we

not wisely look up in hope to their mighty monuments? Behold how fair, how far prolonged, in arch and aisle, the avenues of the valleys—the fringes of the hills! So stately—so eternal; the joy of man, the comfort of all living creatures, the glory of the earth—they are but the monuments of those poor leaves that flit faintly past us to die. Let them not pass without our understanding their last counsel and example; that we also, careless of monument at the grave, may build it in the world—monument by which men may be taught to remember, not where we died, but where we lived.—*Ruskin's Modern Painters.*

A GLASS THAT WILL NOT BEAR THE MORNING'S REFLECTION.—An American has patented a glass in which a man can see himself as plainly as others see him. At present he has not sold a single specimen, for everybody who has looked into the glass will not believe that the plain object before him could possibly be himself. Loud and bitter and unmitigated has been the disgust and indignation of everybody, and the consequence has been, that the poor American, believing in his innocence that the object of the world was to arrive at the truth, has lost largely by his foolish speculation. He is now trying his hand on a glass that flatters, and expects in a very short time to realize a considerable fortune. To the ladies he intends charging double, for he knows well enough that, let them be ever so beautiful, they will never be able to do without it. He has not yet fixed the price for girls who squint.

EDUCATION OF THE YOUNG.—The *Scientific American* referring to the fact that children are overtaken with school studies, says:—A New York school commissioner, with leather lungs and a cast iron head, may insist that a child who has been boxed up six hours in school shall spend the next four hours in study, but it is impossible to develop the child's intellect in this way. The laws of nature are inexorable. By dint of great and painful labor, the child may succeed in repeating a lot of words, like a parrot, but, with the power of its brain all exhausted, it is out of the question for it to really master and comprehend its lessons. The effect of the system is to enfeeble the intellect even more than the body. We never see a little girl staggering home under a load of books, or knitting her brow over them at seven or eight o'clock in the evening, without wondering that our citizens do not arm themselves at once with carving knives, pokers, clubs, paving stones or any weapons at hand, and chase out the managers of our common schools, as they would wild beasts, that were devouring their children. Indeed, they are worse than wild beasts, for those destroy only the body, but these fiends consume both body and mind of the helpless innocents who fall into their clutches. In Boston, the system of studying out of school has been prohibited in relation to the girls, and we should be

rejoiced to see this city take the lead in enforcing this prohibition to all the scholars. We are very glad to see that the time for gymnastic exercise is to be taken from the study, and not from those given to play, "Experience having shown," says the Superintendent, "that the scholars learn more when a portion of time is given to these exercises than when devoted to study."

AIR.—No fact is better understood than of the necessity of air for securing life and growth to crops; but the functions of the atmosphere, and all the advantages arising from its influences, are not so well understood.

The face of Nature is continually giving excrementary matters, which are taken from the atmospheric ocean and carried from place to place; the falling of dews and rains are these from the air and returns them to the earth for re-assimilation. During a drouth the nature parted with from the soil prevades the atmosphere, which, in circulating through and deeply disintegrated soils, is brought in contact with particles colder than itself, and only deposits moisture upon their surface. This moisture is fully charged with those matters which act as an excitant, enabling it to dissolve the inorganic portions of the soil. Winter the water occupying the immediate surface becomes frozen, thereby destroying the eggs of insects; when thawed in early spring it has the capacity of receiving many volumes of such gases as are given off by the vegetation, and carrying them into the soil for the new organisms for re-appropriation. The action of the atmosphere above the surface of the earth not only takes away excessive heat from plants, but as it passes over the leaves and terminates at the primary tubes of each plant, thus securing the circulation of moisture received by the roots through the medium by which the *farina ferrea* of plants is carried from place to place, and trees and plants are swayed by its influence. It renders each in degree an Hungarian with every capillary tube acting as a siphon or pump barrel for the elevation of fluids from the soil into the body of the tree, where the elements of life detain them. By this influence of analysis, the primaries and proximates are separated, permitting other matters to pass on and in turn deposit themselves where needed. The refractory force of the atmosphere prevents the sun's rays from being too intense for plant life. It is the vehicle of the excretia, as well as of water, and the surface of every particle of soil to which it is applied, which the atmosphere can circulate, with moisture by its presence, it facilitates these particles the necessary gases for such chemical changes as will gradually separate the inorganic and inert portions in

nam for plant growth. We need not explain re-mose action, for every leaf gives evidence of the importance of this function. To als it is still more important than to plants. spiration oxygen is supplied to the blood; al, no function of the animal economy can t itself without the presence and suste-e of atmospheric air. Even when dilated, great elevations, still the animal respiree larger bulk to get the same amount of oxy-ard the very atmosphere, that in its delated ion abstracts the heat at the mountain tops reates their caps of snow, when descended ir base is compressed in figure and gives present heat, that which was before latent, ecreasing the verdure of the valley. None ure's laws could be exhibited without the ediate office performed by the atmosphere. ery life-principle would be inert without en, animals and plants, would cease to ex-nd the universe itself would become a e mass of death and darkness.

MS AND GAGES.—What is the distinguish-erence between a plum and gage? is the ound and plum long?

J. W. L.

gages are plums, but there are some plums are not gages. The term gage, origin-ly the name of the man who introduced een Claude into a part of England where nknown, is generally understood to apply is of moderate size and rather rich qual-ying, however, in form and color. The gage is round, the Imperial gage is oval. mer is green, the Yellow gage yellow, rple gage violet, &c. But the term is plied to very large, or very coarse nor to that peculiar class known as

ame or a more obscure meaning attaches m *pippin* among apples, the Fall pip-very large, the Golden pippin very he Newtown pippin is green, the Rib-the Dawnton yellow, &c.; the Sugar-blong, the Michael Henry conical, the ere pippin flat; the Blenheim pippin e Ribston sour, &c., the term, in fact, to all apples of whatever size, form, quality.—*Country Gentleman*.

SM IN SCOTLAND IN THE OLDEN TIMES.—

Duke of Hamilton, who died about the last century, was a great patron of and took pains for instructing the n in Hamilton in the art, if so dis-but he soon found that there was no ny patronage of his to promote that f science. He brought down from Mendoza, a celebrated bruiser of his challenged any one in the county to t. The challenge was accepted by a ant of his Grace's, James Bocham -p?), of Clydesmill. At the first on-ames knocked in all his antagonist's oke two of his ribs, and having thus

summarily settled the matter, he turned to the Duke and asked, "Has your Grace any mair o' thae Mendoza bodies?"—*Mark Lane Express*.

HOW TO TREAT THE BITE OF A DOG.—Dr. Stephen Ware, of Boston, in his testimony in a recent case which grew out of the injuries from the bite of a dog, furnished the following valuable advice:—In the case of a bite by a dog where the teeth of the animal penetrated the flesh, whether the dog was known to be mad or not, he should use the same precautions. We would wash the wound with warm water, extract all the virus possible by sucking the wound with his lips, and then cauterize it deeply with the caustic most readily obtained, but should use potash if it could be procured at once. The time in which the effects of the bite of a mad dog would be seen, varied from two to three days to as many years, but if no effects were felt after two or three months, as a general thing the patient might consider himself safe. Bites made through clothing are seldom productive of much harm, as even if the dog is mad the clothing absorbs the virus before the teeth reaches the flesh. Most of all the fatal cases are where the person was bitten on some naked part. Concerning the possibility of a cure in a real case of hydrophobia nothing was said.

THE PERILS OF SCIENCE.—Some years ago a large whale was caught at the Nore, and towed up to London-bridge, the Lord Mayor having claimed it. When it had been at London-bridge some little time, the Government sent a notice to say it belonged to them. Upon which the Lord Mayor sent answer, "Well, if the whale belongs to you, I order you to remove it immediately from London-bridge." The whale was therefore towed from the stream to the Isle of Dogs, below Greenwich. The late Mr. Clift, the energetic and talented assistant of his great master, John Hunter, went down to see it. He found it on the shore, with its huge mouth propped open with poles. In his eagerness to examine the internal parts of the mouth, Mr. Clift stepped inside the mouth, between the lower jaws, where the tongue is situated. This tongue is a huge spongy mass, and being at that time exceedingly soft, from exposure to air, gave way like a bog; at the same time, he slipped forward towards the whale's gullet, nearly as far as he could go. Poor Mr. Clift was really in a dangerous predicament; he sank lower and lower into the substance of the tongue and gullet, till he nearly disappeared altogether. He was short in stature, and in a few seconds would doubtless have lost his life in the horrible oily mass, had not assistance been quickly afforded him. It was with great difficulty that a boat-hook was put in requisition, and the good little man hauled out of the whale's tongue.—*Buckland's Curiosities of Natural History*.

GRASS TO THE WINDOW.—There is all the difference in the world between the shadiest and the greenest public garden or park, even within a hundred yards of your door, and the green shady little spot that comes up to your very window. The former is no very great temptation to the busy scholar of rural tastes; the latter is almost irresistible. A hundred yards are a long way to go, with purpose prepossession of enjoying something so simple as the green earth. After having walked even a hundred yards, you feel that you need a more definite aim. And the grass and trees seem very far away, if you see them at the end of a vista of washing your hands, and putting on another coat and other boots, and still more of putting on gloves and hat. Give me the little patch of grass, the three or four shady trees, the quiet corner of the shrubbery, that comes up to the study window, and which you can reach without even the formality of passing through the hall and out by the front door. If you wish to enjoy nature in the summer-time, you must attend to all these little things. What stout old gentleman but knows that when he is seated snugly in his easy-chair by the winter-evening fireside, he would take up and read many pages in a volume which lay within the reach of his arm, that he would do without the volume if, in order to get it, he had to take the slightest trouble of rising from his chair and walking to a table half-a-dozen yards off? Even so must nature be brought within the easy reach of even the true lover of nature; otherwise, on a hundred occasions, all sorts of little fanciful hindrances will stand between him and her habitual appreciation.—*Frasier's Magazine*.

THE LEECH A BAROMETER.—A gentleman who kept a leech in a phial of water hung by his chamber window, says:—"If the leech lies coiled up and motionless at the bottom of the glass early in the morning, the weather will be fair; if we are to have rain, it will creep to the top of its lodging, and remain there till the storm is over; if wind, it goes galloping over the water, till the wind begins to blow; if thunder, it lodges out of the water, is uneasy, and has frequent violent throes and convulsive motions. The leech was kept in an eight-ounce phial, three-fourth filled with water, changed once a week."

NEW ZEALAND—SUMMARY OF NATIVE PRODUCE.—The quantity of timber hewn and sawn, which was sent out of Auckland in one year was 3,418,483 feet, and it was sold for nearly £20,000. There are numerous tracts of pasture land which yield large quantities of wool, every year rapidly increasing. The quantity of land under cultivation and fenced in is very nearly 100,000 acres. At the close of 1856 the exact quantity was 83,919 acres; of this extent, there were 2,255 acres laid down for wheat, 131 for barley, 1,543 for oats, 305 for maize, 2,106 for potatoes, 55,648 with sown grass, 916 were

gardens and orchards, and the remainder were crops. The desire to possess land is every increasing. On the 30th April last, the quantity of land already surveyed and opened for selection was 27,760 acres: on the 31st May, 31,551 acres: on the 30th June, 34,273 acres: on the 31st July, 35,302 acres: on the 31st August, 31,041 acres. On the 23rd of August, 8,024 acres were gazetted for sale or selection on the 3rd of October. On the 19th October, 7,989 acres in addition were gazetted for selection on the 21st day of November.—*Zealand: Handbook for Emigrants*.

A LITTLE FARM WELL TILLED.—There is at the heading of this article are worth much consideration. The great hinderer of a successful cultivation of the soil is the meaning of the words, *a big farm untilled*—few acres of land well dressed and well tilled will produce abundantly more in proportion than a large tract of land illy cared for. To prove this assertion, we need not look for more than a good garden, and compare its produce to its value, &c., to a like quantity of land in a big farm. A small farm, with good care and manures adapted to the soil, will vastly remunerate the farmer for his labor, tending to the whirlwind over a territory of a few acres as there should be roods in a farm. Again, there are obvious advantages in a small place. Much more time can be devoted to adorn the homestead to make it attractive to children. Such a home as the homestead will reverence, by the association clustering around the spot of early childhood by those strong attachments of which the poet declares—

"His first, his best is ever at home."

There is no allurements in a big farm; fascination is lost in vexation, troubles sort after another, in looking at every thing the compass to see if the "wheel in the mill" is operating to advantage. With an increase of acres comes increase of cares is a true thing, because more tillage is then needed, fences to be kept in order, and everything to good husbandry must of necessity require greater attention. A little farm, then, a few acres, is a mine of wealth, a patrimony which kings might envy but cannot possess, and which is too poor to buy the solid contentment of the farm house. *Till little and well*, is that should ever be kept in mind, and practised will be a sure passport to successful farming operations.

AN INVARIABLE RULE.—When an agriculturist is invited to an agricultural dinner, or a cutlers' family gathering, or an archery meeting, you may be sure that he is not going to intrude upon the cause of politics by the rules of society. He will conclude, you may be sure that he is not going to introduce them, and that he will very next minute; and, furthermore, he will talk of nothing else but politics at the remainder of his speech.

THE ANNUAL MEETING OF 1860.

The Annual Meeting of the Directors of the Association took place on Friday, 21st September, in the Committee Room on the New Ground, at 10 a. m.

The President, John Wade, Esq., in the chair.

Messrs. Hugh C. Thomson, Secretary of Board of Agriculture, and Wm. Edwards, Secretary of the Board of Arts and Manufactures, joint Secretaries.

Members of the Board of Agriculture present:—

Messrs. E. W. Thomson, H. Ruttan, D. Christie, G. Alexander, R. L. Denison, A. Burnham, W. Ferguson.

Members of the Executive Committee of Board of Arts and Manufactures:—

Beatty, M.D., J. E. Pell, B. Walton, Craigie, M.D., J. B. Hurlburt, LL.D., Meldrick.

Delegates from County and Electoral Divisions, Agricultural Societies, and from Horticultural Societies:—

Kingston—Mr. La'ke, Mr. Scott.
Front West—Wm. Thompson, James Well.

Dundas—Wm. Withers, M. McPherson.
Dundas Co.—I. S. Ross.

Richmond East—J. B. Choate, John Feott.
Richmond West—M. Jones, Robt. Beith.
Richmond East—Daniel Black, James Arran.

Richmond West—James E. McKinley, Mr. Kelly.

Montreal—Ed. Jackson, Anth. McGuin.
Montreal—A. McNab, Duncan McDonald.

Montreal—W. C. Beaty, H. M. Switzer.
Montreal—H. J. Lawrie, George Roach.
Montreal Horticultural Society—Isaac Mannan.

Montreal North—Mattaniah Kerr.
Montreal South—Thos. Wills, Jas. Brown.
Montreal—Robert Gibbins, Robt. Cooper.

Montreal—Rich. Monck, Robt. J. Earl.
Montreal—Thos. Kirkpatrick, Thomas

Montreal North—John Baird.

Montreal North and Grenville—G. Leehy, Williams.

Montreal—J. C. Rykert, J. W. Lewis.
Middlesex East—James Johnston, M.

Middlesex West—Thos. Moyle, James

Middlesex Horticultural Society—W. L. Lawrason, J. B. Smith.

Niagara—F. G. Nash, James Brown.
Norfolk—Oliver Blake, Wm. Wilson.

Northumberland East—G. S. Burrill, W. Humphreys.

Northumberland West—Henry Battell, P. R. Wright.

Ontario North—George Brabazon.
Ontario South—James Pile, Geo. Robinson.

Oxford North—John Dunlop, Wm. Grey.
Oxford South—W. S. Light, R. Pierson.

Paris Horticultural Society—Hugh Finlayson, Charles Arnold.

Perth—W. F. McCulloch, James Woods.
Simcoe South—G. D. Morton, S. Tyrwhitt.

Toronto—Hon. G. W. Allan, G. D. Humphreys.

Victoria—John Gibb, Geo. Bateman.
Waterloo South—Daniel Tye, Jas. Cowan.

Welland—A. K. Scholfield, Jno. Ker.
Wellington North—J. M. Frazer.

Wellington South—Geo. Murton, Arthur Hogge.

Wentworth North—Thos. Stock, Jno. Weir.

Wentworth South—Wm. Freeman, Jas. Heslop.

York East—J. P. Wheeler, Geo. Miller.
York West—A. Shaw, P. Armstrong.

Members of the Board of Arts and Manufactures, delegated from Mechanics' Institutes and Boards of Trade:—

London—W. Bowman, E. Leonard, Daniel Farrar, Charles Hunt, W. McBride, Murray Anderson.

Toronto—W. Edwards.
St. Thomas—H. Caldwell, H. Brown.

Hamilton—Dr. Rosebrugh, W. Birkett.
Woodstock—Thos. J. Cottle, M. D.

Dundas—Geo. Bickell, Duncan McMillan, W. McDonald.

Oakville—Geo. K. Chisholm.

Moved by Mr. E. W. Thomson, seconded by Mr. A. A. Burnham,

That Jno. Barwick, Esq., of Woodstock, be President of this Association for the ensuing year. Carried.

Moved by Mr. P. R. Wright, seconded by Mr. J. Battell,

That F. W. Stone, Esq., of Guelph, be 1st Vice-President for the ensuing year. Carried.

Moved by Mr. Ruttan, seconded by Mr. P. R. Wright,

That A. A. Burnham, Esq., of Cobourg, be 2nd Vice-President.

Moved by Mr. J. Johnson, seconded by Mr. H. J. Lawrie,

That W. S. Light, Esq., of Woodstock, be 2nd Vice-President.

Moved by Mr. T. Wilson, seconded by Mr. J. Buchanan,

That Thos. Kirkpatrick, Esq., of Kingston, be 2nd Vice-President.

It was then decided that a poll should be taken of the votes for each of the persons proposed, which being done, there were found to be—

For Mr. Burnham..... 42 votes.

For Mr. Light..... 30 “

For Mr. Kirkpatrick 20 “

Mr. Burnham was then declared to be elected.

Moved by Mr. Thomson, seconded by Mr. Armstrong,—That R. L. Denison, Esq., be re-elected Treasurer. Carried.

Moved by Mr. Oliver Blake, seconded by Mr. Wm. Ferguson,—That the next exhibition of this Association be held at the City of London.

The Mayor of London, Mr. J. Moffatt, being present, was requested to state what proposition the City of London was prepared to make in reference to the accommodations for the exhibition.

The Mayor then addressed the meeting, and submitted the following document:—

Extract from the Minutes of the proceedings of the Corporation of the City of London, on Monday, 17th September, 1860.

From “Report of Committee.”

“That His Worship the Mayor, and a Delegation be appointed by this Council to attend the Provincial Exhibition this week in Hamilton, for the purpose of endeavoring to have London fixed for 1861, and that a sufficient guarantee be given to said Delegation with the City Seal attached, for the necessary buildings and accommodation for holding said Exhibition.”

Received and adopted.

Moved by Alderman McKenzie, seconded by Councillor Hughes,

That Messrs. Garratt, Stead, and Flock, be appointed a Special Committee authorized to give the necessary guarantee for obtaining the Provincial Exhibition at London, in

1861, and that the City Seal be attached to this resolution. Carried.

[A true Copy.]

ALEX. SABBATT,

(City Clerk)

London, 18th September, 1860.

Endorsed. { J. H. FLOCK, Alderman.
EDWARD GARRATT, Alderman.
CHAS. STEAD.

Moved by Hon. Mr. Allan, seconded by Mr. Switzer,—That the Mayor of Toronto be heard in reference to the exhibition be held at that city next year. Carried.

The Mayor of Toronto, Mr. A. Wilson, then stated verbally, that the City Council of Toronto had authorised him to guarantee the necessary accommodation would be provided in that city, in case of the exhibition being held there next year.

The motion that the exhibition of 1861 should be held at London was then put to the chair and carried.

It was then moved and Resolved,—That the thanks of this Association be given to the Local Committee, the Mayor and Corporation of the City of Hamilton, the President and Vice-Presidents of the Association and the Judges of the various classes for valuable contributions and services in aid of the exhibition.

Resolved,—That the thanks of this Association be given to the Canada Company for their continued liberality in offering each year handsome special prizes for the encouragement of the growth of wheat, hemp and flax.

The meeting then adjourned.

ANNUAL ADDRESS.

Delivered by the President of the Association, John Wade, Esq., at Hamilton, Sept. 21, 1860.

GENTLEMEN,—Ever since the establishment of the Agricultural Association in Upper Canada, it has been customary for the person who holds for the year the honorable and distinguished position of President of this noble and highly useful Institution, to deliver an Address. It is with much hesitation and diffidence that I now approach the subject, and feebly attempt to discharge the important duty devolved upon me.

At this the Fifteenth Annual Exhibition, I am sure that every one of you will agree with me that this great annual gathering of the farmers, manufacturers, and artisans of the country, was never held under more cheering and favorable circumstances. Favorable, because of the onward progress it has made during the past years of its existence; and when it was first commenced, it was with much doubt and uncertainty on the part of those patriotic and energetic individuals, who first suggested and brought it forward; and during the first few years of its existence it was quite problematical whether it would succeed. But owing to the tireless exertions, and the indomitable perseverance of its first promoters, (who are at present of them prominent office-bearers at the present time,) it has succeeded beyond the most sanguine expectations of its warmest supporters, and instead of being, as it was considered by many at the time of its formation, in the light of an untried speculation, it has at best of very doubtful advantage, it now become one of the necessities of the age.

And on this occasion it is held under the most auspicious circumstances; many things happily combined to render it the greatest and most successful exhibition that has ever taken place in the Province. Being held in the centre of the finest agricultural and the most fertile and flourishing part of the Province of Canada; accessible both by land and water, and surrounded by scenery unrivalled in the world, in the midst of which stands the beautiful and prosperous city, whose inhabitants have united heart and soul to make this exhibition the most attractive and successful of any that have preceded it.

It is also held under the most cheering and favorable circumstances, because the Almighty Giver of all good, has, in His merciful mercy, blessed us with another abundant and fruitful season; and at a time too, when our surplus products will be needed to supply the deficiencies in the Mother country from which we hear daily, as well as from other parts of Europe, deplorable accounts of the weather, and extreme backwardness of the season.

And above all, gentlemen, this Exhibition is being held under most auspicious circumstances, arising from the distinguished visit which has been pleased to honor it with the presence. We were not only favored by the visit from His Royal Highness the

Prince of Wales, and the distinguished statesmen, noblemen and gentlemen, civil and military, who form his suite; but also with many distinguished gentlemen from the United States; altogether forming a happy combination of circumstances, calculated to make this Exhibition the most interesting and brilliant that has ever been held in this Province, and which will ever be remembered and recorded as one of the brightest and most memorable events in the annals of its history.

The only thing to be regretted on the present occasion is, that the high and honorable privilege of addressing you, has not fallen into abler and more competent hands. However, to make my address as little tedious as possible, I will make it short and concise, confining myself to a few remarks of the practical kind, which, indeed, are the only things I consider myself competent to undertake on this occasion.

The theme (if I may be allowed the expression) to which I shall briefly call your attention, is what is generally called "high farming." The term, I believe, is so well understood as to call for no illustration; the principle is, that what is worth doing at all is worth doing well—not only from the much greater satisfaction in doing it, but also from the fruits; and to apply this general and well-established rule to the subject before us, it is quite certain that there is neither profit nor satisfaction in low farming. If it is possible by high farming to make one acre of ground produce what is ordinarily produced on two, it is not only much more profitable, but also much more satisfactory to the farmer. You are, however, well aware, gentlemen, that it is much easier to preach than to practice, and to attain to that perfection of husbandry in our new country that obtains in the old is very difficult. But in order to do anything well, we must raise our standard high—no matter how high; for if we cannot reach the top, we must get as high as we can; and if we labor under some difficulties in our new country, that they do not in the old, we have many advantages in other ways; one is, we have their example to copy from; and what is very encouraging, we are nearly all our own landlords, which, without meaning any disparagement to the old country institutions of Landlord and Tenant, is much more satisfactory to the farmer, and very encouraging to him in his attempts at improvement. The only drawback to this

is that it may have the effect of keeping the standard lower than it ought to be, in consequence of the desire to accumulate more acres, rather than cultivate better what we have already. The high price of labor is another drawback; these things combined render it difficult to attain to a very high standard for some time to come.

But to give a practical bearing to these general remarks; there are several requisites wanting, such as skill, knowledge, and adaptation to circumstances. In the first place the farmer must study the nature of the soil he cultivates; what kind of crops it is calculated to produce to the greatest advantage to him, not only in immediate profit but also to keep up and maintain its fertility; for what might prove an excellent system of management on one farm, might prove quite unsuccessful on another. For instance some soils are already drained by Nature, such as the gravelly soils on the Grand River in the neighborhood of Brantford and Paris; such soils in order to make them fruitful, and bear heavy crops, require fertilizing substances to be added to them, while the clay flats on the north shore of Lake Ontario, require draining, before any thing like a satisfactory state of husbandry can be attained. Also we find one kind of soil adapted to one kind of crop, which on another, it would be useless to attempt growing. Those clay soils which cost so much in draining and mixing and comminuting the soil, do not require so much manure, as they naturally possess much of the elements of fertility in themselves; while the gravels that are easily cleared to begin with, require no draining, are easily plowed, and generally easily managed, will be soon exhausted, if not constantly manured. Showing that things in this world, are more evenly balanced than is commonly supposed.

In order to attain to any high standard of farming, it is not only necessary to study the nature of your soil, but the variations which takes place in seasons. But whatever the season may be, the highly cultivated farm succeeds the best. If the season is wet, the well drained farm will not suffer, and if the season be dry, it is the same, for the roots of plants can penetrate deeper on drained land. Deep ploughing, connected with thorough draining, is also essential, as well as a thorough mixing of the upper soil or vegetable deposit with the upper surface of the sub-soil. An exterminating war against weeds must be constantly kept up, and the

motto of "No Surrender" to them is: utterly necessary.

It would only be waste of time to go further into details about minor matters every farmer must be already well acquainted with; but if thorough cultivation is absolute, it is also necessary to keep very best varieties of stock in all its branches the best variety of horse for team which (of the many well tried breeds) the farmer must be his own judge; the best of horned cattle, of which also the farmer must judge for himself as to the adaptation of the various improved breeds to his peculiar farm, and so down through all the rest of the domestic animals. The best and most improved kinds of agricultural machinery and implements, large and small, are easily obtained; and I am happy to state that these things are easily obtained. The improvement in every class of these things within a few years is perfectly astonishing—beyond the most sanguine expectations who a few years ago took the most interest in such matters, and great credit is due to those enterprising artizans and manufacturers who have brought our agricultural machinery and implements to their present very high standard.

Having now drawn a few of the outlines of what is necessary to profitable farming and having started by stating that the best farming was the only system that could be profitable, I will draw this part of my subject to a close by alluding to one or two of the causes which for the last few years have been the cause of much uneasiness and alarm in the country. Since the visitation of the wheat midge the wheat crop has suffered to a ruinous extent year after year as to the supposed that its cultivation would be abandoned until the "destructive pest" passed away, or was starved or I believe that on many parts of the country the wheat growing has been discontinued for several years past. However, from the history of this most destructive pest known, it has been found to pass away a period of six or seven years. It is that time since it first visited the country where I reside, and its ravages now in a great measure ceased; not that we have ceased to grow wheat, but from observation and experience we have found out its habits. It is now almost universally believed that its mischievous and ruinous attacks, are confined to a

—say from 8 to 10 days; and that, so far as my observation has extended, as not varied more than from two to three days between one season and another, the first appearance of this pestilent er of the wheat crop; so that by having heat to shoot out before or after the season, is the system that has been used, and has in a great measure been entirely successful. Consequently, early varieties of fall wheat are in great demand; varieties of spring wheat, which are able to rust, can be sown so late as to be unharmed by the attacks of the insect. I mention, *en passant*, that what is called Fifte wheat has answered that purpose to much better than any other variety known or discovered. It is hardly necessary to mention its history, that being pretty well known; but this peculiarity of being rust proof, which no other that I have ever yet seen is, is really extraordinary and unaccountable. The way I attempt to account for it to my mind, is from the great stamina it possesses in itself as a plant, not only in its siliceousness, which possesses more *silica* in its composition than any other variety. (This substance is well known stiffens the straw, and it also glazes the surface of the stalk so as to prevent the seeds of the rust or mildew from coming on it.) I go on the now almost generally acknowledged principle that rust is a vegetable of the *fungus* tribe, propagated by its own seed; and that in order for its seeds to vegetate, other circumstances must be favorable, and because the question has this blaze or varnish surface to so large a degree, it is thereby impervious to the vegetation fungus, should the seed be sown upon it. A very apt comparison may be drawn between this kind of straw and most others, comparing a hard graveled road with a soft road; the Fifte with its glazed stalks is like a hard road, and the soft strawed is like a fallow field. The conclusion is arrived at. But this wheat not only possesses this property in its stalk or straw, but is also richer in its nutritive qualities than other kinds by holding a greater proportion of gluten in its composition, with a large amount of sugar, which form the component parts of wheat or flour. It has also great vitality in the early stages of its growth, and is more wet weather without sustenance than any other spring grain.

The high standard of farming which obtains in Great Britain cannot so easily be arrived at with us in Canada, on account of one sort of labor, such as is done there by women and children, who are chiefly employed in weeding, hoeing, hay-making, and other light work of the farm. But to partly compensate for those advantages possessed by the mother country, we have a drier climate, rendering the killing of weeds less troublesome, and hay-making a much shorter process; and the great improvements that have been made, within the past few years, in the construction of our agricultural implements and machines, have been of great service to our farmers, and almost counter-balance the difference between us and the agriculturist at home.

Having mentioned along the way a few of the difficulties that beset the path of the person who attempts to carry out the principles of high farming, I would still urge him to keep his standard high, and by diligent perseverance the end will be obtained; and under the benign rule of our gracious Queen, and under her liberal government, the farmer of Canada has nothing to fear. Our educational institutions are second to none in the world—where our youth can have all the advantages, at a cheaper rate, obtained from such institutions, than anywhere else; and if, in past years, mismanagement in the financial affairs of our country have taken place, we must try to do better in future. Our country is young, and full of elasticity. Our lands are fertile; and by following the steps of other nations who have arrived at success, with the blessing of Divine Providence upon our efforts, we have before us a brilliant future.

MEETING OF THE BOARD.

Friday, Sept. 21, 1860.

The Board resumed at 3 p.m.

Present—Messrs. Thomson, Alexander, Beatty, Ruttan, Denison, Pell, Burnham, Christie, W. Ferguson, Wade.

Several Appeals against the decisions of the Judges were received and referred to Committees.

The Secretary submitted some Accounts sent in for printing and advertising, for which no order had been given by the Board.

Resolved—That in consequence of bills

being presented for printing which was not ordered by this Board, for the future no bills shall be paid unless the work for which they are rendered shall have been ordered by the Secretary.

After disposing of numerous matters of detail, connected with the business of the exhibition, the Board then adjourned till further notice.

THE EXHIBITION

AT HAMILTON, SEPTEMBER 18 TO 21, 1860.

(Reported by Mr. William O'Brien.)

The Exhibition of the Agricultural Association of Upper Canada which has just been brought to a close, will long be regarded as a most brilliant epoch in the records of the Society. Closely connected with the visit of the illustrious personage who made it the scene of his last public appearance in this part of the dominions of his Royal mother, it possesses an historical interest which time will not readily efface, while as a memorial of the progress which we have made in those branches of industry most essential to our prosperity, it far outshone all that have preceded it. So complete, indeed, and so splendid an exposition of the resources of the country could hardly have been anticipated, and there is therefore especial reason to rejoice that the exhibition was held at such a time as to enable the future head of the empire, and the ministers who accompanied him, such a fair opportunity of judging for themselves of the nature and variety of our productions. To say, indeed, that the exhibition for the present year excelled all previous ones would be but to use a remark which, we are happy to say, has been applicable in turn to each that has yet been held; it is within the truth to assert that at no time in the history of the Association has so decided an advance over former years been shown in our agricultural progress, or so general an effort put forth to display to the best advantage the position to which, in this respect, the country has attained. On former occasions the progress made has generally been visible in one or two points only; the remarkable feature this year was that it was equally manifest in all essential particulars, and that nowhere was there

any deficiency to mar the general appearance of the whole.

The Exhibition ground, which, we remark, is in all respects the best, and most picturesque that has yet been selected for the buildings erected upon it, which are both handsome and commodious—the various incidents connected with the two visits of the Prince of Wales paid to the exhibition—all these have already been fully described through the Press, that it is needless for us to revert to them in detail. To the public at large the double attraction of the show and of the Prince was irresistible, and such a concourse of people gathered together as probably never assembled at any one time in Canada be greatly to the benefit of the funds of the society, which were never before so largely enriched by the sale of tickets of admission.

On Tuesday, the 18th September, the exhibition was opened for the judges, most of whom had concluded their labors by evening. On Wednesday, as usual, men only were admitted, and as it was understood that the Prince would visit the ground during the day, the sale of members' tickets was unprecedentedly large. About six o'clock the Prince arrived, but such a concourse immediately gathered about him that it was impossible for him to form any idea of the nature of the show, and he was obliged to retire without having seen anything but masses of people who everywhere surrounded him, much to the disappointment of the officers of the Association. On Thursday the public were admitted, and the inauguration of the building by the Prince was formed. On this occasion His Royal Highness was more fortunate, for every one who went outside to witness his approach, the doors were immediately closed, and the Prince was kept clear until the illustrious personage had time to inspect all the articles of the exhibition, without crowding or inconvenience. With the show of fruit in particular the Prince expressed himself highly delighted and certainly, in this respect, as well as many others, there was everything to excite astonishment in the minds of those who were accustomed to regard this country as yet on the threshold of civilization. The opening ceremonies then took place, at which His Royal Highness received the address of the Association, which, we believe, will be found elsewhere, and was then sent by the Secretary with a copy

usactions, magnificently bound. This the Prince walked and drove round the ground, and subsequently the Duke of Newcastle, accompanied by some of the officers of the Society, minutely examined the cattle and sheep, going into several of the stalls, and looking about him with an eye evidently capable of forming a correct opinion on the subject. With the show of grain, Grace appeared to be particularly struck, and requested that a lot of samples might be set up for him as specimens of our staple production. The reception of the Prince was, throughout, of the most enthusiastic nature.

On Friday, the meeting of Delegates took place, at which H. C. Barwick, Esq., of Woodstock, was elected President of the Association for the ensuing year, and F. W. G. Esq., of Guelph, and Asa Burnham, Esq., of Cobourg, Vice-Presidents. It then resolved, after a short discussion, that the next Exhibition should be held at Hamilton. It is only right to mention here, during the exhibition every attention was paid to their visitors by the people of Hamilton, and that all their arrangements, especially those of the Local Committee, upon the most liberal scale, and fully redeemed the pledges which they gave when Hamilton was fixed upon as the place for holding the exhibition.

In this brief *resumé* of the principal facts connected with the exhibition we now proceed to report in detail upon the principal features of the show, and especially those of interest to our agriculturalists.

USE OF THE FIELD AND THE GARDEN.

It is of first importance, though not generally regarded as they ought to be, that we commence with

ROOTS—(FIELD GROWN.)

There is nothing so essential to good husbandry as the cultivation of roots, and that is equally necessary for the profitable rearing of live stock and grain crops, is a truth which even the most obdurate among our farmers are at last compelled to admit. A useful auxiliary in teaching this all-important lesson was the much-dreaded last year's crop, with its universal scarcity of fodder, which also taught how much of the latter was saved by its being properly prepared.

But valuable as the straw cutter is as a means of saving dry food, without the turnip our stock would fare but badly, whereas by the conjunction of the two, not only do they thrive better than on hay, at far less expense, but a larger amount of ground is rendered available for grain crops, and as more cattle can be stall fed, more manure is obtained, and the average yield of grain to the acre vastly increased. With these facts before us, of the truth of which every year's experience affords additional proof, it is gratifying to find, at our Provincial Exhibitions, a steady growth in the quantity and quality of articles of this description. So great indeed was the number of samples exhibited at Hamilton, that the portion of space allotted to them in the main building was soon found to be insufficient. A large tent was accordingly prepared for their reception, in which they made a magnificent display, especially when it is considered that the time of the show was unusually early, and that they had fully a month to grow before arriving at perfection. Inside the tent we noticed from five and twenty to thirty specimens of Swedes, some indeed rather overgrown, but generally not only of large size, but of good proportions, well-shaped and clean-skinned. Of all that were exhibited, there was not one lot, that for the time of year, would not have been a credit to any farmer in the world. One parcel contained four roots, which were said to weigh collectively 75 lbs. In point of shape, and clean growth, these monsters were not, however, equal to many other samples exhibited. Of white turnips there were also some very fine specimens, though not so many as of Swedes. Of mangel wurzel, both of the long red and yellow globe varieties, there was a splendid show, both in quantity and quality, there being altogether some forty lots exhibited. We are glad to see this valuable root so much upon the increase, and none of our farmers who saw the specimens exhibited at Hamilton could fail to be convinced of its productiveness as a field crop.

Besides turnips and mangels, there was a large show of field carrots and parsnips, all exceedingly creditable, a fine lot of Kohl Rabi, some splendid samples of sugar beet, some very fine field cabbages, and last, though not least, three monster squashes, the largest we have ever seen.

Of potatoes there was an almost endless variety, including all the kinds best known,

in greater or less purity, with several others of mixed families, whose paternity was not always distinguishable. All the specimens shown had a fine healthy appearance, and we saw no symptoms of anything approaching to the rot. The skins indeed were remarkably clean, and judging by the size and quality of the specimens shown, we should conclude that the potato crop is a large one.

The show of roots generally was far in advance of any that we have seen on any previous occasion, and though the past season has, no doubt, been unusually favorable for this species of crop, it is equally certain that a very great advance in their cultivation, and therefore a great step in agricultural progress, has latterly been made.

GRAIN.

Returning to the main building, from which these roots had been removed, we found upon the right-hand side of the northern entrance the finest collection of grain that has ever been seen in Canada, and perhaps in America. For the Canada Company's prize for the best 25 bushels of Fall wheat, there were no less than thirty-two entries; the number of entries for wheat altogether being two hundred, brought from all parts of the Province; although judging from the localities mentioned in the prize list as the abodes of the successful competitors, the premiums appear to have been chiefly awarded to samples grown upon light soils, which generally produce the finest grain, though not the heaviest crops. Those who examined the grain may easily form an idea of the difficulty which the judges must have experienced in making their award. Out of the whole two hundred lots, or thereabouts, only one weighed less than 63 lbs. to the bushel, and of all this enormous quantity there were but one or two samples which could be set aside at the first examination as undeserving of further notice. At most exhibitions of grain, a large proportion is generally at once disposed of by the judges in this way, but in this case it was different, and it was only by the most careful weighing of the whole that anything like a correct decision could be arrived at, and even then there was such an equality in the best specimens, that it was no easy matter to make an impartial choice. Of the samples fixed upon as the best, a great many reached the weight of $66\frac{1}{2}$ lbs., and if weighed in the ordinary way, the standard would have been even

higher. It was not alone, however, a fine quality of the grain, and the very average of its weight which were its only commendations; its purity from other seeds was equally remarkable, thus showing care taken in its preparation, and the quality of the implements used, as well as the nature of the soil upon which it was grown, and the good system of husbandry pursued in its cultivation.

The other cereals, such as peas, oats, barley, were also well represented, and general the remarks which we have made with reference to the wheat are equally applicable to them. The display of Indian corn was also unusually large and excellent. The show of grain as a whole spoke volumes for the quality of the harvest just gathered, and affords a bright prospect of returning prosperity.

GARDEN VEGETABLES.

Opposite to the grain was placed a fine collection of garden vegetables, which might have been studied to advantage by our farmers, who, in general, pay but little attention to the products of their gardens. The potatoes shown in this class exceeded in number and variety of sorts displayed in the tent outside, and appeared to be excellent of their kind. Other vegetables there was a large assortment. The onions were particularly good. Cauliflowers also were extremely good. The same may be said of the carrots, cabbages, beets, &c., all of which were well presented. Among other things were two choice assortments of capsicums, one of which, in particular, was most fully arranged. This part of the exhibition was by no means behind any other, displaying the position which the country, in the cultivation of those lesser agricultural productions, the value of which, in an economical point of view, can scarcely be estimated.

FRUITS AND FLOWERS.

We now come to what was unquestionably the crowning glory of the whole exhibition—a show of fruit such as could be excelled out of a tropical region, and in a country like this, affords the sure proof of its growth in wealth and civilization. Few are so ignorant of this country as to know that wheat and timber are its productions, but few even amongst its inhabitants could have expected to see

significant display of the finest and richest fruits which this climate can produce, as to be found in the centre of the exhibition building at Hamilton. It was not a few isolated specimens were there to what might be done with great care and lavish expenditure, but the choicest were displayed in such rich profusion as to prove the extent to which they are raised in different parts of the Province. Specimens of hot-house grapes could easily be seen, and of those grown in the open air, the varieties were both numerous and excellent. Rich looking peaches of various size, and with the most delicate and luscious plums, almost as large as any peaches, and most inviting in their appearance, were there in abundance, and every variety which the ingenuity of our growers has devised. Pears, too, of the best quality, were not wanting, and of the staple fruit of this country, the number of varieties was legion, yard upon yard, and so did they exceed upon the space allotted to them, that several baskets were unpacked from want of room where to display them. In fact, the whole of the portion of the building devoted to agricultural and horticultural productions was so densely crowded, and the ingenuity and exertions of the parties in charge of these arrangements were sorely tried before they succeeded in arranging them in a satisfactory manner. But to return to the fruit; it is unquestionably a show of which a Canadian might well feel proud, and we need not have been ashamed to show our Prince, as an offering of what our land can produce. And we cannot but be gratified that His Royal Highness, on making a tour of the building, must have felt proud of our country which could gather under one roof a display, not merely of the materials of wealth in its corn and other products of the soil, which as could not be surpassed in the West, but also of positive luxury in the display of fruits and flowers, of those choice varieties which require not merely a genial climate, but the existence of a degree of acquired wealth and cultivated taste as to be found in many older countries.

In setting the show of flowers, we have not to particularize, but that it was in every respect a highly creditable one, and especially to the gardeners of Hamilton and its vicinity, was universally admitted. The

members of the Toronto Horticultural Society also fully sustained their reputation both in fruits and flowers, as well as in vegetables, in all of which they carried off many of the prizes.

LIVE STOCK.

Having thus disposed of those articles, the cultivation of which forms the foundation of good husbandry, and the great staples of our wealth, we will now return to the exterior of the building, and take up in their order what to the general observer is of more interest than turnips or mangels—the live stock—the possession of which, in its highest excellence, is the chief object of ambition in the mind of every farmer. In this respect, as well as those already enumerated, the show at Hamilton exceeded all its predecessors, not so much in the number or value of new importations, as in the proofs which it afforded that the good stock is not now, so much as formerly, altogether in the hands of a few breeders, but that the exertions and enterprise of the latter have borne fruit in a general diffusion of well bred animals, not only to the benefit of the country at large, but also, it is to be hoped, to that of those to whose spirited exertions we are all so largely indebted.

HORSES.

To whatever reason it is to be attributed, we have always possessed in this country a breed of horses admirably suited for our work, and therefore the improvement in these animals is not perhaps so perceptible as in many other animals. But as the country changed from a half-cleared wilderness to a highly cultivated region, as good roads took the place of bad ones, and as the latter were in turn supplanted by railways, and also as a more thorough system of cultivation was introduced, a different description of animal was required. Thus of late years the small active horse of all work, who could plough lightly his acre and-a-half per day, and trot home from market over the worst of roads, or, in sleighing time, easily make his seven miles an hour for a long journey, has given way to a heavier and more powerful animal who trots less, but can plough more deeply the stumpless field, and draw on the macadamized road, or for the short distance to the railway station, a heavier load than his more active predecessor. Thus we have now at our shows as an agricultural or general purposes stallion, a much heavier animal

than in former days. Although we have discarded the pure Clyde as too big and clumsy, we are constantly importing fine Clydesdale, or Cumberland, or Yorkshire horses very little inferior in bone and weight of carcase, and by breeding from them, we have very much increased the size and weight of our farming stock, and of this style of horse there were at Hamilton many fine specimens. Still, however, since even in these days of triumphant materialism, blood cannot be altogether superseded by bone, the thorough-bred horse maintains his supremacy, and we were therefore glad to find at the show this year a larger number of thorough-breds than usual. Foremost among them, and indeed the animal most deserving attention among horses of all classes, was "Antonio," a thorough-bred stallion just imported by Dr. Morton, of Bradford, in the County of Simcoe, well-known as thoroughly versed in horse flesh, and devoted to all that tends to their improvement. The advent of a new blood horse of really fine quality, is an event of sufficient importance to be worthy of special attention, and we therefore gladly avail ourselves of this opportunity of giving some particulars of the valuable animal whose services Dr. Morton has brought within reach. From "Antonio's" pedigree, we learn that he was full brother to "Anderson," who was winner of the Derby in 1854, and who is now in the stud of the Emperor of Russia; he was got by "Bay Middleton" out of "Sister to Agis," by "Defence;" g. d. "Soldier's Joy," by the "Colonel." "Antonio" was bred by Mr. W. Etwale, and purchased from him by Sir Robert Peel, by whom he was sold to Dr. Morton. "Antonio" was foaled in 1856, and as a three-year old he ran at Ascot, Newmarket, and Goodwood, winning stakes and matches to the amount of \$10,000. He is a dark bay, with black points, without a single white hair, stands 16 hands, with plenty of bone and muscular power, and when in flesh will make a very showy animal. When shown at Hamilton he was low in condition, having been in training when purchased, and suffering also from the effects of the voyage. Of the other horses shown in this class there were none worthy of special mention. "Antonio" took the first prize for this year, which as he was newly imported, was trebled, and also the gold medal as the best blood horse of any age.

The show of agricultural horses, roadsters,

and heavy draught horses, was very both as regards the number of those and their generally good qualities. We not aware, however, of any fresh innovations in these classes, or of anything of especial mention; the published list gives the names of all who were declared by the judges to be deserving of premium.

DURHAM CATTLE.

Before entering upon a description of cattle we should observe that the accommodations provided for them were better more extensive than upon any previous occasion. At Kingston, it is true, that the principal cattle shed was for its size better ranged than any at Hamilton, but it not have held the animals that were exhibited. The shed at Kingston will be remembered, a double one, he raised and boarded passage between two rows of stalls; a most convenient arrangement for the inspection of the cattle. At Hamilton the stalls were erected all the walls of the enclosure, and though there were no covered ways for visitors, still they were roomy and convenient for the exhibitors.

The show of Durhams, though unquestionably very fine, did not display the marked features of improvement visible in other departments of the exhibition. Fresh importations having taken place, some of the best herds being not so conspicuously represented as on former occasions. And what was remarked upon as a special circumstance, and was certainly felt to be a thing but encouraging by those who had gone to so much trouble and expense in curing new stock, was, that in several instances the prizes were awarded to those that have been long in the count which, whatever their other good qualities may have been, were generally regarded as deficient in those finer points which are the aim of every breeder to attain. It is especially the case with regard to age, and the conclusion is inevitable, that the decision of the judges in these cases is correct, as very possibly it was, that the labors of our importers for some years have been in vain.

The observation which we have previously made, that at this year's exhibition there have been more generally distributed than formerly, is especially the case with Durham Cattle, for, as will be seen from the list, a number of new names appear

of the successful competitors who have hitherto attained any celebrity as breeders. This is certainly encouraging to young breeders, as proving that without going to an enormous expense incurred by our principal breeders, it is possible to produce animals worthy of a place at our Provincial Exhibitions. But without doing justice to other exhibitors, we may say that the herds of these well known breeders, F. W. Stone, of Guelph, and Geo. W. Markham, are yet unsurpassed in the country. The former received the prize for the best herd, although to none of the animals composing it were first premiums awarded, and the latter for his two-year-old bull, "Prince of Wales," a very fine young bull imported in 1859, received the gold medal for the best Durham bull of any age. The prize for the best bull of any breed was awarded to Mr. W. Armstrong, of Markham, who imported three year old "Young Side."

Besides the thorough-bred shorthorns, there were some very fine grades exhibited, prominent among which were two cows bred by Mr. Hodgskin, of Guelph, but which were apparently so very nearly thorough that they might have shown in that class. They certainly were not superior in size or fineness of quality by the standards which obtained the first prizes as thoroughbred animals.

DEVONS.

A show of Devon cattle was unusually good and several new competitors appeared in the field. The large herd of W. H. Wood of Yarmouth, presented, as usual, a very attractive appearance, and as this gentleman never houses his cattle on the farm but makes a point of keeping them in some conspicuous place, they showed to the best possible advantage. Mr. Ferrie, of Doon, had also a very fine herd and took a number of prizes. Mr. Wilmot, was also a large exhibitor, and his cattle, though well bred, are smaller, and so well kept, as those of some of the other breeders, and do not compete so successfully as they ought to do. Mr. Courtice, of Weston, was, on this occasion, very successful as a competitor for prizes, and the Rykerts, of St. Catharines, appeared for the first time with a number of cattle which promise well for the future, their stock being better than that from

which they have been breeding. The only new importations that we observed were two calves, a bull, and a heifer, the property of J. Spencer, of Whitby. The prize for the best bull of any age was awarded to J. Davis, of Clarke, and that for the best herd to W. H. Locke.

HEREFORDS.

We are sorry to see that this very valuable herd is becoming almost extinct in the country. The only animals exhibited were those of Captain Skene, of Amherst Island, and J. R. McMicken, of Stamford, who divided the premiums between them. None of their cattle were entitled to any special commendation. We speak from experience when we say, that no single cross upon the common cattle of the country produces more immediate and desirable effects than that of the Hereford, especially as regards feeding qualities.

AYRSHIRES.

If we may judge by the number of animals of this breed that were exhibited, it is certainly growing in favor with Canadian farmers. In the prize list, among the names of the successful competitors, will be found those of several who are new to fame, and whose appearance on this occasion proves that the breed is rapidly spreading in various sections of the country. The principal exhibitor was P. R. Wright, of Cobourg, who showed eleven fine head, for which he received no less than twelve prizes, including that for the herd, six of them being first prizes. Mr. R. L. Denison, Treasurer of the Association, is also an extensive breeder of Ayrshires, and he had on the ground a number of fine specimens. Owing, however, to the fact, as we were informed, that some question was raised as to the purity of his stock, for which there is not the least foundation whatever, justice was scarcely done to his really handsome bulls. His heifers were certainly scarcely in condition for show. J. Nimmo, of Camden; Jardine, of Saltfleet; Dixon, of Binbrook; and George Morton, of Morton, whose stock was purchased we believe from the herd of Mr. James Logan, of Montreal, were also successful competitors in this class.

[To be continued in our next.]

CLEANLINESS.—Compare the dirtiness of the water in which you have washed when it is cold without soap, cold with soap, hot with soap.—You will find the first has hardly removed any dirt at all, the second a little more, and the third a great deal more. But hold your hand over a cup of hot water for a minute or two, and then, by merely rubbing with your finger, you will bring off flakes of dirt or dirty skin. After a vapor bath, you may peel your whole self clean in this way. What I mean is, that by simply washing or sponging with water you do not really clean your skin.

Take a rough towel, dip one corner in very hot water—if a little spirit be added it will be more effectual—and then rub as though you were rubbing the towel into your skin with your fingers. The black flakes which will come off will convince you that you were not clean before, however much soap you may have used. These flakes are what require moving. And you can really keep yourself cleaner with a tumblerful of hot water than a whole apparatus of bath, and soap and sponge, without rubbing. It is quite nonsense to say that anybody need be dirty. Patients have been kept as clean by these means on a long voyage, and where a basinful of water could not be afforded, and where they could not be moved out of their berths, as if all appurtenances of home had been at hand.

Washing, however, with a large quantity of water has quite other effects than those of mere cleanliness. The skin absorbs the water, and becomes softer and more perspiral. To wash with soap and soft water is, therefore, desirable from other points of view than that of cleanliness.—*Notes on Nursing, by Florence Nightingale.*

SWIFTESS OF BIRDS.—A German ornithologist says the vulture can fly at the rate of 150 miles an hour. Observations made on the coast of Labrador convince Maj. Cartwright that the wild goose can travel at the rate of 90 miles an hour. The common crow can fly 25 miles; swallows, according to Spallagin, 92 miles an hour. It is said that a falcon was discovered at Malta 24 hours after the departure of Henry IV. from Fontainebleau. If true, this bird must have flown 15 hours at the rate of 57 miles, not allowing him to rest a moment during the whole time.

ANALYSIS OF THE ATMOSPHERE.—An instrument has been invented by M. Pouchet, the French microscopist for concentrating upon an infinitely minute surface all the solid and normally invisible corpuscles floating in the atmosphere, so as to allow of their examination by means of the microscope. He succeeds in concentrating upon a glass, and within the space of two square millimetres, all the particles disseminated in a cubic metre of atmosphere. The new instrument will be valuable in facilitating microscopic analyses of the air in hospitals and other

localities, where, for hygienic purposes, a knowledge of the purity or impurity of the atmosphere is deemed desirable.

Editorial Notices.

BLACKWOOD'S EDINBURGH MAGAZINE FOR OCTOBER.—New York: Leonard Scott & Co. Toronto: H. Rowsell. Leonard Scott's report of this number of Blackwood has come to us somewhat earlier in the month than usual. This number is an attractive one, although containing rather a larger proportion than usual of light and amusing matter; which however the way will probably render it none the less agreeable to the majority of readers. The following are the titles of the articles:—

Seeing is Believing; The Papal Government Licker 2d among the Thieves; The recent Traces of Primeval Man; The Romance of Agostini, Part II.; The Fresco Paintings of Italy—The Arundel Society; Proverbs; A Meeting; Progress; Strength; Norman Sinclair: An Autobiography. Part IX. Blackwood's year. Blackwood and any one of the four views \$5. The four Reviews and Blackwood \$10.

AYRSHIRE CATTLE—Patrick R Wright, Esq. Cobourg, C. W., breeder of Ayrshire Cattle and Sheep, &c., has several young Bulls and Heifers for sale. His herd is well known as one of the best in Canada West, and his terms of sale liberal.

Full Pedigree of all animals—U. C. & Register.

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For the half year commencing 1st July the price will be 50 cents. Nine copies for \$2.