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THE

Canadian Agriculturist,

OR

JURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE

OF UPPER CANADA

OL. XIV. TORONTO, JUNE 1, 1862. No. 11.

The Provincial Exhibition.

announced in our last issue the holding of Exhibition of the Agricultural Association Upper Canada will take place in Toronto, tember 23rd—26th—and preparations are making to render the accommodation to classes of exhibitors as ample and com- as possible. Hitherto there have been grounds for complaint among farmers the arrangements for the accommodation attle and other kinds of live-stock have been fully equal to the requirements of ase; a defect which it is believed will remedied for the future, as extensive per- ent buildings have now been erected in of our principal cities; an expense that not have to be incurred again, and leav- thereofore each locality to make better and extensive rangements for meeting the s of the farmer, whose interests though exclusive are confessedly the most impor- of any in these displays of the skill and stry of the country. Two new erections permanent character for the accommoda- of horses and cattle are in the course of ion on the show grounds in Toronto and er in the proximity of the original ex- ion building for the reception of the im- nts and putting machinery into motion. for sheep, pigs, and poultry will be more nient and ample than heretofore. And gh it is confidently believed that the amount of material in every department of our Provincial industry will be considerably larger this year than on any former occasion, the local committee in Toronto have commenced preparations on what is considered will prove a proportionate scale. In estimating the amount of accommodation required at these national competitions, there is a tendency as the exhibition grows in years *to improve in quality*, which after all is the main test of the character and utility of these great gatherings. It is in no point of view desirable that any thing be sent to a Provincial competition which is devoid of positive excellence; what might be considered as passable at a township or even a county show should be well considered before sending it to occupy valuable space in a Provincial display, which would be mainly made-up of what is really superior. We make these observations not with a view to discourage intending exhibitors, but rather to stimulate all such as have any thing really worth seeing to send it forward, that the *status* of our Provincial shows, the quality and excellencies of their material, may be progressively improved and elevated.

We would particularly call the attention of intending exhibitors and others interested in the exhibition to the rules and regulations appended to the prize list, as published in our last; copies of which are being printed in pamphlet form, to be circulated among agri-

cultural and mechanics' societies throughout the province. It will be seen that the departments of live stock and agricultural productions are to be this year thrown open to general competition, so that we may reasonably expect a number of competitors appearing from the adjacent British Provinces and the neighboring States.

The Weather and the Crops.

Up to the date of this issue of our Journal the weather has been very favourable for getting in the spring crops, which work, with the exception of Swede Turnips, and some other fallow crops, may now be said to be completed. For Swede Turnips the first and second week in June, or say about the 10th of this month, has generally been found to be the best time of sowing, provided the weather and the state of the ground be suitable. For the growing crops this season there has been a great lack of moisture. In this portion of Canada, there can scarcely be said to have been more than one day's good rain since spring work commenced. Fall wheat generally looks pretty well, and did not suffer much from winter killing or late frosts, but spring wheat and other spring grains are seriously retarded for want of rain, and unless we soon have sufficiently copious showers the meadows will give but a short crop. An esteemed correspondent from West Northumberland writes us:—

"Our crops have been mostly all got in in good order, and, notwithstanding the spring was late, vegetation is as far advanced now as it usually is at this season of the year. The weather was favourable for getting in the crops well. Rain is wanted now, and unless we have some soon our hay crop will be light, indeed all crops want rain."

The accounts are pretty much the same from all parts of the country, west, as well as east, but we hope that a few days of plentiful rain may soon put a different face on the appearance of the fields. The Kingston Whig of a late date says:—

"Rain is badly needed, at least most farmers are crying out for it. Peas and potatoes are doing very well. In this section of Canada, the crops have been put in exceedingly well, and in ample time, the weather being very favourable for spring work. But the country wants rain badly, and the hay will suffer if rain does not soon fall in abundance. As little winter wheat is sown in this neighbourhood, we can offer no opinion as to its state of forwardness, but have heard no complaints as yet. A large breadth of rye has been planted, and that looks well.

Reply to the Address of Condolence to Her Majesty.

The following correspondence was inadvertently omitted in a previous issue of our journal. It is in acknowledgement of the Address of Condolence to Her Majesty, on the occasion of the death of the late Prince Consort, adopted at the convention of the Agricultural Association held in this city on 30th January last.

QUEBEC, 19th April, 1862.

Sir,

I am directed by the Governor General to transmit to you the enclosed copy of a despatch from the Secretary of State for the Colonies, conveying Her Majesty's gracious reply to the address of condolence from the Agricultural Association of Upper Canada.

I have the honour to be,
&c., &c., &c.,

DENIS WILL
Governor's Secre

H. C. THOMSON, Esq.,
&c. &c., &c.,
Toronto.

[Copy No. 89.]

DOWNING STREET,
4th April, 1

My Lord,

I have the honor to acknowledge the receipt of your Lordship's despatch No. of the 14th ultimo, together with an address of condolence to the Queen from the Agricultural Association of Upper Canada.

I have to request that you will inform the Agricultural body from whom the address emanated that it has been laid before the Queen, and that Her Majesty was much impressed by the expression of sympathy and devotion.

I have, &c.,
(Signed,) NEWCASTLE.

VICOUNT MONCK,
Governor, &c., &c. &c.

International Exhibition.

33 CLAPHAM RISE, S.,
LONDON, ENGLAND,
6th May, 186

Editor of the Canadian Agriculturist.

Sir,—Having arrived at Liverpool on the morning of Saturday the 3rd inst. after a very pleasant voyage across the oc

ook the train at 9 a.m., and arrived at the aston Station at 2 p.m., took a cab to our mfortable quarters as above, and on Monday th, I paid my first visit to the Exhibition. I und our Canadian Department presenting a ery creditable appearance, and, from the ex- nsive and well arranged specimens of mine- logy and woods, attracting much attention. he articles of the exhibition are not nearly all their places yet, and the arrangement of the partments is not completed, but from the rsory observations I was able to make,— d I found every one who had an opportunity making the comparison of the same opinion, will as an exhibition far exceed that of 51. I was particularly struck with the im- rements in the Implement Department, to hich I, as a matter of course, gave my first tention. There a great many new inventions a very useful kind, and old inventions per- ted and improved. Steam is brought largely o use in performing the most important oper- ons. I only at present make general obser- tions; when I have made a more particular amination, I may be able to give some details t will interest your readers. The English, h and Scotch manufacturers seem all to have erted themselves most successfully in getting a show of useful labor saving implements, ich exceeds by ten times anything of the d I have ever seen. Our neighbors, the ericans, notwithstanding all their difficulties, make a very creditable appearance. Though y have not nearly so much on exhibition as 51, they have not more than one-fifth of the e they had on that occasion, and will in con- uence make a better appearance. Their de- ent is not yet complete in its arrangements. French are also behind in their arrange- ts, but will have a splendid display. The cles on exhibition from Sheffield, Birming- , Huddersfield, and indeed from all other of England, Scotland and Ireland are be- description. The value is immense. One alone has more than a million pounds h of articles on exhibition.

stralia makes a good show, particularly in ereals. The grain is very superior.

think I may safely say that the International bition of 1862 will be an entire success. building itself externally has not so elegant ppearance as its predecessor, but much taste artistic skill have been displayed in its in- , and the effect will be very imposing and .

ith respect to the appearance of this beauti- untry at this season, it is most delightful. trees in full foliage and bloom, the early grain covering the garden-like cultivated , the luxuriant grass, all produce a most effect. No finer season of the year be selected for a visit to England than the of May. The country is truly lovely, and le seen to be appreciated.

We were unfortunate in not getting here in time for the opening of the exhibition. Owing to the delay on the railroad we were two days behind time in leaving Portland. The opening was a most splendid affair, as you will see by the English papers.

May 7th.

I yesterday again went to the Exhibition, and examined the Nova Scotia and New Brunswick departments. They are very good, many arti- cles of superior quality. Vancouver's Island sends some of the finest grains I ever saw. The colonies generally are well represented. We went in the afternoon to Sydenham Palace, and were really enchanted with it. There is nothing can be imagined more delightful than the sur- rounding scenery. We have to go again to make an examination of those departments of the palace that we could not get through yesterday. The drive from where we are, about four and a half miles, is very fine; the fields are looking so beautifully green and luxuriant that it produces the most pleasing sensation to see them. There have been several showers within the past few days and the air is warm. Vegetation is rapid; the tares are fit to cut for food for animals, and you see loads of them carried about. The month of May has been, so far, all that could be desired, and the people seem to enjoy it.

This is rather an important day at the Exhi- bition, as the juries are to meet, some six hundred, and organize for the commencement of the gen- eral examination, which will probably occupy the whole of this month. Professor John Wil- son is the party who has the general manage- ment of this matter. That gentleman occupies the same position on this occasion that he did in 1851. The organization is to commence to- day at 11 o'clock, and as I must now close in order that this may be in time for the mail, I will say no more at present.

Yours, &c.,

E. W. Thomson.

Second Letter.

London, May 12th, 1862.

Since I wrote last, there have been quanti- ties of rain falling almost every day; and it has been somewhat cold, though not unsually so for the season, people say. The weather ten days since, I find now, was considered unusu- ally warm. Notwithstanding that last week has been cold and wet, the trees and fields maintain their cheerful and delightful appear- ance. The exhibition attracts its thousands, and all who do not hold three guinea season tickets pay their five shillings entrance fee.

There is still a good deal to be done to get everything in its place; but there is enough in complete order to employ visitors for weeks in examining and admiring. The French de-

partment is one of the most attractive. The manner in which their Agricultural products are displayed is highly creditable to them, and exceedingly interesting. Australia is displaying most splendid samples of wheat, wool, and fancy woods. There is in that department a very novel article in the way of a machine for reaping, or rather gathering the wheat, and delivering it perfectly clean in a box, from which it may be bagged or deposited on a grain cloth. The straw, chaff and dust are left in the field and burned. The machine is not cumbersome; and, I am told by Australians, is found to be most efficient. It certainly is a valuable labor-saving machine, but would not answer where it is an object to save the straw. But in that country they do not require the straw, and therefore find it the best way to burn it, the ashes adding something to the fertility of the soil. The whole collection from Australia is very fine; and it is not to be wondered at that it attracts the attention of parties desirous of emigrating. The French department is still incomplete; but it is already very attractive, and will be much more so. The Austrian department is still behind, but will be good. Norway has a very fine display, particularly in woollen manufactured goods, in which it is amongst the best. Turkey will be well and creditably represented. I have no doubt it will be three weeks yet before all is arranged. There are still goods to arrive; and, although the time for receiving them has expired, they are receiving them notwithstanding, and every day unpacking and fitting up.

May 13th.

The Jurors are at work, but their progress is slow; and it will take a long time to get through all the classes. I am in Class 3, Sec A, Agricultural Produce. The most of the Jurors are foreigners; but as they are able to make themselves understood in English, we get on very well. They are intelligent, and thoroughly understand what they are about. We were to-day in Tasmania and New Zealand; both of which colonies exhibit fine specimens of agricultural produce. The specimens of Indian Corn from New Zealand are very good, and in all the varieties I have seen of that grain, from the very small white to the largest horse-tooth variety. But I think the variety known with us as 12 Rowed Yellow is the best amongst them.

There is a good deal of novelty in the stuffed skins of animals and birds from all those southern colonies. The animals are also very attractive. Ornamental woods are also very well represented; but for the useful woods, for general and commercial purposes, it is generally admitted that Canada excels all other countries. Our collection in that department is exceedingly good. The wools from the Australian Colonies attracted much attention, and deservedly so, for they are very fine. There are also many samples of cotton from the Southern Colonies, of various degrees of goodness; but I am not qualified to judge of their merits. We shall, doubtless, have the recorded opinion of the jurors by and by, as well as the result of their decision upon all the fibrous substances, which are very numerous and from various countries, and amongst these Jamaica and some of the other West India Islands hold conspicuous places. Russia, Norway, Sweden, and some of the other portions of Europe will exhibit fibrous productions.

A person visiting this grand display of the productive resources of the various countries of the earth, though returning daily, is impressed each day with wonder and admiration at the wonderful displays of the Divine goodness of the Great Ruler of the Universe who has so amply provided for the wants and the gratification of the desires of the whole human race. Your's, &c.,

E. W. Thomson

On the Cultivation of Flax.

We have of late devoted considerable space in his journal to the culture and preparation of Flax, and as the subject is exciting more earnest and general attention than heretofore we lay before our readers the following remarks from the *Irish Farmer's Gazette* of May 3rd, which were drawn up by Mr. Thos. Berry, farm steward to Lord Gormanstown, at the request of several parties in the County of Wilts, who are desirous of carrying on its cultivation. Mr. Berry grew last year in that part of England 5 acres of flax, a sample of which gained the prize of £15, at the Royal Agricultural Society's Show at Leeds. Steam cultivation was employed in the preparation of the land, and the results were in every way most satisfactory. The following remarks embrace the details of the cultivation of Mr. Berry's prize crop, and will give our readers some useful suggestions:

Being solicited by parties feeling desirous of growing flax (as an extra and remunerative crop) to state to them my method of preparing the soil, sowing the seed, and after management in preparing it for delivery to the flax mill, I will willingly comply with their request.

In the first place, the soil must be stirred 8 or 9 inches deep either with the plough or some sort of cultivator or grubber; many varieties of the which last mentioned implements are now in use amongst agriculturists generally, and the

-m, I find, by going through the soil twice or -ce, will effectually move it the requisite depth. ave found Bentall's cultivators to answer well that purpose; and in preparing the land for - I m-ch prefer them to ploughing it. uble the quantity of work can be done in one - with the same number of horses with the llivators, than with ploughs, the soil is much repulverised, and all weeds are brought to the -ce. The plough turns the weeds under, if ,, in the surface of the soil, which must after-rds be found, and only with considerable our got out.

This deep tillage I should advise being don the autumn, or as early in the spring as cir stances will admit of, being governed by the e of the soil; for the land generally becomes towards the middle of March, and from that od to the middle of May. The sowing of flaxseed may, therefore, take place in the th of April, that being the month in which sowing is most extensively carried on hroughout the United Kingdom.

the soil got its first tilling in the autumn, ong previous to the time of sowing, the cul-tors, or grubbers, as they are termed, large fine harrows must be freely used, and rollers as well, if the *clods* are *hard*, in order *to g the surface to as fine a tilth as possible*; act, the tilth cannot be *too fine*. If the ce after the several harrowings be still h and hard, the rollers used cannot too heavy. When the soil is very two or three horse rollers will be d to be required, and if used most frequent-ter the harrowing, will produce the very results, in speedily pulverizing the soil suf-tly fine for the reception of the seed. surface should always be rolled the last thing ious to the seed being sown with seed as or seed harrows (so called in some parts country), at the rate of two bushels per statute measure. Two men, with a couple e machines, will sow from 20 to 30 acres . I should insist on their going over *all* ound, one of them wheeling his machine. om north to south, the other from east to ach man being provided with marking to guide the width and to which he should quite straight to each, sowing after the f one bushel per acre with each machine. ason of this cross sowing is for the pur of having the seed distributed quite regular rolled surface of the soil; as a most im-oint is, by this process to obtain an good quality, as well as a full average fine flax. When the two men have com-the *first* square of a few acres, the other d boys will commence harrowing and to finish with, first harrowing in the seed e finest seed harrows that can be pro-and if fine seed harrows cannot be had, harrows in most cases will answer the pur-ite as well. The seed does not require being covered more than one inch beneath the surface by the seed harrows. I would suggest rather *less* than *more*, as the surface must be well rolled afterwards, if the land *be dry*, such being the last process of sowing. If the land be very dry, the heavier the roller the better; the dry or moist state of the soil must be the guide for the rolling, whether light or heavy rollers be used throughout the whole process of working the land during the sowing.

Flax is sometimes drilled an inch deep and six inches wide, at the rate of from 1½ bushels to 2 bushels per acre: this method affords an opportunity of hoeing the weeds with very small and narrow hoes; not more than 2 inches wide. When the ground is perfectly dry this last operation should be performed. When the flax crop is under a foot in height a good number of hands should be put at the work (that is, when the weather and soil permit of the hoers and weeders executing their work), as all the flax sown otherwise than by the drill must be weeded by the hands, and not with hoes. I scarcely need to mention that all the weeds that are accumulated on the surface of the ground under preparation for the reception of the flax seed should be gathered up and taken off; the implements found most useful for that purpose are chain-harrows, horse-rakes, hand-couch rakes and 3 and 4 pronk forks—the latter for putting it into the carts. I have described the preceding operations as being performed by *manual* and *horse* labour; but the preparation of the soil for the sowing of the seed can be more fully carried out by steam cultivation.

I prepared, in the year 1861, more than 100 acres by the use of steam, and upwards of 82 acres by horse and manual power, for the flax crops produced at Horton, Wilts. The crop there was very superior, indeed, both as to quantity and quality, and for a specimen of which a first prize of £15 was awarded to T. L. Henly, Esq., of Calne, Wilts, at the R. A. S. show at Leeds in that year. The crop is fit to pull in the month of July, or early in August, which takes place when the seed balls are found to turn from a *green* to a *pale brown* colour, and the stalk turned *yellow* two-thirds up its whole length. The cost of pulling flax is from 10s to 20s. per acre; but the cleaner the crops are from weeds, so much less will the charge of pulling it be than the latter sum named.

The flax, when sufficiently ripe, as before described, is pulled by holding the tops of the flax in one hand, the other being placed about half-way down the handful of flax straw; it is pulled with a jerk, and if any dirt adheres to the roots of the flax a blow or two against the leg of the person pulling, in most cases, will cause it to drop off, a very desirable thing, as dirt amongst the flax and seed is very injurious. The handful of flax that is pulled is laid on a band of 9 or 10 flax straws—handful succeeding handful until a sufficient quantity is on the band; then when

tied the same as wheat makes a small sheaf of about 18 or 20 inches in circumference. The sheaves are stooked the same as wheat sheaves, of from 10 to 12 in a stook, but there are some who prefer stooking only 6 sheaves in a stook; in both cases the stooks should be turned if one side is more ready than the other to carry and rick, that each side of it may have an equal share of the sun to dry the fibre. The object of putting only 6 sheaves in the stook is, because of the convenience of pitching them in one forkful on the cart or waggon when carried, and therefore prevents loss of seed, and it is also found to dry sooner than when a much larger quantity is put together in stooks. The flax, when only a *small* quantity is grown, is put in small *round* ricks. When a *large* quantity is grown, the flax is put in *square long* ricks, 10 feet wide at bottom, 8 or 10 feet feet *high in the side, and then* a short roof thatched as soon as finished. Or if not *immediately* thatched, it must be well covered to prevent wet getting to the flax. If such, however, should by neglect take place, then very considerable injury will most probably be found to be done to the flax in question. This system of carrying the flax without steeping it is for the warm water system of preparing flax at the manufactory, and when the grower disposes of his crop to the flax manufacturer, for which class these remarks are written.

After the crop of flax is carried, it will prove an excellent plan to skim the surface of the ground about 3 inches in depth with the common skim plough, Bentall's cultivator, or, in fact, any implement that will be found to perform the work in an efficient manner. Then harrow and cart off (or burn on the ground) all refuse flax and weeds that can be gathered up upon the surface. After all this is performed the ground can either be ploughed or worked by cultivators of steam or horse power. The land may then be sown with rape, late turnips, rye, or vetches, or planted with cabbages adapted for sheep feeding in the months of April and May; of these the thousand-headed cabbage ranks as one of the very first. The seed of this cabbage should be sown either in March or April, for planting out in the months of August or September. If the land be manured after the flax crop, the same as clover stubbles or lea are for wheat, as good a crop of wheat can be grown *after flax* as ever can be grown *after clover*. In proof of such being the fact, it will only be necessary for me to refer any party to see the present beautiful growing crop of wheat *after* flax on Townsend Farm, Horton, in the parish of Bishop's Cannings, near Devizes, in the county of Wilts.

The flax crop can be grown to yield an average crop on suitable soils almost after any other crop has preceded it. The soils best suited for its growth would be found to be strong loams and clay soils; the clays on chalk and limestone formation would prove as good as any chalk, or limestone brash will be found to grow excell crops of flax. Green sandy soil, I have no hes tion in stating, will also grow good flax crops, the land be well prepared for the recep of flax seed, and the soil also suitable that purpose, *it will be found that more to do towards producing an aver crop of flax than anything else has; vast deal more so than manuring for with bad tillage.* Lands heretofore were rarely, indeed, manured for growing flax, though latterly I have known it in some to be done.

A good crop of flax can be grown after white straw crops, (say, wheat and oats), ducing three or four ton per acre on suitable well tilled for the putting in of the flax The flax always seems to me to answer wel *following oats after grass* and clover leas; the best results, I am certain, have been pr to follow this course when adopted, in most stances, on many farms.

In the northern counties of Ireland, w more flax is found to be grown than in any parts of the United Kingdom, the growers make it a general practice, when their la cleaned, to sow clover seed amongst their and the growers' most sanguine expecta have always been realized by the system adopted. Crops of clover produced in this are always found to be far better than those duced by any other method, which can be seen and proved by any observer who may travelling through these districts. The convincing proofs of the entire success of ducing superior crops of clover in Ea have been witnessed, I know, in various thereof. I will here mention, by way of tration, one instance only of the *fondness* I know clover has of growing amongst the crop. J. Parry, Esq., of Allington, near vizes, Wilts, sowed a field of flax in the 1860. The crop proved to be a very sa one. In the following year, 1861, he mo crop of clover off the same field, without viously sowing any clover on that field. h red clover, too, which makes it the mo markable, it is found to be almost always rare for *red* clover to come indigenous *white*. When clover seed is grown with a crop, I would suggest that the land sho previously made perfectly clean, and freed all couch in particular, and then it may sown in the same quantity per acre as if with any other crop, and it should be o that the clover seed is sown at the same t sowing the flax seed, before the roller go the ground the last time, *i.e.*, after the fla has been harrowed in. The clover see also be sown after the flax crop has spr not exceeding six inches in height. W clover seed is sown amongst the grow crop, it must be left on the surface, for t pose of moist weather forcing its growth.

I have known that as good crops of clover as
r grew have been produced in this manner
n sown with barly or oats. If the flax crop
drilled, the clover seed may be sown either be-
or after being hoed; if sown after the hoeing
the flax crop, the surface will generally be
d to be sufficiently loose for the reception of
clover seed, which must be allowed to re-
n for the rain to strike it into the soil, which
then be found speedily to promote its
wth.

rass seeds may be sown at the same time as
clover seeds amongst the flax, or at a later
od if preferred. Grass seeds are as advan-
ously sown when the flax crop is taken off
land in August as *previously* thereto, and in
ase it gives the clover a better chance of
ing stock, as I have always found that the
grass does not, in *after* sowing, grow
ominant over the clover, to destroy it. The
r grows and flourishes well after the flax is
d.

rots are sometimes grown with the flax
and fair average crops, to my knowledge,
been produced by sowing from 3 lbs. to
of carrot seed broadcast per acre. In this
the carrot seed should be sown at the same
the flax seed is sown, previously to the last
wing with the fine seed harrow and the *last*
e. From 2 lbs. to 3 lbs. per acre may be
at two feet distance; and if the flax seed
led, the carrots must be drilled across the
lls.

variety of *red* carrot called the "Inter-
" is the best for sowing with the flax
This variety of carrot is well known by
arf top, which falls down on its hollow
which resembles the hollow-crowned par-
This carrot is found to be one of our very
the vegetable markets, and is one of, if
most nutritious for all kinds of farm live
If the carrot seed is sown where the flax
drilled, it should be sown fresh before the
; and in both instances the seed should
ed for 48 hours in water or liquid man-
or 12 days previously to its being sown,
done to cause its early growth, and to
at the same time as the flax seed—an
t point. When taken out of the
the water strained from it, the seed
n be mixed with sand or ashes, or
and ashes mixed together, and after-
rubbed with the hands. Its proportions
pecks of sand and ashes to 1 lb. weight
seed. This is the quantity generally
the seed to separate, but more may
if found to be requisite for the sowing
of the carrot seed.

the carrot seed across flax drills is
nient for thinning out the carrots to
er distances, from 7 to 10 inches in

judice once existed against the grow-
in this country; but this will be now
seen to be an antiquated prejudice, handed down to us by our forefathers, who then knew but very little, or next akin to nothing, of the useful art of making manure, and still less of preparing artificial manures. They were in the habit of sowing the flax after they had exhausted the land to the very utmost by sowing cereal (or, more plainly speaking, white straw) crops, at that time not at all considering that they had exhausted their land, previously to the flax crop being sown thereon, and yet, strange to say, expected the land to yield a good crop of wheat after the flax crop; and when that desired object could not possibly be obtained, the flax crop was considered to be the sole cause of their disappointment.

If land has become exhausted by cropping, and *wheat* being the desideratum of the grower, after his flax crop has been secured and got in, he has then only to manure his land with farm-yard manure, or with such artificials that are found to be the most suitable dressing for the wheat crop.

It must, I am sure, be obvious to any observant person that the *roots* of the *flax* are *not* so constructed as to exhaust any soil, the small (I may say), very fine tap roots only from 2½ to 3 inches long, with its beautiful thread-like fibres, about one inch long growing around it, has been satisfactorily proved by scientific men as not to exhaust the soil anything equal to our corn crops. The flax fibre is principally formed by atmospheric power.

Finally, *the advantages of growing* flax are:—The grower of flax gains a crop that is in many instances more profit to him than his *best wheat crop;* and that after his land will not yield to him a remunerative crop of any kind without the aid of manure (either from his fold-yard, or artificial). The clear profit of the flax crop will, I am persuaded, after selling it in the straw, enable him to purchase artificial manure for six times the quantity of land which his crop of flax grew upon, which is, let me say, a very considerable item of economy in farm expenditure, as well as combining many other advantages in the succeeding crop, as before explained; as also affording him the earliest opportunity of autumn tillage, if he choose to follow that after the flax crop be carried in August, or, perhaps, July, according as the season may be.

Dr. Letheby on Diseased Meat.

[We take the following extracts from Dr. Letheby's report, respecting the sale of diseased meat in London. The Doctor is the medical officer of health, and has been very energetic in the discharge of his important duties.—These are matters requiring to be looked after in the more populous towns of this continent.]

"In the course of the last fortnight the (fi-

cers have seized 4,763 lbs. meat, and 111 head of poultry and wild fowl, as unfit for human food. It consisted of 59 sheep, 3 calves, 14 pigs, 27 quarters of beef, and 45 joints of meat; 3,269 lb. of meat were diseased, 182 lb putrid, and 1,312 lb. were from animals that had died from natural causes. Some of this meat was little better than carrion, and having been condemned by the justice, he submitted that the the city solicitor should be instructed to take further proceedings. The practice of sending diseased meat to the city markets is again on the increase, and it was to be regretted that in a few cases the salesmen do not give the assistance to the officers which they ought. On Saturday last one of the inspectors seized the carcase of a sheep which had been slaughtered while in a state of acute disease, and had been sold as human food by Messrs. Bonser & Sons, of Newgate market. Those gentleman complained in a public manner of the act of the inspector, and stated that although the animal was diseased, and the meat not of first quality, it was, nevertheless, fit for human food. The terms and directions of the act of parliament are so precise, and the responsibility of the inspector's duty so serious, that he has no alternative but to seize such meat. By the 26th clause of the City of London Sewers Act, 1851, it is declared that if, after the seizure of such meat by an inspector, and upon further examination by him (the medical officer) it is found and declared to be diseased, or unsound, or unwholesome, or not fit for the food of man, the same shall be burned or destroyed, or otherwise disposed of in such a way as to prevent the same from being exposed for sale, or being used for the food of man. In the present case, the meat was not only diseased, but the animal had been killed while in a state of high fever from acute inflammation of the lungs and pleura, and was manifestly unfit for human food. This conclusion was derived, not merely from the fact that there were pleuralic adhesions between the lungs and chest, for these alone are of small importance, and are never regarded as serious signs when they are of old standing. It is rare, indeed, to find an animal entirely free from them, although its flesh may be in the soundest condition. They are, in fact, the signs of disease which have passed away. In the present case, however, the whole of the walls of the chest were covered with recently effused lymph, which was hanging upon them in pulpy threads. The pleura was in a state of active inflammation, and the animal, at the time of its death, was suffering from acute pleura-pneumonia.—The whole system, therefore, must have participated in the disease, and have been affected with concomitant fever. The meat of such an animal, however good it may appear, cannot be good for human food, and the inspector would be wanting in his duty if he had failed to seize it. It may be that the disease had lasted a short time, and that the act of a butcher anticipated the wasting effects of the and the final process of nature; but none these circumstances can render the flesh w some, or make it other than the act of liament designates—'diseased and unsou Unfortunately, it is a common practice farmers and cow-keepers at the present slaughter animals afflicted with a hopeless ease, in order that their carcase may be sav the shambles. There is hardly a cow-ho the metropolis which is not continually fe ing diseased animals to the butchers Ve cently these houses have been inspected by Gamgee, the principal of the Veterinary C in Edinburgh, and he has stated publicly, last number of the *Edinburgh Veterinar view*, and elsewhere, that the diseased c the London cow-houses are invariably sent city slaughter-houses to be killed for f One cow-keeper of the city told him th July last, out of an average stock of 30 he sent upwards of a score to the butc Considering how prevalent disease has b the last two or three years among the c London, it is very probable that thousan imals have in this way been disposed of practice is not without danger; for alth may generally pass unnoticed, it now s shows itself in an unmistakeable manne the month of November, 1860, the effe witnessed by the medical officer on rather scale. A quantity of cow beef was b Newgate Market by a sausage maker st land, and made up into sausages in t way. The meat was not of first quality; sausage-maker observed such meat never is always quite second rate. It was a cow that had been sent to the butcher London cow-house. Epizootic dise prevalent at that time in the cow-house don, and it is very probable that the an affected with one of them. It was a and had ceased to give milk. This w dealer would confess; but the flesh of mal told a terrible story. Of 66 pers partook of the sausages made from it, attacked with the symptoms of poiso the severity of the symptoms were in s portions to the quantity eaten. In so where members of the family had not of them, they alone escaped, and pa from Kingsland, who had bought the of a second dealer suffered likewise. were those of an animal poison, they ness, purging, giddiness, great prostr vital powers, intense irritation of t and in one case death. The matter to the medical officer by the coroner gation, and it was also fully inquired Tripe, the medical officer of health trict where the accident occurred.

-ing that the effects were clearly due to sausages; and as the most careful chemical microscopic examinations did not discover a of mineral or vegetable poison, the conclu- was that the meat of the sausages was un- d. With such a fact, and many others of a description, before him, he should be want- in his duty if he permitted the sale of dis- d meat. He added that it as not an un- on practice for butchers to dress for the t the bodies of animals that had not been tered, but have died from accident disease. This practice, he said, is lly reprehensible. About a month ago the was contested with Messrs Bonser & Sons, ewgate Market, who sold the carcase of a sheep, as it is termed, for food. As in the t case, they insisted that the meat was and wholesome, although for aught he the sheep might have been accidentally d with arsenical sheep-wash.

e rules which he had laid down for the nce of the inspectors in the matter are, they are to seize the meat of all animals have not been slaughtered by the but- but have died from accident or disease.— they are to seize the meat of all animals while in a state of acute disease, or which wasted from lingering illness; and, lastly, they are to seize it when unsound from pu- ion or disease.

y were the wholesome ru . hat had been on from very early times, and are most re- y observed in the present day by the He- who have brought them down from the remo- tiquity. They are the rules of almost every ntal state, and were strictly followed by iles of ancient Rome. Finally, they are d, as well as sanctioned, by the laws of ity, and have been more or less observed in town in all times. It can hardly, there- be said that the exercise of the authority commissioners of sewers in this matter is vation, or that the rights and privileges butchers' trade are unnecessarily interfer- ; and even if they were, it is proper to ber that the preservation of public health re all such considerations."

Calves on Milk and Linseed Meal.

following remarks on a very important ment of farming, from a recent number *Irish Farmer's Gazette*, will be found to much that is suggestive and useful:

hen a calf is first dropped it is covered with slime which Same Nature teaches the instinct to cleanse by licking it off, and showsany disinclination, the country peo- induce her to do so, sprinkle it with a lit t and fine oatmeal. This is necessary for s comfort, cleanliness and health, and is thought by many usefully medicinal to the cow and on every account should be encouraged. If the calf is permitted to suck the cow it will be more difficult to make it take its meals from the the pail, and also fret and annoy the cow, which will not give its milk freely but retain it for its offspring. But though it will be necessary to prevent the calf sucking its dam for these reasons, it should be fed on the cow's first milk or beestings, which nature designs as its most nutritious food; and it is also medicinal, cleansing the bowels of the pent up meconium or fecal matter secreted there during its confinement in the womb. It should, therefore, get a sufficient portion of this naturally medicinal aliment four times a day, say a pint and a half at time, so as not to keep it fasting too long, and, at the same time, not to overload the stomach. The calf should get a portion of its own dam's milk as long as it retains its peculiar medicinal quality, which may be known by its coagulating upon being heated or boiled; but older calves should not get any of it, as to them it would be hurtful.

After the calf is a week old a little skim milk may be gradually mixed with the new milk, and after a fortnight, a li' fine oatmeal, bean, pea, or linseed meal mucilage may be added gradually, which will enable the industrious and economical housewife to save her milk for the production of butter or cheese, and rear her calves also.

No doubt but that the best and most proper food for the calf is its own dam's milk: for it is a true food, in which the components of nutrition are so nicely balanced by the all-wise and benificent Creator as to set at nought all human compositions; but it is of so much value for human consumption that it becomes necessary to economize it and make imitations of it, though at a very humble distance; and thus it is that science comes to our aid. Professor Johnson says in his "Lectures on Agricultural Chemistry," "that while the calf is young, during the first two or three weeks, its bones and muscles chiefly grow. It requires the materials of these therefore, more than fat, and hence half the milk it gets at first may be skimmed, and a little bean meal may be mixed with it to add more of the *casein* or curd, out of which the muscles are formed. The costive effects of the bean meal are to be guarded against by occasional medicine if required. In the next stage more fat is necessary, and in the third week at latest, full milk should be given, and more milk than the mother supplies if the calf requires it; or, instead of the cream, a less costly kind of fat may be used. Oil-cake finely crushed, or linseed meal, or even linseed oil, may supply at a cheap rate the fat which, in the form of cream, sells for money; and instead of additional milk, bean meal in large quantities may be tried, and if cautiously and

skilfully used, the best effects on the size of the calf and the firmness of the meat may be anticipated."

This Scientific note from Professor Johnson has engaged the attention of many stock masters in Ireland. and amongst the rest, Mr. C. Beamish, of Cork, who adopted and brought it to a regular system on an extensive scale. His formula for compounding the mucilage is as follows: —Thirty quarts of boiling water are poured on three quarts of linseed meal and four quarts of bean meal. It is then covered up close; and in 24 hours added to 31 quarts of boiling water then on the fire, pouring it in slowly, and stirring it constantly to prevent lumps, with a perforated wooden paddle, so as to produce perfect incorporation. After boiling 30 minutes, the prepared mucilage or gruel is put by for use, and should be given blood or luke warm to the calves, mixing it in small quantities at first with the milk, say one fourth, mucilage with three-fourths milk, progressively increasing it, so that by the end of a fortnight it will be in equal parts; by the end of the third week, one and a half mucilage to one part milk;; by the end of the fourth week the mucilage may be given in double the quantity of milk, and skim milk substituted for new milk, and by the end of the sixth week, the mucilage may be gradually increased in the proportion of two and a half to one of milk, and from that out till the tenth week the milk may be gradually reduced, so that by that time they may be fed wholly on mucilage till they are fifteen or sixteen weeks old, when they may be weaned.

During all this time, if too early in the season to put out the calves, they should be comfortably housed, well ventilated, and kept perfectly sweet and clean, a little sweet hay tied in bundles, and suspended so that they may play with it, and learn to nibble and eat it, and a little pounded chalk, mixed with salt, given in troughs to lick at pleasure, which prevents acidity in the stomach, and the undue formation of cud; small lumps of linseed cake should also be given in troughs, which they will soon learn to suck, if a little pains are taken to put a bit in their mouths after they have taken their meals of milk and mucilage, When housed it will be advisable to have a separate pen for each calf of sufficient size to walk about, so that they don't get into the habit of sucking each other, and swallowing the hair, which, uniting with the curd, by the regurgitating process going on in the stomach, forms round balls, which are indigestible, and is the fertile cause of the death of many promising animals. The following scale of quantity of milk or milk and mucilage combined for each calf may be useful, but should be altered according to circumstances :—For the first week the calf may get from 3 to 4 quarts daily; from the second week, 4 to 5 quarts; the third and fourth weeks, 5 to 7 quarts; fifth and sixth weeks, 8 to 10 quarts sixth to eight weeks, 10 to 12 quarts per day and so on, increasing the quantiny about 1 quart per week per calf till weaning time.

Some parties do not give so much liquid food per day, but make it up by giving them finely cut roots, dry oatmeal, &c., but the animals are much too young for such food, though they may get the minced roots, so as to train them to their use. Hay tea is an admirable thing also to mix with the mucilage and milk, as it contains a large amount of nutriment in a soluble form.

In the summer time the calves may be put out on the grass, both day and night, in a fortnight after they are calved, and fed as already described they should be in the house; but a warm, sheltered paddock should be provided for them, and in wet weather they should have access to a covered shed.

Straw as Food.

By C. W. Johnson, F. R. S.

(*Concluded from page* 297.)

In one portion of this essay the Professor closely and elaborately examines the nutritive and non-nutritive portions of the various kinds of straw met with in the stack-yard. Of the non-nitrogenised or carbonaceous substances found in straw, he observes: "Their use in the animal economy is of a two-fold character—either to supply the materials for the formation of animal fat, or to support respiration, and consequent animal heat. These different carbonaceous substances are not, however, equally well adapted to either of these uses, and may be divided according to the fitness and readiness with which they fulfil the one or the other functions, into

1. Fat-producing substances.
2. Heat-producing or respiratory substances.
3. Indigestible substances.

"To the first belong the oil, fat, and wax matter, which in straw, as already mentioned, seldom amount to much more than 1 per cent. Oily and fatty vegetable substances are eminently well adapted to the laying on of fat in animals, inasmuch as the composition of vegetable fat is analogous if not identical with the several kinds of fat in the bodies of animals. The fatty matters of food without undergoing much change are therefore readily assimilated by the animal organism, and applied when given in excess to the storing up of animal fat. On the other hand, substances rich in starch are especially fitted to support respiration. Oily and fatty matter, however, when given with a scanty supply of starchy food, become available for the support of respiration; and again, gum, starch, and sugar, when given to fattening beasts to excess are transformed into animal fat. There is in no essential difference between the fatty

hy constituents of food in so far as their are concerned, but each according to circstances can lend itself to the work which is more peculiar province of the other. The portion of carbon in fatty matter amounts to er more than 80 per cent., and is much er than in gum, sugar, or starch. Oil and for this reason, are not only better producers at than starchy and sugary compounds, but likewise more powerful agents for the sup- of respiration and the maintenance of ani- heat—the heat generated in the body being portionate to the amount of carbon consumed given time during respiration. Gum, sugar, ilage, starch, and a few similar compounds be represented as consisting of carbon and er only, and on account of the simplicity of ir composition they are well adapted to sup- respiration. The quantity of carbon con ed by the respiration of animals varies at ent times and in different species, according he rapidity of their breathing and their mode living. Under all circumstances, however, considerable, especially in the case of rumi- ing animals. Thus cows consume four-ninths he carbon contained in their ordinary daily by respiration, and throw it off in their ex ations in the form of carbonic-acid gas. ce the absolute necessity of supplying large- animals with abundance of carbonaceous d."

he chemical analyses of various kinds of w, by Professor Voelcker, form a very valu- portion of his report. It is only the gener- esults of these that I shall attempt to bring ther on this occasion; and this I shall do giving the different amounts of soluble and luble matters which the straw examined by Professor were proved to contain. This was mode of examination originally adopted by ge Sinclair, in his examinations of the dif- nt grasses cultivated in the grass garden Woburn, the results of which are given in valuable "Hortus Gramineus Woburnensis." mode of determining the nutritive value of ent grasses, observes Mr. Voelcker, by as- aining the proportion of matters soluble in , furnishes comparative results which en- us to form a tolerably good opinion of the ng value of straw. Indeed I find that the nutritious samples invariably produce the st amount of watery extract. Straw in ral he finds varies very materially in its ng value; and this to a considerable extent uenced by the degree of maturity it had ed before it was cut, the unripe being the nutritious, the over-ripe straw the least so. found in two samples of wheat straw, the one ripe, the other over-ripe—

	Ripe,	Over-ripe.
.....	8.14	.. 9.17
ances soluble in water.	8.77	.. 4.81
ances insoluble in water	83.09	.. 86.02
	100.00	100.00

In wheat stubble gathered in December—

Water	17.66
Substances soluble in water.....	5.83
Substances insoluble in water.....	79.51
	100.00

Similar results were obtained from other straws; for instance, in barley straw dead ripe was found—

Water	15.20
Soluble organic matter	2.92
" inorganic.....	2 88
Insoluble organic	77.62
" inorganic.....	1.38

In barley straw not too ripe—

Water	17.50
Substances soluble in water ..	12.40
" insoluble	70.10

Then, again, in the case of oat straw examined in three different states of maturity, viz., when green, when fairly ripe, and when over ripe, the following results were obtained—

	Green.	Ripe.	Ov'ripe.
Water.....	77.14	46.64	35.20
Soluble organic mat.	6.29	9.06	4.42
" inorganic ..	1.59	2.30	1.75
Insoluble organic...	14.72	40.28	55.48
" inorganic...	0.26	1.72	3.15
	100.00	100.00	100.90

The most valuable of the ordinary straws is that of the pea. This was found to be composed of—

Water	16.02
Soluble organic matters	11.28
" inorganic "	2.72
Insoluble organic "	67.77
" inorganic "	2.21
	100.00

With regard to the nutritive value of bean straw, great indeed is the difference of opinion amongst practical men. If we may judge from the discordant results obtained by Way and by Voelcker, it is probable that bean straw varies very considerably in composition, as influenced by soils, seasons, and varieties. The bean straw of 1860 and 1861 was analysed by Professor Voelcker. He found 100 parts of each—

Bean Straw of 1860.

Water	19.40
Soluble organic matter	5.69
" organic "	2.31
Insoluble organic "	71.20
" inorganic "	1.40

Bean Straw of 1861.

Water	17.75
Substances solubie in water ..	6.86
" insoluble in water.	75.39

The Professor adds, by way of comparison, the results of two analyses of hay—one well-made clover hay and the other good meadow hay. He found in 100 parts of these—

	Clover.	Meadow.
Water	20.50 ..	16.66
Soluble organic mat.	18.07 ..	17.79
" inorganic "	4.43 ..	4.37
Insoluble organic "	54.38 ..	57.78
" inorganic "	2.62 ..	3.40

The general conclusion to which the Professor arrives, from the results of his laborious and valuable researches on straw, of which I have made but a very small abstract, are these (to give his own words): "Assuming the land and climate to be equally well adapted for producing in each case, and the crops to have been harvested in the same stage of maturity, I am induced to place the different kinds of straw in the following order, beginning with the most nutritious, and ending with the least valuable for feeding purposes:—

1. Pea haulm.
2. Oat Straw.
3. Bean staw with the pods.
4. Barley straw.
5. Wheat straw.
6. Bean straw without the pods."

From careful researches like these, the young farmer will rarely fail to derive valuable materials for his profitable consideration The very varying value of the straw of the same cereal, according to its unripe, ripe, and overripe state, may, in this period of extending stock keeping and increasing demand for food, lead him to make sundry valuable calculations; and this differing value of the different kinds of straw may in some instances have a considerable influence in the selection of his rotations. In any case he will arrive at a wise conclusion if he is convinced that there are valuable observations yet to be made, chemical researches of an increasing value, even upon a green blade of grass or a golden straw, which will continue to profitably excite the curiosity and reward the studies of the agriculturist.

Manures for Grasses.

A thick carpet of such fine grasses as are seen in our old and rich lawns, is one of the most beautiful crops that can meet the eye. The great variety of species which are found in the best pastures flourish on the same spot for centuries, and grow without much or any care bestowed upon them by man. It is, generally speaking, only first or second class land that yields good permanent pastures. All the best and most nutritive grasses soon die out when the soil is poor and unsuitable. This in many cases does not seem to arise so much from an actual deficiency of nutritive matters as from a certain condition of soil which does not maintain its roots in a healthy state. On a great many descriptions of land, the application of lime has a wonderful effect in lending vigour to worthless and worn-out lands when all other applications have comparatively little. One of the functions of this agent appears to assist in the healthy decomposition of the accumulating vegetable matter.

When inferior pastures arise from an actual deficient supply of mineral matters, such as phosphate of lime, the application of bones is well known to produce favorable results. The use of bones has been the right arm in increasing the productive powers of our rotation pastures, though, for obvious reasons, the effects are now usually much less marked on these than on turnips.

In the manuring of grasses and turnips with phosphates, a few well-marked characteristics of these crops ought to be kept in mind as guides to the economical use of the substance. The grasses in an old pasture field or even those of the young layers of some of our rotations, have an ample staff of roots running through the soil. These are already in contact with the earthy food of plants, and can much more easily take up what they require than a plant like the turnip, which has all its roots to form, must grow fast, and meet with a corresponding liberal supply. This is the secret of the magical effects which a dressing of superphosphate often has upon young turnips. We can sometimes to dress liberally with phosphates or superphosphates, for the turnips, even when there is abundance of the fertilizing ingredients to which they owe their efficacy already in the land.

It is quite different with our grasses, natural or artificial. By the permanent mass of roots which they leave in the soil, they can grow luxuriantly when the supply of phosphates is no more scanty. For this reason it is seldom that phosphates or superphosphates can be economically used either for pasture or hay, where the land is under a regular rotation. What of the substances remain, after the demands of the turnips and succeeding white crop have been satisfied, are usually far more than sufficient to produce full crops of grass, if nitrogenous manures are only used.

For these reasons, there is scarcely any crop to which nitrates or manures containing ammonia can be used with greater certainty than grasses. Their roots, being thickly strewn over the land, readily absorb these soluble manures when broadcasted over the surface. The very fact of rapid growth succeeding such application shows that the plants are obtaining supply of the earthy matter they require.

The comparatively moderate price of nitrate of soda of late years has caused it to be much more generally used for the grasses.

erly. From one-and-a-half to three cwts. acre is the common quantity applied. Where er the common or perrennial ryegrass large- redominates in young layers, nothing will up such a heavy crop as nitrate of soda. best time for its application is just when tation has made a decided start.

n the other hand, when the red clover plants more plentiful, Peruvian guano, which is soluble, and comes more slowly into action, ually considered better suited than nitrates. umn dressings of guano often strengthen the er plants and make them keep a vigorous of the land. Guano, too, should be applied er in spring than nitrates in all cases, cially where clovers abound.

ed clover is a much slower growing plant either Italian or common rye-grass. It does therefore, make so good a return for appli- ns of nitrogenous manures. And, besides, e grown as a mixed crop, the true grasses times rise so rapidly with liberal manurings they often overtop and weaken by their e their slower growing rivals. Were clovers n alone they would be far more grateful itrogenous manures, but, being usually mix- ith ryegrass, they are not placed upon an l footing. This is all the more apparent nitrates are used for a well mixed layer of seeds. In this case a full and well mixed of hay may be drawn up, but the clover are far more exhausted and less fitted for ucing an aftermath than when guano is ied.

ought always to be kept in mind that there special unfitness in clover for being bene- l by dressings of nitrogenous manures. er and ryegrass, as usually grown, have ly different capabilities for digesting or assi- ting a certain amount of nitrogen in a given . The difference in this respect between red er and Italian ryegrass, which may be taken epresentatives of two different families of ts, is not nearly so great as betwixt these and other individuals of their respective lies or orders. It is only a few of the many reds of grasses that respond to liberal treat- t, and are therefore fit objects for cultiva- If a rich old lawn is dressed richly with genous manures, a few species grow up be- all the others, and keep them out of view. ed, as in the animal so in the vegetable dom, each species has a limit or capacity of th which cannot be exceeded. We have ceased to look for the plants which will without manure, but, instead, for those h in some measure act the part of gluttons, at the same time give a good account of thay are supplied with. No plant can, ps rival Italian ryegrass in this respect, for, supplied with moisture and manure, it s almost uninterruptedly throughoutspring, er and autumn.—*Scottish Farmer.*

The Earthworm—Its Use.

Reaumur calculated that the number of worms on the earth exceeds the grains of all kinds of corn used by man, and as, perhaps, there is in other animal so preyed upon without any diminution in numbers as the earthworm, the calculation may not be far wrong. Hedgehogs, frogs, and moles devour it; beetles pray upon it, and often *cast* their young on it—and but for the earthworm a large portion of the bird family would soon deteriorate or perish, for, with the exception of the finches, there is scarcely a bird, from the robin to the wild-goose, but eats it, and many, during open weather, live almost solely upon it. After a summer shower, the farm-yard ducks actually race against each other along the roadsides in search of it; and on wet days they each devour hundreds. All river fish feed to a great extent upon it; and wherever the river beds are of a clayey substance, worms are more plentiful than in *terra firma*.—The river worms are darker in colour and flatter as a whole than the earthworms, but so little do they differ in appearance that a novice could not tell the land from the waterworms. The worms in the water live under the embedded stones, and trout are generally on the watch to gobble them whenever they leave their abode; they even move and turn over the stones in search of worms and the larvæ of water flies.—When a flood comes, the stones are generally displaced in great numbers, and at such a time (in a river such as the Tweed, for instance) the worms must be dislodged and carried along the river bottom in tens of thousands; and it is for such food, too, that ducks are constantly *gumping* among river shallows; for, if watched, it will be seen that they insert their bills below, or move, mostly all the likely stones they pass. We have frequently turned up worms at a depth of about one foot in the rivers.

But though the worm yields a considerable amount of food to the birds and fish that grace the dinner table, it is much more beneficial to man as a fertilizer of the land. Subsisting on the earth through which it burrows, with an occasional meal from a decaying tuber or leaf, its peculations from the husbandman are of the smallest nature; whereas it lightens "the earth's surface" by its burrowings, and thereby aids the spreading of the roots of all cereals and bulbs; and the burrows also carry down water after heavy rains, that, but for them, would often gather in surface-pools, and thereby injure the crops; and they also admit the air to the soil to a depth by which by natural means it could not reach. The earth ejected by them also tends to the improving of the soil; and instances are known whereby these droppings or "worm casts" caused in a few years, a considerable increase to the depth as well as the quality of the soil. Mr. Darwin, the naturalist, gives

an account of a case of this kind which he tested, and from experiments he clearly proved that, in an old pasture, a layer of cinders and lime had been covered within a few years, to the depth of an inch, by the castings of worms. "On carefully examining," he also wrote, "between the blades of grass in the fields above described, I found scarcely a space of two inches square without a little heap of cylindrical castings of worms." Now, a week or two ago we chanced to walk through an old pasture, and we were much struck by the number of the worm-casts it showed. They were, we are certain, nearly, if not as numerous as those mentioned by Mr. Darwin, and they darkened the field so much, though the grass was growing, that the caused some parts of it to look as if newly top-dressed. And when the fine soil thus raised gets spread by the feet of sheep or cattle, we doubt not but a stimulating top-dressing it will make. We have since examined several old pastures, and the castings were numerous in each; but we noticed that they were fewest on the pastures where lime had been most used. This we set down to the hurtful effect that lime will be likely to have upon the wormlings.

The earthworm is in more cases injurious to the gardener than the farmer The giant lobworm occasionally carries the main leaf of a young plant bodily into its hole; and in gardens, the bareness of the soil enables the observer to notice that it is a common thing for worms to drag straws, grass blades, plants, leaves, &c., into their holes; but for what purpose these are carried down nothing definite is known. The things taken down, however, pass into manure.—The worm in the garden has its uses if it has its faults; and when it partakes of "green meat," which it never does extensively, the food selected is generally some vegetable or root rendered soft by decay.

They do not penetrate the soil to any great depth, because they require air. In stiff soils they are not generally found much beyond a foot from the surface, but on lighter soils, through which they bore with more ease, they may be found deeper. At all events, they go deep enough to permeate the soil, and air and drain it, at a depth to which the plough cannot reach, and for which, we fear, they get but little credit. Indeed, their usefulness is seldom thought of, whereas by many they are still ignorantly looked upon and loathed as the

"Wriggling tenants of the grave."

—*Scottish Farmer.*

Liebig estimates the amount of nitrogen abstracted per acre by the hay crop at 56lbs, equal to 104lbs of ammonia.

The hay of red clover, cut in full flower, 25th June, contained of water 16.60, of ash 5 90, of woody fibre 31.37, of nutritive substances 46.07 per cent.

Agricultural Intelligence.

Spring and Summer Horticultural and other Shows.

Niagara Electoral Division Society, at Niagara, June 27th.

Kingston Electoral Division Society, Horticultural Show, at Kingston, July 2nd.

Provincial and State Shows, 1862.

Upper Canada, at Toronto, September 22—26th.

Lower Canada, at Sherbrooke, 17th, 18 19th September.

New York State, at Rochester, September to October 3rd.

Illinois State, at Peoria, September 29 October 4.

FLAX SCUTCHING.—The Flax Scutching machine lately imported by the Government presented to the Board of Agriculture of Upper Canada, and of which an account has already appeared in this journal, was submitted to a trial experimentally, in Toronto a few days ago. number of gentlemen interested in the production of Flax were present, and were satisfied the machine will prove a most efficient ment, and will be the means of saving a large portion of the expense heretofore incurred the preparation of the fibre for market. Parties who have flax on hand which they wish have scutched may obtain the use of the machine by application to the Board of Agriculture and paying the necessary expenses. At present has been sent to Newcastle, West Durham, dress a quantity of flax on hand there.

Cultivation of Flax in Canada.

Meeting of the Belfast Linen Trade.

Yesterday a meeting of the linen trade was held in the council-room of the Chamber Commerce, to hear a statement from Mr. Donaldson, Agent of the Canadian Government regarding the capabilities of Canada for the production of flax, and the facilities which exist there for its successful cultivation. W. McMaster, Esq., was called to the chair. The other members present were, Messrs. John Hind, John Cuddy, E. H. Thompson, Mitchell, J. Wallace, W. H. Patterson, W. Crossley, Henry Dickson, Charles W. Shaw, W. McIlwrath.

CHAIRMAN—I have merely to say that, consequence of what Mr. Donaldson, the Immigration Agent of Canada, said to myself other members of the linen trade upon the cultivation of flax in Canada, we thought advisable to hold a meeting and hear what had further to say on the subject. We held

ting last week, which was attended by a limited number of the trade, and what rought before us we considered of such rtance to the trade that we thought it to call another meeting, and let the bers decide whether any steps should be en. The secretary will read the minutes he last meeting, and then Mr. Donaldson make his statement for your information. r. McIlwrath (secretary) read the minutes the last meeting, and the advertisement ening the present meeting.

ommunications from Mr. Jonathan Rich-on, M. P., and Mr. James Herdman, Stra-e, were read, in which these gentlemen ed their inability to attend the meeting.

r. Donaldson (who produced and laid on table several samples of flax, both in the w and in the scutched state—the produce Canada) said he had little to add to what had said before. When in Belfast, last he found there was a great demand for raw material, and that exertions were be made to secure the cultivation of flax in and other places; and the question nat-lly arose, could flax not be grown in Ca-a? On his return to Canada he brought matter before the Canadian Government, were well pleased that he had given his ntion to the matter here. He visited the ous agricultural meetings in Canada; and ing gone through various parts of the try, he thought the best thing he could would be to bring samples of the flax both straw and in the scutched state to Bel-They were now before the meeting, for inspection of those present. Although the ples were very good, they were not near good, he thought, as might be produced.

r. Patterson.—You have had some of an's machines sent out.

r. Donaldson said that immediately when went back to Canada he had advised the ernment to send for a number of Rowan's scutching machines, and on his statement ir efficiency, which had been proved in country, a number were ordered by the dian Government. He did not hesitate y that the soil of Canada was well quali-for the cultivation of flax. It was some-g like the soil of this country, and the ro-n of crops followed generally similar to t they did here. Last year about 2,000 of flax had been grown in Canada. His cipal objects were—first, to show the mer-ts of Belfast that in Canada flax could be ma suitable to their market, and, next, to ise the flax merchants of this country to out some party to give instructions in production of flax, such as would be suit-. The people of Canada were now con-able consumers of the manufactured arti-and the more flax was cultivated there greater would be its export to this coun-try, and the greater the import of the manufactured article, so that it would be advantageous to both.

The Chairman said, judging from the sample he saw, there was little doubt that flax could be grown, but at what price could it be set down here? Where did the 2,000 acres go which were grown last year?

Mr. Donaldson—It all went to the United States, except a small parcel that came here to Mr. Preston.

The Chairman—What was got for the produce generally?

Mr. Donaldson—I think about £40 a ton. One company that has scutch mills, bought 1,500 acres out of the 2,000; but I am sorry to see that by fire $40,000 worth of flax and buildings have been destroyed. I am quite satisfied we can raise an acre of flax or anything else as easily as you can here. The labourers there are better paid for their labour. A man who gets 4s. or 3s. 6d. a day for his labour will, of course, do more work than a man who only gets 1s. 6d. It takes £7 10s. to £10 to raise an acre here, and I am quite satisfied that it can be raised in Canada for £4, considering the cheapness of the land.—One of my objects is to get the manufacturers of Belfast and the province to send a party to Canada to give instructions respecting the proper mode of growing it; and I think, if this be done, the farmers there will adopt the growth of flax more readily. The Government make an offer of paying the passage to Canada and the travelling expenses of the gentleman so sent. A son of Mr. McCrea, of Strabane, with whom the trade are familiar, offers to go for £200 a year, and this expense would be very trifling to the merchants of this province.

Mr. Hind—For what purpose was the flax used in the States?

Mr. Donaldson—For canvas and cordage. Mr. Preston, I believe, got £50 a ton for some of what was sent here.

Mr. Hind—Is there any prejudice in Canada against the growth of flax?

Mr. Donaldson—None, except it is hard to pull.

Mr. Hind—It takes eight women to pull an acre here.

Mr. Donaldson—Four men will pull an acre there, and it is cut as close as meadow—close to the ground.

Mr. Patterson—A country that could produce this flax could grow flax fit for any purpose.

Mr. Donaldson—I have no hesitation in saying that, when you are going to such expense in the cultivation of flax, if you give any attention to Canada, you will get a plentiful supply there in a short time. By encouragement you will get as much in two years as you will from other places, I believe, in five

or six. As we increase growing you will increase selling to us.

Mr. Patterson said that a great deal of what Mr. Donaldson had said was much in accordance with his own opinion. He saw an article from Mr. Donaldson in the Toronto Daily Leader, and it was evident that the public of Canada were alive to the matter. He (Mr. Patterson) had written a letter to that paper, and in it said that, if they would grow the flax, the people of Belfast would buy it.

Mr. Hind said there was no doubt that how to obtain a better supply of flax was the most important question connected with the linen trade. Mr. Donaldson's proposition was a very feasible one; but would it be right for them to teach the people of Canada how to grow flax that might be bought up by a competing country?

Mr. Donaldson—Yes; but I am sure you will get the preference.

Chairman—Is there any duty in the States?

Mr. Donaldson—I think 12½ per cent.

Chairman—That would be quite protective enough.

Mr. Donaldson said at present farmers did not generally sow flax in the best land. He had had a conversation with Mr. McCrea about it, and he was quite satisfied that in Canada flax could be grown equal to anything grown in Ireland. He had not spoken his own opinion merely.

Mr. Hind said they were met to give assistance to this project or the reverse. There could be no doubt at all about the importance of this question to the flax spinners of Belfast, and the country generally, and anything that could give them an increased supply of the raw material would certainly be a great boon to the trade. But it should be remembered that the United States was very near Canada, and that, especially in the States bordering upon Canada, there had lately been considerable progress made in both cotton and woollen manufactures; and, of course, if they saw their way, they would be naturally anxious to advance in the manufacture of linen also. If the people of Belfast subscribed their money for the cultivation of flax in Canada, they might be merely giving encouragement to the manufacture of linen in the United States. He (Mr. Hind) would be glad to see a good supply of flax coming from Canada, or any other place that could supply it, but he had no desire that they should put a whip into the hands of those who should whip them. Let there be a guarantee that some direct benefit would be gained by it. How could they tell whether or not one ton of the flax would ever come here? How could they tell whether or not the Americans would give a higher price? He (Mr. Hind) was afraid the project was not looked on very successfully by the manufacturers of this part of the country, else they would have had a larger meeting to consider the question. He did not want to take a narrow view of the question; but the linen business had not the elastic nature of the cotton business, and they should be naturally jealous of not letting the trade escape from themselves. If a guarantee were given that a portion of the flax would be sent here to be sold at market prices, the question would be different. There was no doubt the flax could be grown. The question was should they take any steps in the encouragement of the growth of it?

The Chairman said it could not be expected that a gurantee would be given.

Mr. Donaldson—Of course if the Americans give £50 a ton for it, and no more could be obtained here, I could not secure the flax to you; but I don't think you need fear getting a very large portion of it.

Mr. Hind—We have got none of it yet.

Mr. Donaldson—There were only 2,000 acres grown last year, and very little of it would reach your market. But we can grow what will reach your market, which I don't think the Americans will purchase.

Mr. Hind—But the facility of getting it might easily raise a market in America for it. We have made two or three attempts to force the cultivation of flax, and the very places where we did so we got least from; and it occurs to me that, if the farmers of Canada find it to be for their interest to cultivate it, they will do so irrespective of any assistance from this province. If they did not find it to their interest to cultivate it, they could not be made grow it. If they get a better price here they will send it here. If not, they will not send it. If they can make money by growing wheat they will grow wheat, and if they can make more money by growing flax they will grow flax; and if the Government of Canada are anxious for the growth of flax, £200 a year is not a large matter to stand in the way. I think all we can is to say:—"Here is a market for you. We will give you all encouragement that a buyer can give a seller if you only bring it to us. But it is not our duty both to pay for the cultivation of the material and then to purchase it."

The Chairman thought they should first see how much of this season's growth would come here. He thought the cultivation was more a Government and farmer's question than theirs. Instead of being beneficial to them it might be injurious.

Mr. Donaldson—Seeing the anxiety on the part of the manufacturers and flax-spinners here to get the raw-material, and, seeing that they had subscribed towards its cultivation in Ireland, I was convinced that you were anxious to get a large amount of it. If I had not supposed that the proposition would have been met so heartily, I would have endeavoured to get the Government at home to do something in the matter at once. But seeing that it was easy to grow a large quantity of it there, almost

our own doors compared with India, I thought matter would have been taken up very rea-y. The Government have given very little ention to the matter as yet. The anxiety of ries here for large quantities of the raw mate-l is the very reason I brought the matter so rongly before you.

A Member said that the India flax Company e no comparison. The flax raised by them uld be brought there.

Mr. Hind—We are very anxious to get the w material, for I think the trade was never in ch want of it as at present. The flax has ly to be sent here to be sold on the ver best terms. If sent here it will be purchased, and think the matter need not be proceeded with ther.

Mr. Patterson did not concur in the appre-nsion that the Americans would cut out the de of this country; but he agreed that the de here should not go to any great expense the matter. Let what would be grown this be sent over, and it would be seen the kind market it would bring.

Mr. Hind—2,000 tons could be sold before end of the month if in Belfast at present.

Mr. Patterson—If flax of this sample were to this country it would pay freight, com-sion, and everything, and bring £60—or £65 ton.

Chairman—Some of us have given £70 for better.

r. Hind begged to move that the matter adjourned *sine die* He thought that their ing a ready market nineteen years for cer-ty out of twenty was great encouragement the cultivation of the fibre. If the Cana-thonght it profitable to cultivate it by ng a good market for it, at the highest es of the day, according to quality, they ld do so. He (Mr. Hind) thought that was all the encouragement they could e, and begged to move that the matter be urned *sine die*.

r. Mitchell seconded the motion, which put from the chair and carried unanimously,

he meeting separated.—*Belfast Whig, of y 6.*

The Fat Stock International Show at Poissy.

idged from the Mark Lane Express.)

England we know a great deal about military, France Naval, France political, very little about France agricultural. We well acquainted with the *savans* of literature science, but very little with the labours of those whose enlightened researches into the principles which should govern the practice of the cultivator and breeder have produced wonderful results since 1815. We are very familiar with the ubiquitous red shirt of the barricade, but we know far less of the blue blouse of the peasant. The political revolutions which have shaken the land to its centre, are present to our minds in all their frightful and heroic details; but we scarcely know anything of the silent but potent agencies which are at work throughout the fertile plains and mountain regions of this splendid country, producing abundance where once was barrenness, knitting together village to village, town to town, district to district, department to department; connecting the whole, in fact, by iron or macadamized ways, with the great ganglionic centres of nervous force—the cities of France. We know but little of the markets which are thus being opened in localities where the population had no inducement to furnish more than their own wants, or, in fact, of the great stimulus imparted by the increasing strenuousness of demand to the energies of supply. The improvements effected since 1815 are scarcely to be credited; and the fact is the more interesting, because what occurred with us eighty years ago is here going on before our eyes. The foreign trade of France has quintupled, her manufactures have quadrupled, her agriculture has doubled its produce, under the influence of those three great principles of peace, justice and freedom, which are the eternal counterpoise to the hateful effects of war, violence and despotism. Eighty thousand miles of road have been opened, ten thousand miles of railway have been completed, canals have been cut, and rivers rendered navigable. Since 1789, 5,000,000 acres have been added to the productive area of the country; vineyards, and orchards, and meadows have increased, while woods have diminished. In tillage, we possess M. Lavergne's authority for stating that the cultivation of fallows has decreased by one-half; that the growth of wheat, barley, and oats has increased a third; that the water meadows have tripled in extent; and that the cultivation of roots, which was hardly known in 1789, now covers 5,000,000 acres.

We have often heard it stated that we have nothing to learn from French farmers; but the English who are here, and who have the advantage of being able to compare the present Show at Poissy with the Show held upon the same ground in 1857, are generally of opinion that if this is the case, it is equally certain that our French brethren will not much longer require our tuition. The carpet-bag and railway-ticket are fine institutions for settling men's ideas.—Until we visit the fair, we fancy we are masters of the best horse in the country. Nothing will prove of more service to English breeders than this trip to France, notwithstanding that some

were the subjects of an amusing and not particularly pleasant episode on the frontier in coming. "These Royal Agricultural Society of England Shows," said a celebrated English machinist, "will be the death of me: I no sooner invent one thing than I must at once begin to improve upon it before the next meeting, or else arrive there to find it superseded and antiquated: there is no rest." Even so: the English breeder will find as little rest as the implement manufacturer, if he is to keep his ground in France; and as this is a most important market for him, we are all the more pains to impress upon him the imperious necessity of straining every nerve to keep the lead he now undoubtedly holds.—The man who wants rest must withdraw from the struggle; to stop, with a crowd of eager competitors in the rear, is to be run over.

The arrangements at Poissy, as compared with those of the Royal Agricultural Society's meetings, merit a passing consideration. How much taste is displayed here! How much prosaic stolidity at home! Here the sun falls upon bright colours, of a pretty vandyked valance hanging from the eaves of the waterproof shedding, and flags, tastefully grouped, flaunt gaily in the breeze; a coat of paint is bestowed upon the wood-work; all, adding about five per cent upon the total outlay, gives a charming *tout ensemble*. Why not a little more decorative display at Battersea? The last arrivals took place on Sunday, On Monday nothing was done until noon. The animals were then brought from their comfortable stables, and placed according to the official programme. Two juries immediately commenced their labours, the avenues being guarded by soldiers, and no non-official was admitted, save members of the press. One jury judged the cattle classes, the other the sheep and pigs. Both consisted of twelve members and a president. The composition of the first were as follows: Five landed proprietors, two Government General Inspectors of Agriculture, an Inspector General of the Imperial Veterinary Schools, the Veterinary Professor at Alfort, a member of the central School of Agriculture, a Professor of Zoology, a Paris butcher, and last, though not least, our own Mr. Fisher Hobbs, who had no little difficulty in swaying the predilections of the last-named member of the corps. The second jury was similar, and both contained many men who were more disposed to rely on the old butcher's opinion than on their own.—So far as we observed, the presence of this professional worked well enough, and we see more reason than ever to urge the adoption of the same practice at our Christmas Show. There is but little dissatisfaction with the awards; it is only here and there, where the French taste for the round has overruled the English taste for the sirloin, that there is any fault-finding.

The following is a synopsis of the entries:—

BRITISH.

	Steers.	Oxen.	Heifers.	Cows.	Total.
Shorthorns.....	1	1	6	5	13
Devons.....	2	1	0	3	6
Hereford.....	4	1	2	3	10
Polled Angus, (Aberdeen, Galloway).....	5	3	3	3	14
Highland.....	0	2	0	1	3
Ayrshire, &c.....	0	0	0	0	0
Irish.....	1	0	0	1	2
Other breeds.....	0	1	0	0	1
Cross-breds.....	3	3	2	0	8
Cattle.....	16	12	13	16	57

There were no entries in the Leicester, Cheviot, Blackfaced, and Mountain Classes, Dutch, Belgian and German Classes. In the Long-wool Classes there were 4 entries; in the Southdown 3; other short-wools 3; Kents 1; Cross-breds 1; total 13.

The entries in the Pig classes number 25.

Altogether there are 95 entries of British stock, from 41 exhibitors.

Mutton is now more an object in France than wool, or, at all events, than the short-wools which are supplied by the Australian colonies at such a rate as to discourage the French growers. The merinos are crossed with the Dishley's, and the current is now turned in favor of long wools as well as mutton, as may be seen in the award of the prize of honour to the Cotswold breed, and 3 making a decision which a few years since would, notwithstanding the huge proportion of the Cotswolds, have favoured the Downs.

The pig in France thrives better than it does with us. A dry soil and warm climate are more conducive to its development; and our own pigs do much better in the Gallic than in the British sty. It is said, on good authority, that the native breeds of France are descended from ours, and that therefore Nature helps them to beat us with our own weapons. These facts will prepare the reader for the announcement that England does not hold the pre-eminence in the porcine breed that she does in the ovine and bovine. Our neighbours seem certainly to have a better idea of tenderness in pork than of that quality in either beef or mutton. Our show of pigs is creditable, and the credit is due to Mr. Wm. whose 17-months Sussex, weighing 30 st. bears off the medal of honour in the pig class and Mr. Crisp supports his own as well as national credit in the 4, 8, and 18-months classes receiving one 1st and two 2nd prizes.

In the following notice of the French stock will be best to follow the course indicated in programme. As a tabular statement may prove convenient we append one:

	Steers from 3 to 4 years.	Oxen.	Total
...man...	2	8	10
...rolaise and Niver-naise...	5	12	17
...rtheraise, Choletaise, and Nantaise...	..	7	7
...ers...	..	7	7
...ousine...	3	13	16
...onnaise and Bazadaise...	8	18	26
...er Breeds:			
Large...	6	15	21
...mall...	5	20	25
...rthorns...	7	6	13
...er Foreign Breeds..	2	..	2
...sbreds...	44	31	75
...s:			
...rench Breeds...	..	..	13
...oreign Breeds and Crosses...	..	..	27
... of four or more ...ullocks...	..	..	16
...ales...	..	..	8
...ra...	..	..	4
...ss...	..	..	18
Cattle...			305

...sheep there were upwards of 300 in pens of the entries for merinos and mixed merinos ...8, large long-wools 8, small and ordinary 119, extra 3.—Total 33.

...pigs the entries of French breeds are 32, ...n breeds and crosses 47, crossed French foreign 14, lots of four or more 7.—Total

...together there are 438 entries from 234 ...h exhibitors.

...e purpose to commence this review by ...g a few facts relative to the history of the Durham breed in France, and the position likely to hold, and then to go on to give a notice of the specimens of the native breeds exhibited, and the results which have fol...from crossing them with the Ameliorator ...am, and with each other.

...is now about twenty years ago since the ...m was first imported into France. The ...nal establishments, where the breed was cultivated, no longer now monopolise the ...t, for private enterprise is at work to extend The course of the Durham has not been uncontested with us; and on the plains of ...orth-west, where it has made most way, it ... to meet and overthrow several stout an...ts before occupying their places. All was a work of years; but our neighbours been judicious. Liberal bidding at our sales has placed France in possession of of the most celebrated names of the Eng...ed Book, and constitute a stock now re...ed in a herd book, which, published every ...ears, has reached its third volume. From ...t volume it will be found there are about 143 breeders, and some 1,600 pedigree animals. As to the genuine character of these entries, it is sufficient to state that the French are even more particular in the matter of descent than ourselves—that no animal is received unless an unblemished shield can be shown on both sides; and the Emperor has lately required that no shorthorn shall be imported into the Imperial herds without the descent can be traced on both sides to the second volume of the English Herd Book. Animated by this elective spirit, the Jury passed at once three steers entered as pure Durhams, into the cross class, because they could not exhibit this double certificate of unexceptionable parentage. Whether the shorthorn is as likely to become as useful as a pure breed, as he is an ameliorative breed, it would, perhaps, be, difficult to say; but, judging from the show here there seems clear reason to think that he will be the most useful in the process of moulding the native races. There are certain qualities in the climate and soil of Yorkshire which bring out the higher developments of the Shorthorn in a manner they are educed nowhere else; and comparing the pure Durham of France with the minor specimens which represent the English Shorthorn here, there seems to be a tendency in the former to fall short of the full growth we look for. The fresh importation of English blood will, in fact, be constantly necessary, to preserve the acclimatized breed from degeneration. The Shorthorn is now overcoming local prejudice in the north-west, where bullocks are not worked. The small farmer has come to understand why breadth of chest is accompanied with disposition to fatten. The small bone and enormous development of those parts of the body which yield that meat which is most esteemed, are qualities which are sure to give our pet a popular sway. The breed is found now pretty generally throughout the departments of Mayenne and Maine-et-Loire, where most progress in cultivation has been made; but is most esteemed because it affords a short cut to a result which otherwise could only be obtained by careful selection, followed up with great judgment for a long series of years.

The prize of honour for the bovine classes rests with the pure Durhams. Nor is this all which distinguishes the high position of the breed.—There are six large money prizes offered on the French side, to the best animals under three years of age, irrespective of breed or weight; and, save one, these all lodge with the Durham pure, or with first crosses of the Durham with the native breeds; the Durham-Manceau, the Durham-Breton, the Durham-Normand, and Durham-Garonnaise taking the lead in this race for early maturity. The Durham blood in the cross-classes, which are large, also secures all the ordinary, and, save one, all the supplementary prizes, such as those offered by the town of Poissy. In fact, the strength and interest of

the French cattle lie in this presence of our Shorthorn mettle.

Of our other English breeds, there was only one pure French specimen, and that an exceedingly good Hereford. Now for a word or two concerning the native breeds, which are divided into large and small, workers and non-workers, those raised for their milking, and those for their beef-producing properties. It will only be necessary now to dwell on those which are not due to slight local circumstances, but to those which appear to have a permanent character and a pliable name.

The Normand or Cotentin extends over five or six departments of the north-west. Two circumstances have contributed to its development —the superiority of the Paris market, and its exemption from work. The small breed yields Isigny and Gournay butter, and the other the meat for the French metropolitans.— This breed produces about one-fourth the meat consumed in Paris, and about as much more consumed locally; or, annually, about 100,000 fat beasts. The bovine population of these departments should be taken at one million head, including 500,000 cows, = 1 head to 7½ acres. The departments round Paris have no special breed, the Cotentin has spread there. It is a red or brindle, bony race, but is capable of improvement with the short-horn. One of the gaunt specimens here stands 5 feet 7 inches; in length, to horns, measures 8 feet 6 inches, and in girth, 9 feet 1 inch; weighs 216 stones, age 7 years 2 months; his ribs being barely covered with coarse flesh, such as one so often gets at the Paris *restaurants* Crossed once with the Durham, the size above is reduced, and we get a result like the following: five feet in height, 7 feet in length to horns, 8 feet 6 inches girth, weight 150 stones, age 48 months. Where the Normand has been crossed frequently with the Durham, as is the case of two or three of the cows shown, these results are animals fit for one of our Christmas shows.

The most hopeful native breeds, however, are the Charolaise and Limousin. The Charolaise is a large, expansive, mouldable white bullock, with jutting shoulders, a dropping back, great massive rumps, ungainly set of tail, heavy bone, narrow chest, and mild expressive face. These occupy, with the Loraine and Comtoise races, the twenty departments, which form the north-eastern angle of France, and contain 2½ million head. When all the country beyond a radius of 50 miles of Paris was considered a *terra incognita*, the Charolaise was mainly used for work; but now that the limits of this radius extend, it is being known more for the value of its flesh than for its patience under the yoke. It has, perhaps, owed its immediate developement to its neighbourhood to Lyons; it has extended through Nievre and Berri, and now furnishes to the Paris Market nearly as much weight of meat as the Normand. The measurements are as follows: height 4 feet 10 inches; length to horns 6 feet 8 inches; girth 8 feet five inches; age 48 months; weight 900 kilos. The cross with the short-horn reduces the exaggerated defects, gives width to the chest, contracts the shoulder points, sets the tail right, and corrects the drooping rump. Great things are to be done by means of this mixture of blood, and also by infinite pains in the selection of parents without it.

The Limousin comes from the volcanic centre departments. It is one of the working classes; but when taken from the yoke and treated liberally, it becomes a most valuable meat producer. There is much resemblance in form to the Charolaise; but it is rather large, and of rich cream colour. The elbows are out in most cases about 8 inches, and give the animal a deformed look. Paris consumes annually about 20,000 Limousin beasts, of which two-thirds come directly from the provinces, and the rest after having passed through the hands of the grazier of La Vendee and Normandy. This is the main meat production of the breed; for in the country whence it comes, the folks are too poor to eat meat. Though very good results are obtained by admixture of the Shorthorn blood, it is thought that without any change this sort nothing would be easier than to triple the production of meat by a better system of culture, by irrigation of meadows, and drainage. The Limousin is much larger than the Charolaise—in height 5 feet, in length to horns 7 feet 11 inches, girth 8 feet, age 48 months, weight 154 stones. The Shorthorn performs the same ameliorative work as in the other case: the back straightens, the cavity of heart expands, and the skin mellows. The Durham-Limousin is in many cases a better animal than the pure aristocrat. Next in order come the Garonnaise, Bazadaise, and the Salers, which generally reminds one of the saying of an acute French farmer: "We excel in producing bullocks for the racecourse, and horses for the butcher." Some of the great red Salers are inches higher behind than they are in front (5 ft. to 5 ft. 9 in.), and their spines hang like a suspension bridge between the two piers, in a great sinclinal curve: these have as yet, I temporary uses. The Manceau is a more useful thickset breed, and produces a valuable cross with the Durham. We have yet to mention the Chollet, the Mancelle, the Aubrac, the Parthenay, Flanders, and Nivernese, but must reserve them for some future occasion. The miserable pic Breton, also, covering so much space in the west, now that the Ayr and Durham crosses are established, is likely to become very important because of its quick feeding properties, and its singular ability to make the best of a poor pasture. The native race and its crosses are well represented.

And now we will venture a word or two
-t the French sheep. France possesses a
contingent; but still is much indebted to us
the introduction of the Southdown and Dish-
blood, which certainly has worked wonders
the flock-masters. The prize of honour
-es with a pen of pure-bred Southdowns,
ich display great beauty and maturity. The
-te, however, induces too much delicacy of
-itution, if this can be in any way indicated
the ears. The wool is much shorter also
- those of Lord Walsingham's 10 months
-n with which we compared them. The
-ge length and girth of English Downs is 2
6 inches and 3 feet 7½ inches, the age 10
-ths, and the weight 327 kilogrammes. The
-ch 12 months sheep weighed 342 kilos.,
-sured in length 2 ft. 2¼ in., and girthed 3 ft.
; the wool on the former being 2 in. long.
-ms as though the same reasons we adduc-
-or esteeming the Shorthorns as more valua-
-e France to mould other native breeds, than
-ist alone, might apply to the Down. The
-te of France is certainly well adapted to
-; but they will require a pretty frequent
-rtation of our blood to keep them vig-
-s. The result of crosses here shown with
Berri sheep are exceedingly good. The
of the show on this side is presented by the
-ley Merinos. The Merino was introduced
France by Louis XVI., for the increase of
.. The result has been enormous; but now
the Australian Colonies are cutting the
-h out of the market for short wool, and
-n is becoming more valuable, a cross of
greatest value has been obtained. A lustre
has been reached, and a vast increase of
-on. We have here the improved Ram-
-t Merino and the Dishley Merino. No
-st can better show how these creatures
as clay in the hands of the potter. The
-wolds with Berri sheep give a very fine
-ly sheep. There is no necessity to men-
the rabbit-eared Larzac or the calf-headed
-ans; but of the silky-woolled Mauchamp
, the result of a mischance ably handled,
of the Charnoise, the result of a chance
between a Berri sheep and English ram, it
be said that they produce the highest
-ities, and are worthy of careful development.
. the pigs we have already said that of the
-h and British classes, we come to the gen-
conclusion that, although our neighbours
advanced at so surprising a rate since the
Poissy Show, they have done so by handling
-ans we have given them in the most skil-
-ner, and that, if they could continue to
-se, they will still be continually obliged
-rt to us for new blood. There are some
-gical considerations in connexion with
-clusion which cannot now be touched
While we are careful to keep the lead,
seems to be a strong and steady demand
upon us for pedigree stock of all descriptions'
and the more they improve the more will this
demand increase.

The Royal Dublin Society's Spring Cattle Show.

The *Irish Farmer's Gazette* of April 26th contains an elaborate report of the Spring exhibition of this influential and long established Society, which has done so much not only for the Agricultural but the Mechanical and Artistic interests of Ireland. The live stock in point of numbers and quality were quite equal to former occasions, which is a significant and encouraging fact after the past two very unfavorable seasons. In consequence of manufactories being so much engaged in preparing for the International Show in London there was some falling off in the implement department. The tone of the report of this meeting is hopeful, notwithstanding the depression which Ireland experiences in common with other parts of the United Kingdom, from the late unfavourable seasons and the American difficulties.—We make room for the following observations, which will be perused with interest by many of our readers:—

Mr. G. W. Maunsell said it became his duty to call upon his colleague, Dr. Steele, the assistant-secretary to the society, to read the prizes that day bestowed upon the successful competitors. Taking the present show as a reflex of the enterprise, industry, and prosperity of the country, they had no reason to fear that its future agricultural prospects would not be everything that its friends could wish. Extraordinary advantages had accrued to all sections of agriculture by the way in which the society's shows had been fostered and carried out for many years. As the interest of Ireland in them had increased, the energies of the Royal Dublin Society had been taxed to no small extent to provide accommodation. For many years they had lived, it might be said, in temporary sheds; but they were now enabled to hold their shows in a noble hall, which during the last twelve months had been the scene of an exhibition which did credit to the national industry and taste, and which had been visited by the heir apparent to these realms, and also for the last time by the illustrious Prince who presided over the society. That exhibition had scarcely closed when the increasing wants of the society drove them to extend their premises in a new direction; and they had hardly by the removal of some houses and masonry been enabled on this occasion to give the

exhibitors a foretaste of what they might hereafter expect, when the means of the society, strengthened, as he trusted they would be, by private enterprise and by public aid, should be enabled to carry out the design so ably set on foot by Sir Richard Griffith, by opening what might be called Griffith's Court, which would double the extent of accommodation at the command of the society—and not before it was needed—to the great advantage of the agricultural enterprise of Ireland. Turning from the cattle to the exhibition of implements in the lawn, it was cheering to see the enterprise there displayed, and to think how rapid had been the progress in that department. Every year had brought forth new items of farming implements, which did credit to those who sent them there without price. It was not many years ago since this branch of farming industry was, he might say, wholly unknown. Year after year the enterprise of those engaged in the manufacture of farming machinery had been devoted to continued efforts to produce articles at once the most solid in their nature and the most simple in their detail; and those who looked at the lawn that day would see how ably those conditions had been fulfilled. Without attributing perfection to them, those implements reflected the highest credit on the skill and industry of those engaged in that department (hear, hear) Of late years the value of artificial manures had through the light of science and chemistry been more fully appreciated than before. On the table was a beautiful cup, the gift of a gentleman who was one of the earliest promoters of farming manures—Mr Lawes. To him and to Professor Hounslow they owed the introduction of super-phosphates in agricultural manures, the results of the use of which might be counted, he believed, by hundreds of thousands. The stock exhibited at the shows of the society did not come solely from metropolitan districts, but was furnished by all the districts of the country. The midland and the southern counties contributed as well as the rest; the Kerry cow was giving way to the short-horn; and two of the highest prizes had been carried away by a Kerry gentleman for stock of the short-horned breed, which half a century ago was probably unknown there. Mr. Bland was one of the successful competitors from the Queen's County; there were Mr. Richardson and Mr. Young from the north; and from the south he might also mention the Marquis of Waterford. One name he would not pass over in silence, for when they considered that the judges, Englishmen, and unconnected with Ireland, had awarded the blue ribbon of the society to the honoured name of George Roe, they had a right to feel proud of the city of Dublin. Donnybrook—(laughter)—had covered itself with glory. Donnybrook had taken the palm from Meath and Westmeath, and while honoured names from these counties were to be found in particular classes, no less than two of the beautiful cups which were now displayed before them had been borne away by the Donnybrook farmers. Long life and honour to a gentleman who, having worthily illustrated a career of commerce in that city, stood forward now as one of the most honoured and worthy competitors in the race of agricultural industry

His Excellency the Lord Lieutenant said—My lords and gentlemen, if I may assume that the consent to this motion which the noble lord anticipated will be given, I now beg to return my sincere thanks to this numerous and distinguished meeting for the honour they have just been pleased to pay me (hear, hear). And I can assure you it is with more than usual satisfaction that I find that I need not depart on this occasion from that uniform strain of compliment and congratulation which it has hitherto been my happy privilege to address to the members of the Royal Dublin Society at the period of their annual Easter meetings. For I will not to you that I was not without some degree of misgiving on this subject. I knew that the recent cycles of seasons through which we have passed have been of the most trying and inauspicious character. In the year 1859 there was a feature which has certainly since been very amply—too amply atoned for—there was a prolonged absence of rain which materially injured our pasture. In the years 1860 and 1861 need hardly remind you, there was a great excess of rain, which did infinite damage to the country—which covered our plains with inundations not yet wholly subsided—and which was a severe scarcity of fuel to the diminished production of food. Of course, these results could not take place without occasioning much partial distress. I naturally should not think of entering now upon any controversy as to the extent and amount of that distress. Most trying it is indeed, to those who are entrusted with any discretion or responsibility at such periods to refrain from having to resort to the most obvious and immediate methods of relief; and I believe there have been—and till very lately have been—conditions of Irish society in which there must have been an overpowering necessity for adopting the most inartificial and blundering methods of relief. The land was to a great extent divided between a proprietary and a pauper peasantry. But now, except in very rare instances, in the district in which it is effected by the persons who are themselves interested—it is by a spontaneous and independent effort that the struggle is made, and for the most part made successfully (applause). Of course, we must still reckon upon encountering the occasional rigour of the seasons, just as in the sister countries provinces still wider ravages are being now inflicted by the shocks of foreign conflicts and the stoppage of raw materials. But I trust it will not be with the passions and wrath of man

w. will be with the strife and turbulence the elements—since Nature is always found restore her own excesses, and ... joint to maintain her own averages (applause). —ver, I entirely agree with the general bear- of the remarks which have been made by Earl of Clancarty—that, whether we look to geographical position of Ireland, or to the cter of her soil, there will be always such a alence of moisture and humidity as will pasturage, and the production of animals, most secure and remunerating form which national industry can assume. I do not, of mean, as I am sure he did not mean, or friend of Ireland could mean, to disparage , or the proper production of corn crops se districts which are by nature suited for (applause). Those districts abound in , and more especially is this the case regard to oats. But still, coupling the al condition of the country with the close nity of those large English and Scotch is where there is such a vast consumption t, I believe that providence has mainly ted Ireland to be the mother of flocks and and I, consequently, believe that she will all the better the more truly she keeps to natural vocation (applause). And in this and patriotic path no more salutary or nt encouragement can be afforded her than plied by those annual exhibitions, coupled those of the Royal Agricultural Society— annual spring exhibitions which take place the auspices of the Royal Dublin Society. exhibitions, within the comparatively limits of my own experience, have evinced remarkable progress. It is within these that you have housed your cattle, and we that in another year you are likely to roof implements. I need not point out to you an interesting and suggestive exhibition plements collected in your yards to-day to you, or over how wide an extent of ess they range (hear, hear). The facility port, to which we are indebted to our y friends, has done an infinite deal in pro- every kind of agricultural competition; we read now, too, of international exhibi- The Emperor of the French has, with sagacity, instituted them in his capital; am sure we shall be glad to find that one of st well-known exhibitors, who has obtain- ize in the competition of to-day, not con- with the laurels he gathers in your show—I Mr. Ball—has carried away the prize for in the capital of France (hear, hear). I not say how entirely I agree with the refer- which Mr. Naper so aptly made even to the r care and anxiety which we owe to the nt welfare of those labourers who, in ally furnish the national wealth, which it be the object of this exhibition to pro- (applause). We know that in the last years, notwithstanding any of the draw- backs and vicissitudes to which I have referred, and of which we lately had experience, yet the stock of Ireland has increased in value within that ... from twenty-one millions to thirty-three millions (hear, hear) And with respect to quality, I think it is very probable that almost the worst animal in the yard ... was as good a one as the prize animal of the same ... I trust earnestly, my lords and gentlemen, that the varied accidents of these exhibitions, the numbers by which they are attended, the patronage by which they are honored, the skill by which they are fostered, may all progressively advance. It is true that we cannot warm our skies with unclouded sunshine, we cannot mature our crops, we cannot guard our sheep and cattle from all kinds of diseases; but we may continually furnish fresh aids to man in the struggle which he must always have to keep up with nature, giving the largest command over her bounties and making difficulties themselves the spurs to his industry and the elements of his success (loud applause).

Horticultural.

Spring Exhibition of the Toronto Horticultural Society.

We can only afford space for a very general view of the first seasonal show of the Toronto Horticultural Society, which took place in the Music Hall, May 29th. The number of visitors, particularly in the evening, was large, and the display of flowers, fruits, and vegetables, considering the unfavorableness of the season, was extensive, and, upon the whole, of excellent quality. The arrangement of the articles betokened both taste and skill, a department that was undertaken, we understand, by Messrs. Gray and Humphreys, and the efficient pains taking Secretary, Mr. J. C. Small.

Some of the Fuchsias were large, of good form and rich in flower. The collection of Geraniums was extensive, not large specimens, but the inflorescence was varied and beautiful. In foliage plants the show was characterised by a number of luxuriant specimens, some of them new and of very rare excellence. There were also several good specimens of orchids and stove plants, which attracted much attention. These and other rare productions were from the conservatories of Mr. Justice Morrison, Judge Harrison and C. S. Gzowski, Esq. The Petunias were generally good, particularly the finely co-

loured double varieties belonging to Mr. Boulton. Verbenas possessed nothing remarkable, and the Calceolarias, perhaps not above the average of former years. Mr. James Fleming had some very beautiful specimens of pinks and tulips,—and his artistically combined bouquets commanded universal admiration. In consequence of the backwardness of the season, the roses were but few and mostly indifferent,—Mr. John Gray's usual rich collection being absent, was a marked falling off of the show. The vegetables were as numerous as could be expected, considering the drought and cold that has prevailed for several weeks, their quality generally denoted skilful culture.

There can be no doubt that the Toronto Horticultural Society has been largely instrumental in improving the taste and increasing the domestic comforts of a large number of people—the occupiers of the cottage and the stately mansion—and we trust that it and other similar organizations throughout the country, will continue to receive increasing support.

The following remarks were made by the Judges, Messrs. D. Murray, C. Meston, and W. Hill, of Hamilton, in their Report:—

"The judges, while they think that the entries are not so numerous as might be expected, are highly gratified with the exhibition, and discern unmistakeable signs of progress. They would specially notice as worthy of recommendation:

"In the Floral Department, the whole of the stove and greenhouse plants, including many rare and well-known specimens.

"The two collections of orchids, Nos. 10 and 49, these they consider the great distinguishing feature of the exhibition, including, as they do, some of the rarest and most beautiful of this class, and forming without doubt the best collection ever exhibited in this Province.

"The fancy geraniums exhibit signs of careful cultivation.

The foliage plants would be worthy of a place in any exhibition. Some of the specimens are entirely new and most magnificent; amongst a very fine Cyanophyltum Magnificum is particularly deserving a notice.

The six petunias (No. 88) could not be surpassed in Canada.

"In the fruit department, the collection of apples (No. 106), and the nectarine tree in full bearing (No. 94), are deserving of notice.

"And amongst the vegetables, the asparagus and sea kale are the most deserving."

Hamilton Horticultural Society.

We had the pleasure of spending Her Majesty's birth-day at Hamilton, on the occasion of the first exhibition of the present year of the Horticultural Society. The day was fine, and all business in the city being suspended, everything assumed a holiday appearance. Having an hour or two to spare before the opening of the show, Dr. Craigie kindly conducted us through the gardens and conservatories of Messrs. McLaren, Kennedy and Brown; gentlemen occupying extensive and highly picturesque villas on the slope of the ridge, or, as it is here designated, the "mountain," and commanding beautiful and extensive views both of land and water. We had time for a mere glance only of the tastefully laid out grounds, most of which, as well as several others in this vicinity, were designed and executed by the late Mr. Mundie, whose skill and good taste in landscape gardening many places in Canada afford a happy illustration. Whether we look for flowers and fruit under glass or in the open air, these establishments are alike creditable to the skill of the gardeners who conduct them, and the liberality and taste of their enterprising owners. The expense of bringing this rough and stubborn soil into so high a state of beauty and productiveness must have been very great, and the artistic qualifications of those who planned and conducted the operations not less so.

The Show, particularly the floral department, was exceedingly good, but the vegetables grown in the open air were, in consequence of the backwardness of the season, few and inferior. The Geraniums were truly splendid, both as to size and varied beauties of color. The culture of these fine flowers does great credit to the skill and attention of their producers. We never seen such magnificent fuchsias before this side the Atlantic as those which characterised this exhibition. Several of them were 10 to 12 feet high, well proportioned, foliage like the geraniums, very luxuriant, and the florescense rich and varied. Calceolarias rather numerous and, upon the whole, good, but it was said not quite equal to what Hamilton growers usually produce. Of foliage plants there were several excellent specimens and also ferns, both native and foreign.

as quite a number of apples,—the Baldwin
d Northern Spy in particular, looked as fresh
d plump as when gathered from the tree.

We were much gratified to observe the im-
rement made in this enterprising city within
e last few years. Its squares neatly and
trongly fenced by iron railing, and ornamented
planting and fountains, indicate both taste
d comfort; while the city commands an inex-
austible supply of the pure water of Lake On-
ario, both for public and private purposes. In
he evening we went over the well-managed
ursery of Messrs. Bruce & Murray, who have a
ood general stock of trees—fruit and ornamen-
l, and flowers. The day was spent in very
greeable and improving intercourse with the
telligent and energetic horticulturists of Ham-
ton; qualifications of which our readers must
well aware from the valuable articles which
requently appear in our pages from the mem-
rs of the Horticultural Club.

More about Dwarf Apple Trees.

For the Canadian Agriculturist.—It ap-
ars that my remarks made on Dwarf
pple Trees has awakened Mr. Arnold's indig-
tion. It seems he lays the cause of my not
ucceeding in growing the dwarf apple trees to
ing deceived in not getting the right kind of
rees. If this is the cause it is what we com-
plain of, hence we cry *humbug*. But if it is
y ignorance in not knowing how to manage
hem I had better take lessons to understand the
siness. However, I have kept up a continual
arfare, in pruning, cutting back, pinching,
nd nipping, but all to no purpose. But I have
ot cramped their roots in a pot yet, as we do
me plants to make them flower, which perhaps
r. Arnold will say will be necessary. But in
pite of all my cruel treatment they are now
ut of reach and no doubt they are glad of it.
Now, sir, I thought from the description given
hat dwarf apple trees were so by nature and not
y artificial means. If not, it is time their
haracter was better understood. Now I do not
y that there is not such a thing as a dwarf
pple tree as described, but unfortunately for
I have not got them yet.

Are not all small stunted trees Dwarfs, and
ave not the nurserymen a pecular faculty of
aking them so, for the purpose of fulfilling
ir desired object? But when they get good
uration will they not grow as large as any
ther trees? I believe that most of the dwarf
ple trees are of this character. Is this not
umbugging the people? Yes, and I am not
illing to see my brother farmers imposed upon,
as I have been, any longer. I expect to meet the disapprobation of the nurserymen; I have counted the cost and am now paying it.

Mr. Arnold next accuses me of losing confidence in my Rochester nurserymen. True, most true, hence we cry out "humbug." But I would have friend Arnold to know that I have not had all my trees from our neighbors, for amongst my first getting I sent to Toronto, to some of the Canadian nurserymen that Mr. Arnold boasts of for their honesty, for dwarf trees and some paradise stocks. Their stocks I grafted myself. Guess I know where I grafted them and can show it to be above the ground too. Now their trees are amongst some of my largest that I complain of. Well might the nurserymen smile, when they can sell hundreds of dwarf trees artificially made to the ignorant public, without the least hesitation of conscience. Now let me remark when I wrote my essay in '58 that some of the early bearing kinds had just began to bear. Thinking from this and the recommendation that they would all follow suit next year, I therefore spoke in very high terms of them, for I was completely in love with them. And I still would recommend every man to fill his garden with them, for they make beautiful low trees, such as I am so much in favour of. But don't expect that you will gather fruit from these trees when they are 2 or 3 years old, or the size of currant bushes, lest you be disappointed. Let us hear what friend Atkins says. If he wanted more dwarf apple trees he would as soon graft them on the common apple stock, believing from his experience that apples on the Paradise stock neither bears quicker nor makes smaller trees than on the common stocks. But if Mr. Aitkins and myself have been deceived in getting the right kind, as Mr. Arnold surmises there may be a possibility of, there we had better begin again. And I hope that Mr. Arnold will take pity on us, and send me 25 genuine trees (payable when they prove to answer his description). I do not know where else to find them, as I have tried many other places and this will be the best proof to his argument. I am sorry Mr. Arnold did not answer Mr. Beadle's requests, for it might have saved those severe strictures he complains of. But extreme cases require harsh medicine. Of friend Atkins' mild remarks there was no notice taken, I suppose because there was no humbug in them, for certainly his experience and mine are very much alike. Mr. Arnold invites me to visit his trees and there I will see trees three or four years old and 2 feet high in bearing. I would willingly accept of his invitation if possible, for I would not mind going a hundred miles to see a bush of the Northern Spy or St. Lawrence in full bearing at that size as a common thing. But again let us notice Mr. Arnold's concluding remarks. He says he will show me bushes ten years old that have now heads from 20 to 35 feet in circumference. Now I think it

is plain to be seen that his bush is just like mine; it is a very large one. Few trees will grow bigger in that time. Look a little further when that bush is twenty years old, and keeps on growing accordingly, it will measure 70 feet in circumference; quite a modest little bush, to have many of them in a garden to raise vegetables amongst. Why it might almost be called a mammoth tree, instead of a dwarf bush.

Now, Mr. Editor, I have much respect for these nurserymen, for they are doing much good in improving the county. I like to visit their nurseries, always feel myself at home with them. But, like myself, they work better for a little watching. Friend Arnold must try again and get his dwarf trees a little smaller, and extricate himself from his own trap that he has fallen into. Come and visit me and my fine trees, and Mr. Editor with your indulgence and patience we will fully investigate the character of the dwarf apple tree.

R. B. WERDEN.

Picton, Prince Edward County,
May 6th, 1852.

[The above subject is an interesting one, and we willingly admit communications upon it. We trust, however, that any discussion which may arise upon this, or any other topic, will be conducted in none other than the most friendly and courteous tone. We are sure our correspondent does not mean anything else, although some of his expressions may seem a little harsh. A word to the wise is sufficient.—EDS.]

The Rose.

In a short time the first instalment of Perpetual roses will be due. Universal favorite as the rose is, it requires no recommendation. All the varieties are beautiful, but other things being equal, the Hybrid Perpetuals and the Bourbon, China and Tea Roses are to be selected on account of their more frequent periods of bloom. The Perpetuals are, however, by no means true to their name as regards their bloom, for they flower but twice in the season; profusely in June, moderately in September or October. There will be occasionally a plant which will afford a few flowers at other seasons, but the above is the rule.

Where there is a good cellar, green-house or frame, in which tender roses (under which head China, Bourbon and Tea Roses are placed) can be kept during winter, they are probably the most useful and satisfactory classes, as they are more constant in bloom and of a more delicious fragrance in general.

There is one very serious drawback to the cultivation of roses and that is the great depredations made upon them by the insects. The effects of these attacks are to be seen in the destruction of the tender shoots and buds, and the disfigurement of the foliage, which will have the tender portions eaten out, leaving only the skeleton and a slight tissue of a dry nature, presenting the appearance of having been scorched. This is almost universally the case with the rose where no precaution has been used to prevent the ravages of the rose slug. The best preventive of its depredations is found in the use of whale oil soap suds, made with two pounds of the soap in fifteen gallons of water, and applied to the foliage with a watering pot, or preferably with a syringe, by the use of which the under side of the leaves may be drenched. The whale oil soap is not a common article of merchandize, but may be procured of the seedsmen in our large cities at a trifling cost.

Where this cannot be procured, a decoction of tobacco will be found a very good remedy. The frequency of the application depends upon circumstances; usually three or four times in the season will be sufficient, but if the slugs are numerous and continue their operations a long time, it must be applied more frequently.

The rose is generally grown singly, though many prefer making beds of the different sorts. Most roses will bloom better if rigorously pruned very early in the spring, but some sorts, as the yellow and moss roses, will not bear severe pruning. The climbing roses should have the old wood frequently cut entirely away, leaving only the young and vigorous shoots.

The rose is a gross feeder, and the soil in which it is planted should be made very rich. Before planting, the ground should be deeply and thoroughly prepared and a good deal of old, well-rotted manure dug in. Every year a liberal supply should be forked in, and frequent applicetions during the summer of soap suds or liquid manure will be found beneficial.—*Country Gentleman.*

The Dairy.

On the Manufacture of Cheddar Cheese.

[In October last there was a magnificent exhibition of dairy produce at Kilmarnock, Scotland. The Highland Society contributed liberally for premiums. One of them was £20 for the best sweet milk cheese, which was carried by Mr. McAdam, who has kindly furnished an outline of the method he follows in its manufacture.—Ed. Transactions of Highland Ag. Soc'y.]

For various reasons I prefer making my cheese according to the Cheddar system. If the system is carried out with care and intelligence, one is almost certain of obtaining a lot more uniform and superior in quality than could possibly be made on the old Dunlop system. The latter is

either so easy nor so cleanly. In regard to quantity I have found, after weighing the milk with the utmost care for two successive days, and making one-half on the Cheddar mode, and the other half on the Dunlop, that the result is always in favour of the Cheddar.

The difference, however, in the price of the two kinds of cheese is important. In 1859 I sold my whole stock made in that season at £3 2s. 6d. per cwt., or rather over 14s. 6d. a stone of 24 lbs. In 1860 I sold all my cheese made between 23rd March and 22nd of November, at 3 15s., or upwards of 16s. a stone. Last year I sent the whole to an agent in London, and after deducting all charges, had a return of nearly 14s. 6d. a stone.

On the other hand, I have known of no Dunlop cheese sold during the last five years which has realized anything like what I have done.—The difference has been at least 3s. per stone in favour of Cheddar.

I make my cheese once a day. The evening's milk, as soon as it is drawn from the cows, is put into shallow tin boynes to cool. Next morning this is put through a very fine wire sieve into the steeping tub, while the morning's milk is added as carried in from the byre. In May and the four succeeding months the milk is put in this manner together in the evening and morning will generally have a temperature of about 80 degrees Fahrenheit. If it is not so high, a little of the evening's milk is warmed in boiling water to raise the whole to the above temperature. After this, the sour whey, annatto, and as much rennet as will coagulate the whole in an hour, are added and well mixed.

I generally put in about four to five quarts of sour whey to about 140 gallons of milk. As soon as the curd is properly formed, I commence to break it with a hand-breaker made of tin and wire, which is somewhat like a riddle, and having a wooden handle about three feet long affixed to the middle. When partially broken, the curd is allowed to subside a little. The much whey is then drawn off and heated as will bring the whole up to a temperature of 80 degrees. After this, breaking is resumed, and the temperature maintained by adding more heated whey.

Nothing further is done for the next hour, but to draw off and heat as much whey as will raise the temperature to 100 degrees. At the end of the hour a portion of the whey is run off, and the curd is afterwards very gently broken with a shovel-breaker.

An assistant now gently pours as much heated whey as will once more raise the temperature to 100 degrees. During the time the whey is pouring in, the whole is actively stirred, but afterwards more gently, till the curd has acquired proper firmness. I cannot say how long it may be necessary to stir. If too much acid is present, more time is required, and if too little acid, more time necessary. The time will vary, according to circumstances, from twenty-five to forty minutes.

When stirring is finished, the curd is left half an hour, and then the whey is all drawn off. One side of the tub is raised a little to allow this to take place more perfectly. The curd is then heaped up to the highest side of the tub, covered with a cloth, and left for half an hour. After this interval it is cut into large slices, turned upside down, covered up, and left for another half hour. Then it is torn into thin strips and spread on a cooler, on which it is allowed to lie for another half hour. After thus being turned upside down, it is left another half hour longer.

The curd is then vatted and put into the press on which 28 lbs are suspended for about twenty minutes. Afterwards it is taken out, milled and salted. Cheshire cheese is used at the rate of 2 lbs. to the cwt. It is salted in the cooler, and if it is above the desired temperature it is allowed to lie, perhaps for half an hour, and stirred up once or twice. Our dairy being very warm, I am unable to cool down the curd as low as I could wish before making it up.

On referring to my diary, I find that not one cheeses I exhibited at Kilmarnock was below 68 lbs. when vatted. The cheese is made up between two and three o'clock, p. m., and a dry cloth put on it the same evening. What I make on Monday is carried to the cheese-room on Thursday. Each cheese only gets one dry cloth daily. The room is over the dwelling and dairy. Its temperature during the summer ranges between 65 degrees to 80 degrees. The specimens of cheese I exhibited at Kilmarnock was not subjected to any artificial heat.

I use an oak steeping tub in preference to any other. All the implements and utensils are kept as sweet and clean as possible. The weight or pressure put upon the cheese is the same throughout the different stages of the manufacture.

The Apiary.

Fumigating Comb in Bee-Hives,—Moth Traps.

EDS. RURAL NEW-YORKER:—In the impression of the *Rural* dated Nov. 16, 1861, I observed that a correspondent makes the following inquiry:—"Will a sulphur match burned under a hive kill the moth-worm, after removing the bees to another box or hive?"

Yes; the fumes of a burned sulphur match, if sufficient, will certainly destroy the moth-worm. Such combs only, however, should be fumigated as are freed from brood, as the fumes of sulphur would be likely to destroy it also. There is but a brief period when all the combs in a hive may be fumigated, without endangering the loss of any brood; the bees of course, should always be first removed, when in a common box-hive, to another box or hive. The period referred to is late in the fall and during the first part of winter. In Western New York,

breeding of bees ceases, in general, about the middle of November, and is again resumed about the middle of January ensuing. It will therefore be observed that there is a recess of about *sixty* days only, during the year, when a good healthy colony has no brood. At this period of the year, when there is no brood, there are but few moth-worms; they are most numerous in warm weather. Very likely there would be as many moth-worms as soon as breeding ceases as at any period during the cessation of breeding. As soon as breeding ceases, therefore, would be the best time to fumigate the combs to insure the destruction of the most worms. In box-hives not supplied with moveable frames, to determine the exact time when there is no brood in the combs, it would be necessary to resort to guessing! I trust that my contemporary is an expert at guessing. To guess correctly is a very essential qualification to such bee-keepers as advocate the old-fashioned box-hive! After having ascertained, by guessing, when the colony has no brood, the bees may be driven out into another box or hive, and the combs thoroughly fumigated. It would be adviseable to confine the bees, as they might, having no combs or stores, be tempted to abandon their temporary home. They should be allowed plenty of air. All the crevices about the hive from which the bees were driven should be closed with some suitable material, to confine the fumes of the sulphur as much as possible. Were I to resort to this means of destroying the moth-worm,—but I trust I shall never be obliged to,—I am not positive that I should be content with less than a half-day's fumigation! The moth-worm would never have any desire to get into my hives again! But to return to our subject. After the combs have been thoroughly fumigated, it would be adviseable to invert the hive, and subject them for a few hours to the exposure of the air. By this means, a large percentage of the scent of the sulphur will be removed. I should judge that the scent of the sulphur would be quite annoying to the bees: that is, if they were returned immediately after the fumigation, and before the combs had been subject to any exposure to the air. I would here caution the bee-keeper not to use too much sulphur, inasmuch as it be would quite likely to soil the combs; it would color them green.

It will be apparent that the foregoing directions are for fumigating combs in box-hives—hives not provided with frames. Box-hives are the kind that this correspondent, whose inquiry I am answering uses. It is, therefore, not so very strange that he should make the inquiry under consideration. On the other hand, had his bees been in properly made frame hives, and had he learned the fact that the progeny of the bee-moth is an extremely harmless enemy to good healthy colonies of bees, he would certainly not have penned the inquiry which has claimed our attention.

It should be borne in mind by all bee-keepers that the proper time to destroy moth-worms is early in the spring. They should be destroyed as fast as they make their appearance. At this season of the year every good colony should have more or less brood, which would prevent fumigating the combs with sulphur. We should therefore, rely upon other means of destroying the worms. It will be obvious that, in case the worms are destroyed, there would be no moths. The best way that I have found, is to examine my colonies (which, of course, are in frame hives,) quite often in the spring, by taking out the frames of combs, and killing all the worms. When the contents of a hive can be taken out, and each comb can be thoroughly examined on both sides, it must be apparent that it is not difficult to find *every* worm in the hive and when found, to destroy them. A few worms killed early in spring, are equivalent to a very large number later in the season. Moth-worms are often very useful, and quite as often very injurious. When properly attended to, a great many worms may be caught and killed, but when not properly attended to, they furnish an excellent harbour for the moth-worm where they often go through the necessary metamorphoses, and at at last become millers. The moth worms generally find harboring places enough without providing them with any. It is quite often the case that too much dependence is placed on the moth decoys. The proper place to find the moth-worm is among the combs, and hence the combs should be examined often, and the worms killed before they are old enough to leave them to harbour in the moth decoy. The comb being their only food, their ravages are finished when they leave them. All things considered, the *best moth decoys are strong, healthy colonies of bees.*

M. M. BALDRIDGE.

Middleport, Niagara Co., N. Y., 1862.

Veterinary Department.

(Conducted by A. Smith, V. S.)

Pleuro-Pneumonia.

This disease appears to be still prevailing to a considerable extent amongst the cattle in Massachusetts, and has given rise to some discussion as to its contagiousness or otherwise. The attention of the legislature having been called to the existence of the disease in certain districts, a commission has been appointed to inquire into its extent, and adopt measures to arrest its progress. A writer in the Boston *Cultivator* thus narrates the proceedings of the Commission:—

"Immediately upon their appointment,

Commissioners were notified by the Select-men of Milton, of the existence of the disease in that town in a herd from which two animals had died within a few weeks, and two had been killed by order of the Select-men, being beyond all hope of recovery. The Commissioners entered upon their investigations on the 27th of February, 1862. As investigations progressed, the truth, not only of the existence, but of the contagiousness of the disease, became so apparent, that notwithstanding previous opinions, and the circumstances under which their commissions were granted and accepted, those opinions and prejudices have vanished before the light of truth, and the Commissioners are quietly but faithfully performing the duties of their office, and in my opinion should be spared the odium which some have endeavoured to throw upon a former Board, and should receive the support and co-operation of every friend to the prosperity of the agricultural interest.

I proceed to state briefly, the rise and progress of the disease as developed in this vicinity during the past year, beginning with a pair of oxen sold in Brighton market, in February or March, 1861, one of which was, in the opinion of persons who saw him sick at the time. These oxen were purchased by J. F. Eaton, of Quincy, and taken into his herd. During the next few months not only these oxen, but several animals of his previous herd died; others were sold and ... into other herds, carrying the disease wherever they went; or, if to change the expression will leave the question more open, I will say, the disease *followed* wherever animals from that herd touched. At the present time, the disease has exhibited itself in twenty different herds, and in every instance is traceable to the Eaton herd either directly or through other herds connected with it. I am in possession of the names of the twenty individuals whose herds have been thus affected.

I am of the opinion that the names of some of the parties who have been instrumental in the spread of the disease, might justly be exposed; yet there are others who have ignorantly and innocently contributed in some measure to its diffusion, who have themselves been sufferers, not only in the loss of stock, but in the derangement of their ordinary and legitimate business.

Lest the publication of names should add to the already severe losses of this latter class, I will at present withhold entirely all not already given, holding myself in readiness, not only to give them, but to show, most conclusively, the connection between all of these herds. I deem it proper also to say, that upon different occasions many members of the legislature have witnessed cases of the disease; and I am not aware of an instance where individuals have thus put themselves in the way of ascertaining facts, that they have not only been fully satisfied of the existence of the disease, but also of its contagiousness.

P. STEDMAN.

Miscellaneous.

NERVOUSNESS OF PARROTS.—Parrots are marvellously nervous birds, and, while young, will often throw themselves into such paroxysms of fear at the mere sight of a stranger, that they will even endanger their lives. They have an odd and unpleasant habit of scolding on such occasions, uttering loud, rough, grating cries, as piercing to the ear as the sound of a file or a saw, and stretching out their necks with ruffled feathers and agitated gestures. Some birds retain this extreme timidity for a very long time, spite of all attempts to conciliate them. I have known a single parrot that was given quite young to a family well skilled in the management of birds, and particularly kind to their feathered pets. Yet, after the lapse of seven or eight months, the bird had only learnt to be tolerably familiar with the feminine portion of the family; and the approach of any man or boy of the same family, or of any stranger whatever, was sure to throw him into a paroxysm of terror.—*Every Boy's Magazine.*

MINOR EFFECTS IN MONEY SPENDING.—A correspondent of the *American Agriculturist* writes as follows on a subject of much interest. "There is one thing I would be glad to see more parents understand, namely, that when they spend money judiciously to improve and adorn the house, and the ground around it, they are in effect paying their children a premium to stay at home, as much as possible to enjoy it; but that when they spend money unnecessarily in fine clothing and jewellry for their children, they are paying them a premium to spend their time away from home—that is, in those places where they can attract the most attention, and make the most display."

RELATIVE VALUE OF FOOD FOR MILK COWS.—Several French and German chemists estimate the relative value of several descriptions of food for milk cows as follows: That 100lb. of good hay are worth 200lb. of potatoes; 460lb of beet root with the leaves; 350lb. of Siberian cabbage; 250lb. of beet root, without the leaves; 250l... of carrots; 80lb of clover hay, Spanish trefoil, or vetches; 50lb. of oilcake or colza; 250lb. of pea straw and vetches; 300lb. of barley or oat straw; 400lb. of rye or wheat straw; 25lb. of peas, beans or vetch seed; 50lb of oats; or 500 b. of green trefoil, Spanish trefoil, or vetches.

YELLOW COLOR IN FLOWERS.—This is the most predominant color in flowers, and is the most permanent. The yellow of the petals is the only colour which is not discharged by the fumes of sulphuric acid. If, for example, a lighted match is held under them, the purple or any other color will disappear, but the yellow will remain unchanged. Yellow is also a color which, more than any other, baffles the skill of the Photographist.

ROADS.—Though advanced as the present age is in civilization and christianity, yet the students of antiquity must acknowledge that we can by no means compete with the ancient Romans in one respect at least, namely, in the construction and stability of our public roads. Nothing can be more conducive to the health of a community than a good dry clean road. Why is it that we have such poor roads throughout the greater part of our State ? It is not because we do not spend labor and money upon them. Far from it. But the trouble generally is in our system. We spend a few hundred dollars this fall, and a few hundred next, and so on, yet we always have poor roads. Did we at once lay out a few thousand on them, and, *if possible to find one,* give it to an honest man who would faithfully devote it to the intended purpose, we should soon experience quite a change in the condition of our roads. The following is taken from Dr. Anthon's excellent work on "Roman Antiquities;" it will show what kind of roads they had two thousand years ago :

"The public works were perhaps the greatest of all Roman works, and were constructed with amazing labor and expense. They were generally raised above the ordinary surface of the ground, and frequently had two carriage tracks, separated by a raised foot path in the centre. The centre indeed was always raised, so as to permit the water to run off easily.

"The miles were marked on stones. Stones were also placed at smaller distances for *travellers to rest on,* and to assist those who had alighted in remounting their horses, for stirrups were not used till a late period.

"The military roads were usually laid out in straight lines from one station to another, with little regard to natural obstructions, which were frequently passed by means of very extensive works, as excavations, bridges, and, in some instances, tunnels of considerable length. The solidity of their construction is clearly shown by the existence of many that have borne the travel of near two thousand years without material injury. The Roman engineers were very particular in securing a firm bottom; which was done, when necessary, by ramming the ground with small stones, fragments of brick, &c. On this careful prepared foundation, a pavement of large stones was firmly set in cement. When large blocks could not be conveniently obtained, small ones of hard quality were sometimes cemented together with lime, forming a kind of concrete, of which masses extending to a depth of several feet are still in existence. The most celebrated of the Roman roads, both on account of its length and the difficulties that had to be surmounted in its construction, was the Appian, leading first to Capua, and continued afterwards to Brundisium. It was hence called 'Regina Viarum.' Parts of it still remain, after a duration of more than two thousand years.

UPSILON.

EXCHANGE OF SEEDS.—It is a good rule in agriculture, to affect a change of seeds as often as once in every two or three years. Why it is that the seeds of most of our field crops or grain do better when cultivated on lands at a slight remove from those on which they were matured, is a question which science has as yet been unable satisfactorily to solve; but such is the undeniable fact, and indeed is so obvious, and so clearly corroborated by all experience, as no longer to admit of doubt. The winter and early spring are favorable seasons for exchanging, as well as for procuring new and improved varieties of seeds, plants and scions.

Editorial Notices, &c.

QUARTERLY AND WESTMINSTER REVIEW FOR APRIL; AND BLACKWOOD'S MAGAZINE FOR MAY, 1862, American Edition; New York: Leonard Scott, & Co., 70 Eulton Street.

We have received from the publishers through Mr. Henry Rowsell, of this city, the new numbers of the Quarterly and Westminster; which, as usual, contain valuable articles on the most absorbing topics of the day. These masterly British Periodicals treat with great clearness and ability, all subjects with which all well informed persons must seek to make themselves acquainted. The following articles constitute the numbers before us:—QUARTERLY:—Dorset; Hymnology; State Prosperity of Turkey; Training of the Clergy; Life of Turner; the Eastern Archipelago; Stanhope's Life of Pitt; The Merrimac and the Monitor. WESTMINSTER:—The Mythology of Polynesia; Endowed Schools; German Life during the last two centuries; Delaney; Caesar's Campaigns in Gaul; The Life of J. M. Turner; The Fathers of Greek Philosophy; Portraits of My Acquaintance; France and Napoleon III.; Lord Stanley; Contemporary Literature. The Contents of BLACKWOOD are as varied and rich as usual. The article on President Andrew Jackson will be read with avidity on this side of the Atlan-

BOARD OF AGRICULTURE.

THE Office of the Board of Agriculture has been removed to 188 King Street West, a few doors from the late location adjoining the Government House. Agriculturists and others who may be so disposed are invited to call and examine the Library, &c., when convenient.

HUGH C. THOMSON, *Secretary.*

Toronto, 1861.

THOROUGH BRED STOCK FOR SALE.

THE SUBSCRIBER has for Sale Durham and Galloway Cattle, male and female. Leicester, Cotswold, Lincolnshire, Down and eviot Sheep; Cumberland and Yorkshire im-ved Pigs. All imported stock.

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Toronto, Aug., 1861.

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NOTICE.

MES FLEMING & CO., Seedsmen to the Agricultural Association of Upper Canada carry on the above business, wholesale and l, at 126 Yonge-st., 4 doors North of Adestreet, until next July, when they will re-e to the new Agricultural Hall, at the corner ueen and Yonge-streets.

AMES FLEMING will continue the business tail Seedsman and Florist at his old stand, Yonge-street.

oronto, January 1st, 1861.

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ronto, April, 1862.

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TORONTO NURSERIES,
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TERMS—Cash, or satisfactory reference in England.

March, 1862. 6t.

VETERINARY SURGEON.

ANDREW SMITH, Licentiate of the Edinburgh Veterinary College, and by appointment, Veterinary Surgeon to the Board of Agriculture of Upper Canada, respectfully announces that he has obtained those stables and part of the premises heretofore occupied by John Worthington, Esq., situated corner of Bay and Temperance streets, and which are being fitted up as a *Veterinary Infirmary.*

** Medicines for Horses and Cattle always on hand. Horses examined as to soundness, &c.

Veterinary Establishment, Corner of Bay and Temperance Sts.

Toronto, January 22nd, 1862.

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Contents of this Number.

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JAMES COR...

Clochmhor, Galt P. O., Oct. 19, 1861.

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