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# Canadian Agriculturist,

OR

MEMORIAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE  
OF UPPER CANADA.

VOL. XIII.

TORONTO, SEPTEMBER 1, 1861.

No. 17.

## Effect of Guano in the Soil at Various Depths.

Some very interesting experiments, having important practical applications, have recently been made in Belgium, with this valuable fertilizer; and which go to show that guano is more beneficial when put into the soil to the depth of two or four inches, than when merely mixed with the surface as is commonly the practice. I remember seeing last year on a farm in the western section of Upper Canada, a large field of corn manured with Guano; in one portion the manure had been deeply incorporated with the soil; in the other it had been merely scratched in with a light harrow on the surface. In other respects the management was the same, and the turnips were decidedly better in that part of the field where the manure had been more roughly and deeply intermixed with the soil. It is now well known that it is dangerous to mix guano and the seed together, as the vitality of the latter becomes endangered by actual

contact. In Germany it is usual to deposit guano, on the surface, to a depth of two to three inches deep; and it is not by this practice that the efficacy of the fertilizer is always real and important. On the contrary, when spread on the surface it is found to produce comparatively little benefit. The Agricultural Society of Prague has instituted some carefully conducted experiments, and it is inferred that guano should be

worked in three or four inches deep. This method is best when the manure decomposes in the soil without the assistance of the atmosphere, but not with stable manure, bone-dust, &c. The more easily decomposed manure, such as the nitrates of potash and soda, must not be buried too deep, or they will be rapidly carried into the subsoil by rains, or into under-drains where they are formed, and thus a large portion of the manuring power will be lost.

We subjoin the results of some experiments made by M. Flockhardt, at Tharand, during the years 1857 and 1858, as reported in a recent number of the *Journal de la Societe Centrale d'Agriculture Belgique*:—

1857 Depth.	Produce per Hectare, 290 Kilogrammes of Guano per Hectare		
	Winter wheat.	Winter Rye.	Buts.
1. Putting in with seed	2690	2203	7402
2. From one to two inches	2644	2203	7402
3. From two to three inches	4142	2077	7848
4. From three to five inches	4670	2500	8100

1858. Depth.	Effect the second year without new manure.			
	Buts	Winter Rye	Winter Barley	With new manure
1. By one turn of harrow with seed	3966	3349	1058	2027
2. From 1 to 2 inches	3613	3525	1704	2064
3. From 2 to 3 inches	4885	3877	2115	2655
4. From 3 to 4 inches	5025	4230	2908	3264

"The effects mentioned in these are very feeble on account of the state of the atmosphere during

the time when these experiments were made, and we must remark that the burying deep of the guano modified in part these disadvantageous circumstances. Indeed, if we admit that roots are more quickly developed in soil where they find more assimilating elements, we can suppose in deepening the manure we will develop the roots of the plant at a certain depth below the surface of the soil, and these plants will resist the cold of winter and the dryness of the summer. When, on the contrary, the manure is spread only on the surface, it is clear, a number of superficial roots are produced,—roots which extend no further than the surface soil,—and these roots are more sensible of the extremes of temperature.”

**Sale of Thorough-Bred Stock.**

Mr. Simon Beattie, of Markham, had a successful sale of his third importation of pure-bred Cattle and Sheep last spring, at the residence of Mr. G. Scott, Scarboro', on the 1st of August. Notwithstanding the busy season for farmers, the attendance was good; and although the number of animals was not large, the quality was excellent. The following is a list of the purchasers and the prices obtained, which we trust will be found remunerative to Mr. Beattie, and encourage him to persevere in an undertaking which will prove profitable to himself as it is productive of much benefit to the country. We are glad to see among the purchasers the names of several of our best and most enterprising farmers; and that the animals will be kept in the Province for breeding purposes:—

1. Durham Bull, "Baron Solway," calved 9th October, 1860, by "General Havelock," dam "Snowdrop." Purchaser, John Snell, Esq., of Brampton.....	\$250
2. Durham Heifer, calved Nov. 15, 1858, by "Tweedside," dam "Jane," in calf to "Gen. Havelock." Purchaser, Henry Jennings, Esq., Markham.....	350
3. Galloway Heifer, "Blooming Heather," calved March, 1859, by "Mosstrooper," dam "Mary," by Fergus. Purchaser, John Snell.....	320
4. Ayrshire Cow. Purchaser, W. Ingles, Esq., Markham.....	165
5. One shear Leicester Ram. Purchased by John Snell.....	118
6. Do. do. do. John Miller, Esq.....	115
7. Do. do. do. Robt. Armstrong, Esq.....	100
8. Do. do. do. H. Jennings.....	100

9. Do. do. do. John Snell.....	120	
10. Do. do. do. F. Medcalf, Esq., Yonge street.....	95	
11. Three shear Cotswold Ram. Purchaser, Wm. Armstrong, Esq.....	120	
12. 2 one shear Cotswold Gimmers. Purchaser, W. Nimmo, Napanee.....	93	
13. Do. do. do. Purchaser, Geo. Miller, Esq., Markham.....	80	
14. 2 one shear Leicester Gimmers. Purchaser, John Snell.....	229	
15. Do. do. do. W. Armstrong.....	100	
16. Do. do. do. Geo. Miller.....	62	
17. Do. do. do. F. Metcalf, Esq.....	30	
Total.....		\$2,452

**The Provincial Exhibition.**

[The following article recently appeared as an editorial in the *Globe*, and as it is written in a truly patriotic spirit, and comprises much reliable information and several useful suggestions, we have sincere pleasure in transferring it to our columns without abridgment.—Ed.]

The sixteenth annual Provincial Exhibition of Upper Canada will be held this year in London, on the 24th, 25th, 26th and 27th of the next month. Only five more weeks remain for the completion of all the preliminary arrangements, and if the show is to be a success they will be busy weeks for the officers of the Provincial Association, the London Local Committee, and intending exhibitors throughout the Province. If any of our readers, who have stock, or grain, or implements, or anything else worth exhibiting, have not yet made up their minds whether or no they will become competitors, they should lose no time now in coming to a decision, if they would not, for a want of preparation, enter the lists on a disadvantageous footing. It is no fifteen years since the first Upper Canada Provincial Exhibition was held—little over the third of the average lifetime of a generation, according to the rate of longevity which prevails in the Province. Several of the officers of the Association during the first year of its existence are its officers still, and probably not a few of the exhibitors at the Provincial Show held in Toronto in 1846, will again be exhibitors at the London Show next month. But in other respects how vast the contrast between our circumstances then and now. In these fifteen years we have made astonishing progress. In 1846 the population of Upper Canada did not much exceed half million souls. In 1861, it amounts to nearly a million and a half. Fifteen years ago such a thing as skilled agriculture was very rare in Canada. Now we have very many agriculturists, who, in their attention to the improvement of stock and to the proper rotation of crops, the judicious use of the best agricultural implements.

and the success with which their labours are rewarded, will compare favourably with farmers any part of the world. In 1846 our products are but little known abroad. In 1861 Canadian wheat commands the highest price that is seen in the markets of England and France. Seven years ago our means of internal communication were of the most wretched description roads were so bad that an Exhibition truly provincial was almost an impossibility; it was useless to expect that products would be sent to the Show except from the immediately surrounding district, and perhaps a narrow strip of a few townships along the lake shore. Now our means of communication are such that an enterprising farmer in almost any part of the Province need not be deterred from becoming a competitor, no matter in what locality the Exhibition may be held, whether in London, Hamilton, Toronto, Kingston. We believe it is the Provincial Association and its annual Shows which we have to thank in a large measure for several of the changes to which we have alluded, and for the progress which might have been mentioned. And it is a fact at least is certain, that each successive annual Show furnishes an excellent criterion of the progress we are making in agriculture and the industrial arts generally. At the first Exhibition, the value of the premiums awarded was but \$4,200. At the coming Exhibition, premiums will be offered amounting to \$12,000; and the increase of competition, we doubt not, will be found to have kept pace with the increase in the amount of the prize list. It is now seven years since the Provincial show was last held in London, and the growing importance which attaches to this great annual gathering of all the interests in Canada may be estimated by the fact that while prizes to the amount of \$12,000 are offered this year, in 1854, when the Show was last held in London, the amount of the prize list was but \$7,000—and although 1854 formed part of the period of the Exhibition, there was a greater disposition to the expenditure of money than exists at the present time. The increase is very considerable, and the increased importance of the interests served by these annual Exhibitions; and the increased instruction and profit which they afford to the entire community, fully warrant the larger expenditure.

In speaking of the improvements which have taken place during the last fifteen years, there is no more especially connected with the operations of the Provincial Association which we cannot omit to notice. In the early years of its history, the Association was destitute of anything in the shape of a local habitation, and its exhibitions laboured under a disadvantage of being frequently held in grounds but indifferently adapted to the purpose, and without the accommodation of suitable buildings. This disadvantage no longer exists. There are no fewer than twenty localities, situated at convenient points all over the Province, which

have permanent structures, surrounded by suitable grounds, with every appurtenance necessary to secure that what is exhibited shall be seen to the best advantage, and without loss or damage to the exhibitors. Kingston, Toronto, Hamilton, and London, can each boast of a Crystal Palace and Exhibition grounds, which leave very little to be desiderated either by exhibitors or visitors. London is the most recent contributor of this valuable boon to the agricultural and industrial interests of the Provinces, and perhaps by and by the city of Ottawa and some of the larger towns may take the same means of securing an occasional visit of the great Annual Show. The cost of the building and grounds provided by the city of London, will be when the whole work is completed, about \$14,000. Of this amount about \$11,000 have already been paid by London and the county of Middlesex, and with some little assistance from Oxford and Kent. This is a result exceedingly creditable, when it is borne in mind that the object is provincial, quite as much as local. The Board of Agriculture have recommended the Local Committee to memorialize the Executive for a grant of \$3,000 to provide for the deficiency, the Board at the same time expressing a willingness to give a guarantee that the money shall be refunded before the holding of the next Fair, in London, in 1865, or whatever else decided upon. Some of the members of the Board, we are informed, would have preferred that the whole deficiency should at once make good from the funds of the Provincial Association, and the degree in which local liberty has been manifested would perhaps have warranted this step.

While we congratulate ourselves on the progress which Canada has made, and the great improvement which has taken place in the position of our agricultural and other industrial interests during the fifteen years which measure the history of the Provincial Association, it is hardly necessary to say that we must not rest satisfied with our attainments, but must put forth increased efforts for the full development of the resources of our noble country. Much especially may be done for the improvement of agriculture. Our farmers generally have to learn to place less exclusive reliance than many of them now practically do on the fertility of the soil, which, without a correct system of culture, will soon become exhausted. They must pay more heed to the rotation of crops, if they would not have their land run out and become barren, and if they would avoid the damage caused by the insect pest, whose visits, it is now the opinion of scientific men, are invited by slovenly culture. They must pay more attention also in the selection of seed, to obtaining those varieties of cereals and roots which experience has shown to be best adapted to our soil and climate. There is a wide field for improvement in the construction of agricultural implements and the more general adoption of machinery to supersede hand labour, wherever it can be done with advantage. The

improvement of stock is another matter which deserves even more general attention than is now bestowed upon it by many of our enterprising agriculturists. Our annual Exhibitions are important auxiliaries in the securing of increased excellence in all these departments. They shew the farmer at once his deficiencies and his merits, by letting him see wherein he outstrips or falls short of his neighbours, and they excite an honourable emulation in all parts of the Province. They present an arena where men of all creeds and all political opinions can meet without angry passions or clashing interests, to contend in friendly rivalry for the awards which all are willing should be adjudged to the worthiest. They have done much good in past years, and we hope the coming London Exhibition will have a success not inferior to that which has attended the most successful of its predecessors.

### Trial of Reaping and Mowing Machines.

EDITOR AGRICULTURIST. SIR:—As the Trial of Mowing and Reaping Machines is always of interest to practical farmers, I beg to hand you the Secretary's report of a recent trial held under the management of the North Riding of Lanark Agricultural Society, which I trust you will find room for in your valuable paper

Yours, &c., L. H.

Ramsay, July 15th, 1861.

According to notice the Trial of Mowing Machines under the patronage of the North Riding of Lanark County Agricultural Society came off to-day, on the farm of Mr. Robert Lang, lot No. 14, 10th Con. of Ramsay. The decision is as follows: That No. 2, the Fuckeye Machine, manufactured at Smith's Falls, by Messrs. G. M. Copitt & Bro., is entitled to the first prize. No. 4, Messrs. Froit & Wood's machine, although third in point of quality of work, yet in consideration of weight, portability, and general adaptability, being superior to No. 3, is entitled to the second prize. No. 3, Messrs. Patterson's Combined Machine, is entitled to the third prize.

JUDGES:—And. Dickson, Robt. McFarlane, Robt. Bell, R. W. Sutherland, W. W. Wilkie.  
David Campbell, Sec. & Treas.

August 1st, 1861.

The trial of Reaping Machines came off this day on the farm of Mr. Peter Young, lot No. 25, 7th Con. of Ramsay, awarded as follows. The Judges decided that No. 1, the Buckeye manufactured by Messrs. G. M. Copitt & Bro., is entitled to the first prize. No. 2, Messrs. Patterson's is entitled to the second prize. And No. 3, a Self-Raking Machine, is entitled to the third prize. They beg to state that in some points, particularly in the saving of the labor of a Rake, No. 3 is entitled to consideration.

JUDGES:—Robt. Bell, Robt. McFarlane, W. R. Sutherland, W. W. Wilkie.

David Campbell, Sec. & Treas. N. B. L. A. S.

### Cockle in Wheat.

EDITOR AGRICULTURIST.—Yesterday while work in my fall wheat field, I was curious enough to pull and examine a Root of Cockle which I found to have five stems, dividing into thirty three branches, having as many heads of seed pods, containing fifty-one seeds each, all sixteen hundred and eighty-three seeds.

This little experiment will prove to the farmers how necessary it is to prevent the growth of noxious weeds, which in most cases produce seed in greater abundance than valuable grain.

To those who are not acquainted with the plant, I may say that it is produced from small black seed, very like an onion seed, some in the fall wheat and is an annual. The plant grows about 3 feet high, and bears a purple flower, the stalks are very stiff and rather straggling. The best time to eradicate it is about the first of July, when it is easily known by its pretty bright flower. The principal objection to it, is the great injury to the flour when wheat is ground.

R. L. D.

Dovercourt, July 7th, 1861.

### Smut in Wheat.

TO THE EDITOR OF THE AGRICULTURIST. SIR Permit me to enquire of you, whether smut wheat sown will have a tendency to produce smut; and if so, whether there is any means to prevent it. Some say that washing the seed with salt and water, and then drying it with lime, prevent the smut in the future crop. Others again, say that steeping it in a solution of water and blue stone, is a preventative.

Whether any of these operations would be a benefit, or if there are any others, you will do a great favor by informing me to such effect.

It is from the difficulty of procuring seed year which is free from smut, that I write to you concerning this matter.

Perhaps some of your readers could suggest something which would be a benefit.

By complying with the above request you much oblige.

Yours, &c.,

AGRICOLA.

Brampton, Aug. 25th, 1861.

REMARKS.—The disease called smut is likely to reproduce itself, by sowing affected seed. I would say to our correspondent by all means procure seed that is altogether untainted by any or any other malady, if possible; for too much attention cannot be given in selecting plump healthy grain for the purpose of seeding. Smut is produced by minute fungous plants, and occurs principally of two varieties. The first is the *Uredo Segetum*, and resembles a black mold growing within the glumes of wheat. It destroys the seed and its envelopes, converting them into black powder. The other fungus is designated *Uredo caries*, the dust having a brownish

of larger grains, emitting a fetid smell, and is the more destructive of the two. We should strongly advise not to sow smutty wheat, if it can possibly be avoided.

Wheat affected in this way should be put through the fanning mill several times, and afterwards thoroughly washed in a cistern or tub, with clean water; the light and smutty grains will rise to the top, and can be skimmed off. Soaking the seed in a strong brine, sufficient to float a hen's egg, and afterwards drying it with lime mixed with hot water, pouring the mass over the heap, and thoroughly incorporating it with the grain, is an old practice, much to be commended. Sulphate of copper (blue vitriol,) forms a much approved solution for the steeping of seed grain; using about 2 oz. or more, to a bushel. In this case it is best not to dry the grain with quick lime, as it impairs to some extent, the powers of the mixture, by decomposing the sulphate of copper.

### How to Destroy Thistles.

EDITORS OF THE AGRICULTURIST. GENTLEMEN. I am induced to trouble you, for the purpose of asking the best mode of extirpating thistles. I mean those that are commonly called Canadian (a graceful, slender plant) in contradistinction to the Scotch. My reason more particularly for wanting to be informed, is, that a person has been soliciting, and with some success, for customers, at a premium of \$10 to be paid at the end of two years—the term allotted for their extraction, and a forfeiture of \$1000 if his secret, or information, is divulged, by those who subscribe to his terms. All this appears to me to be a mixture of stupidity and imposture. If it is not, I shall be glad to be set right. The little disclosure that has been made, is connected with the moon's age, and other lunar mysteries; and I dare to say, with many it has not been without its attractions. Any opinion that I entertain on the subject, is not worth a thought; labor and good tillage is all that I should employ. But nothing is demanded as far as the high roads are concerned; supposing, as I do—that they are propagated by seed. I will take up no more of your valuable time, feeling assured if you can correct a tendency to delusion, that you will do it, by giving all the information on the subject that can be known.

I am Gentlemen,

Your Obedient Servant,

JOHN LESLIE.

Guelph, Aug. 18th, 1851.

P. S. A portion of the Eramosa Road is covered on both sides with thistles, and I suppose it is the same every where. J. L.

Our correspondent will find the opinions and

experience of several farmers relative to the extirpation of thistles recorded in the back numbers of the *Agriculturist*. We agree with him that "labor and good tillage" involve the grand remedy, and the lunar theory should be left to those who choose to adhere to the superstitious practices of past ages, rather than abide by the dictates of careful observation and common sense. When once the Canada thistle has got undisputed possession of the soil, it requires both time and perseverance to effect a dislodgement. Plants may be weakened, and, indeed, ultimately killed by repeatedly stripping them of their leaves. In pasture land thistles may be got rid of by cutting them off with a sharp instrument, technically called a thistle-spud, a little below the surface of the ground, whenever they make their appearance. In this way we have seen pastures entirely cleared in a few years. For arable land a thorough summer fallow; that is deep ploughing and frequent scarifying, bringing the roots to the surface, will give the thistles an effective check; and by subsequently pulling up what may appear a cure will be gradually effected. We know of no specific. Clean culture, and not allowing thistles to seed in waste places and on road sides, against which, we believe there is a statute, involve the general principles of prevention, which every farmer has, more or less, the means and opportunity of applying.

### Important Invention—New Flax Scutching Machine.

We were yesterday, in common with several gentlemen connected with the flax trade, afforded an opportunity of witnessing the practical operation of a new flax scutching machine, invented and just patented by the Messrs. Rowan, of the York-street Foundry. Already it has been pronounced, by competent judges, the most successful mechanical appliance yet designed for scutching purposes; its great recommendation after its utility is the cost, which is moderate in comparison with that of other machines—so moderate, indeed, as to bring it within the means of the ordinary flax-growing farmers. A single machine requiring the attendance of one person will not cost more than £20; while a double machine, to be worked by two persons, may, we believe, be made for about £25. It is an advantage, too, that the machine does not require the attendance of skilled workmen; it can be worked by any ordinary farm labourer the space occupied is little, as the extreme dimensions do not exceed 5 feet by 3—not a fourth of the size of ordinary threshing machines. No extra amount

of power is required to drive it, and it can be connected by a pulley to any threshing machine at present erected. It will, certainly, be a boon to the farmer to be enabled to scutch his own flax on his own premises. The new machine will produce 20 lbs. of scutched flax per hour, and the yield of clean fibre will be materially increased. The straw employed in the experimental test made yesterday was brought from Armah. In the ordinary scutching mills straw of the same growth and quality had yielded but 16 lbs. of fibre to the hundred weight; in the new machine the yield was 22 lbs. to the cwt. Another advantage is the speed of working. We yesterday saw five "stricks," or handfuls of straw, thoroughly scutched in seventy seconds, to the entire satisfaction of competent judges who were present; the fibres were well cleaned from the wood, and the ends of the flax—so great a difficulty in the old mode—were particularly well done. Many persons visited the scutchery in the course of the day to see the machine in operation—amongst others, the head of the firm of Richardson, Brothers, & Co., with his buyer; and so well pleased was he with the simplicity and effectiveness of the machine, that he gave an order for one to be forwarded to Russia. As we have already said, the Messrs. Rowan have patented the invention, and it will be at work for the inspection of farmers and others interested during the remainder of the week. It is of the utmost importance that parties who contemplate the erection of scutch mills should see the new machine at work, in order to judge for themselves of its efficiency, in comparison with others. This machine has capacity for scutching unsteeped flax as well as steeped; and is, therefore, likely to be useful in those parts of the Continent and America where flax is grown for seed and not for straw, and where the straw is, consequently lost for fibre-production.—*Belfast Whig.*

### High Farming in the West of Ireland.

Few would believe that, at the present moment, some of the best cultivated farms in this country are in Connaught. I visited the great farms of Allan Pollock, Esq., of Galway, said to contain thirty thousand statute acres, in last autumn. One of the proprietors is in county Galway, near Ballinasloe. Here all the defects of bad farming are invisible; no useless ditches, weeds, nor any want of thorough drainage; there is a proper rotation of crops, plenty of farm-yard and artificial manure applied, the best seeds used, and everything managed on the best system. The principal crops are green ones, wheat and some oats. Cattle and sheep are prepared for the Dublin and English markets. The fields are the largest that I have ever seen in England or Ireland. The population, though formerly dense, is now thin, so that Mr. Pollock's poor rates will not be very high. There is a good

flour mill on the Lannelly property, where the wheat grown on the farms is made into flour. The laborers are fairly paid and seem comfortable. The farm-houses, and farm yards are in the Scotch style, and seem very fine, but not so pleasant to the eye as the same would be in England. At Lannelly, I observed the finest field of cabbage, the best mangel wurzel, the best turnips, and the most splendid field of wheat I ever saw in Ireland, except at the Model Farm, Dublin, in 1851. I did not notice any flax. The sheep seemed good, and the same may be said of the cattle; but in neither of these departments did other large graziers and cattle breeders seem to be left behind. I have seen both sheep and cattle in England which have pleased my eye rather better. All the arts of the mechanic, the architect, the chemist, and the political economist, seem to have been called into Mr. Pollock's aid. The steam engine does everything possible for it to do. These farms have been visited by hundreds from almost every country of Europe. I omitted to state that there are some other Scotch gentlemen carrying on farming there and a Belfast gentleman has also a very fine concern near Launcetown. The agriculturist who visits Mr. Pollock's farms at Lannelly and Craig, which latter is near Roscommon, will not be disappointed.—*Cor. of Belfast Whig.*

### Yield of Root Crops to the Acre.

A correspondent of the *Country Gentleman* analyses a statement made a few weeks ago, that root crops were over estimated, and seldom or never produced anything like the amount claimed for them, the usual yield being more often at the rate of 200 or 300 bushels than from 800 to 1,200 bushels. It will be seen that by a reasonable estimate a good case is made out, which we regret to say, however, is seldom made out in a field, well as it looks on paper:]

And first in regard to parsnips, which only gave 576 bushels per acre. If the rows were 1 inch apart, as stated, and the plants 4 inches apart in the row, then they could only have averaged one-third of a pound each, which hardly be considered very large for carrots and parsnips. I have never considered these root crops very large unless they weighed two or three pounds each, while I have seen carrots that weighed between six and seven pounds. B. suppose they weighed one pound each, and grew at the distance apart each way above mentioned, there would have been 1,742 bushels, at 50 pounds per bushel; or if reckoned at 50 pounds per bushel, which is more than they will weigh to the measured bushel, and very nearly corresponds with the difference made by the Old Hibernian, then there would be 2,091 bushels. C. suppose they are sown in rows 20 inches apart and 4 inches apart in the row, which I believe nearer the usual distance; then if the root weighed one pound each, there would be 1,500 bushels per acre. at 50 pounds per bushel, 784 if they only weighed half a pound each.

ed so in regard to turnips. I can't under-  
stand how Old Hurricane can raise so large rutab-  
gas, many of the roots weighing 12 to 14  
pounds, and they were nearl, all large, and yet  
get any more to the acre than he appears to  
have had. His roots must have been a great  
distance apart, or there must have been a great  
amount of vacant ground. In order to show what  
turnips and other roots will produce to the acre,  
at given weights of each root, at various dis-  
tances apart, I have got up the following table.  
The number of plants to the acre for the differ-  
ent distances apart each way, I have taken from  
the table in the *Illustrated Annual Register* for  
1871, page 384. The table is constructed in a  
similar manner to one given in Stephens' *Book  
of the Farm*, page 439, vol. 1, with this exception,  
instead of carrying out in tons, I have carried  
out the gross amount in bushels at the rate of 60  
pounds to the bushel:—

	Dis- tance of plants in row.....	No. per acre.	Weight of each root.	Bushels per acre.....
1	1 foot.	21,780	12 lbs.	4,357
	do	do	10	3,630
	do	do	5	1,630
	do	do	2	726
	2 feet	10,890	12	2,078
	do	do	10	2,816
	do	do	5	707
	do	do	2	303
	1 foot	14,520	12	2,940
	do	do	10	2,420
	do	do	5	1,210
	do	do	2	484
	2 feet	7,260	12	1,452
	do	do	10	1,210
	do	do	5	605
	do	do	2	968
	3 feet	4,840	12	806
	do	do	10	806
	do	do	5	401

The above table is important as showing that  
it is necessary to have roots very close toge-  
ther in order to raise large crops, as for instance,  
if the roots are three feet apart, and the plants  
are three feet apart in the row, with no vacancies,  
then the roots average ten or twelve pounds, the  
yield will be large. It is also important as show-  
ing the great importance of having the ground  
between the roots, as a little reflection will make it appar-  
ent to any one that when this is not the case the  
yield will be seriously diminished. It will also  
show that those that are disappointed in the  
yield of their root crops, by enabling them to ascer-  
tain the reason, or reasons, why they have not  
done as well as expected, thus showing  
how to remedy such deficiencies in the  
future.—*Michigan Farmer.*

### Management of Pastures.

Correspondent of the *Mark-Lane Express*,  
publishing a series of articles on farm econo-

my, makes some excellent remarks on the rear-  
ing of stock and the management of pastures.  
He says,—“Anybody may graze cattle;  
but to graze them *aright* requires know-  
ledge, tact, and excellent judgment” Never  
were words more truly spoken. In our own  
country, for instance, how seldom do we find  
a really skilful grazier. We see, in passing through  
the country, pastures gnawed to the very soil, so  
that the stock is actually pinched for food, and  
others on which a large proportion of the herbage  
has run up to seed, the stock kept on them  
having only grazed here and there a spot, which,  
as the feed is sweeter on them than it is elsewhere,  
have been kept short the whole season. This  
course has perhaps been continued for several  
seasons, till from the accumulation of “old fog” a  
large portion of the grass has become sour, so  
that stock will not touch it unless pressed by  
hunger; wild plants have sprung up, and are  
constantly increasing.

It is a rule with the best English graziers, and  
also with the best in this country, that all pas-  
tures should be cleared off once a year, in order  
to derive the full benefit of the herbage, and to  
keep the turf in the most productive state. The  
writer from which we have quoted, makes the  
following observations in reference to the assign-  
ment of the proper class of stock to different  
kinds of land, and the management of the pastures.  
It will be noticed that the stocking of inferior  
lands with cattle and supplying them with extra  
feed, is mentioned. It is a matter to which we  
have several times called attention:

“The fattening cattle are of course put upon  
his best pastures, which are duly prepared, by  
rest and occasional manuring, to receive them.  
In this case he has to exercise his judgment, and  
purchase or select his stock according to the  
quality of his pastures. He will place his large  
oxen on first-class lands only. On his second-  
class lands he will place heifers, young draft cows,  
or animals from some of the smaller breeds of  
cattle. He knows that if he places first-class  
oxen on second class grazing lands the balance  
must be made up by good artificial feeding. The  
former is the common order of cattle-grazing, but  
the latter is now becoming the prevailing custom,  
i. e., to stock somewhat inferior lands with cattle,  
and supply them with the best fattening food—  
generally linseed-cake at the rate of from four  
pounds to seven pounds per day. In addition to  
the proper ‘stocking of land,’ he has to watch  
(daily almost) the state of his pasture. ‘The bul-  
lock pasture must be kept right;’ consequently  
he has to add or diminish the number of animals  
in accordance with the season, i. e., the growth  
or declension of his pasture, his sole aim being  
to keep his cattle in the highest progressive state;  
failing in which, his profits will not be remunera-  
tive. The pasture itself he has also minutely to  
attend to, or it won't be ‘kept right.’ The



mowing or chopping up the rough-growing grass, the 'knocking' of the manure deposits; the shelter, the rubbing posts, the waterings, the fences,—all have to be cared for and provided."

## Agricultural Intelligence.

### The Highland Agricultural Society of Scotland.

MEETING AT PERTH.

The Highland Society was considered this year to hold its meeting under especially favorable circumstances. The entries were known to be good; the locality was one in which the best breeds of the country were likely to show in great force; while, as the last year of the Duke of Athol's term of office, it was concluded, naturally enough, that his Graces's own friends and neighbours would strain a point to support him. But even beyond all such advantages there was for once no "opposition" in the arrangements of the Yorkshire Society.

Excellent as no doubt were some of the classes at Perth, the meeting, as a whole, did not realize all that was expected of it. Without going again very minutely through the catalogue, we only remember three English exhibitors as being represented here—Mr. Booth with his Shorthorns, and Mr. Waluman and Mr. Mangles with their pigs. The Perth, however, was "very nearly" being a most exciting show of Shorthorns. Had Captain Gunter only sent on his stock as he did at Dumfries last year, we should have had the Leeds battle and its subsequent correction in Durham fought out for the third time. But Booth could not cross the Border in '60, and Gunter would not in '61. Just as in the ploughing match, Hornsby would not compete at Edinburgh, and Howard declined doing so at Perth. Much as it sounds like one, there is no amicable adjustment in this, although it generally works conveniently enough for those who go into competition. As a rule, the commendations of the Highland Society, in reality, mean little or nothing, and the very official prize-list declines to give them, an example we have continued to follow. As at other meetings, the judges are here instructed to give in, beyond the first, second, and third prizes, two other reserve numbers, of which the fourth is construed into a *high commendation*, and the fifth into a *commendation* simply. More frequently than not, the judges mean nothing of the kind; but the officials are good enough to interpret this for them, and the best of a bad lot remaining becomes highly commended accordingly. The effect of this is often absurd, as in some short roughish classes of Cotswolds, where almost every sheep sent was distinguished by a prize or a commendation; and, when at the first glance, one would imagine the judges must have had a wonderfully clever and even lot of animals be-

fore them. Let the Direction of the Highland Society be good enough to remember for the future that a reserve number does not necessarily imply a direct compliment, and that judges, if they choose to exercise it, have the absolute power to commend as many or as few of the entries as they please. At Perth this might have fairly commended the whole class of Shorthorn cows, which if not a large one was very good one.

Like a thorough man of the world, the Shorthorn makes himself at home wherever he goes, and, with all the assumption of a leader of the flock, is now not satisfied till he has the attention of everybody. It was so at Perth, when at 10 o'clock, on the sound of the trumpet, the trumpeters fell, and the eager crowd rushed off to Queens, and Belles, and Brides, just as at Leith they made for the horses, or well versed might learn the road to the tea and toast. Not that the native breeds had some honour in their own country, more especially the shaggy Highlands, looking quite as handsome and more useful than ever. In the generally good classes struck us there was more depth and breadth about them than we have seen, with scarcely an exception which would seem to argue what even a Highlander might be if you did take very good care of him. They were six of all colours, yellow, brown, black, and bridled, but with the fawn by far the most fashionable in appearance, and the blacks the least; the latter, indeed—whether from the mere variety of colour or not, we will not venture to say—had seldom the high character of the figures. The cows, here, again, were a capital class; and Mr. McLaren's first, a "splendid animal in the best sense of the word, with a wonderful bear-skin coated calf at her side, is impossible to imagine anything more picturesque than the grouping of this mother and daughter. Then, Mr. Campbell, of Jura, another of his beautiful heifers, warranted to live and thrive in a country where they are snowed from October to June, and from a happy home nothing but the highest of earthquakes can still keep them. The Duke of Buccleugh had not only two first prize bulls, but Grace also ornamented the show-ground with four famous Highland oxen, remarkable for most magnificent heads and horns. "Good eat" and good to look upon, surely the Highlander should command his price as "first stock," if he can do without that top rail!

Another peculiarly national breed is the polled, not here classified with all the nice distinctions of Galloways, Angus, or Aberdeens, but competing, as they would appear to a general observer, as of one common class.

Still, in their united strength, the entry was a decidedly large one; and Mr. Bowie declined to show his animals, withdrawing them at the last moment in consequence of a dispute or danger of contagion, that we have not entered upon here, but that seems to us to

argued with far more bitterness than was all necessary.

The Ayrshire must have made something of the same excuse, for at any rate scarcely half of the entry came into their stalls, where Mr. McCann's fine healthy bull, and Mr. Stewart's really clever younger one, led off. They are the famous prize winners, and it is not often we see such good types of the "milking bulls" breeds in which of course the cows show to the advantage. A hundred guineas is coming for a price to be talked of for an Ayrshire cow, and both Lord Strathmore's were bought of Mr. Stewart at long prices, but they were bought well, and we have the authority of the *North British Agriculturist* for recording the heifer as "the most perfect specimen of an Ayrshire brought forward for many years."

As usual there were a number of good crosses quite as much a matter of course these were the Shorthorn bulls. The best of them was a very level grand ox, of immense size for age, fed by the Messrs. Mitchell, and so good they intended to send him on to the Smithfield Club. High feeding here is an art worthy of encouragement, but it becomes a very difficult thing when applied to breeding stock, as Mitchell should take care to remember. It might very justly impress as much upon the selectors of Clydesdale horses, which are generally fed very high, to anything but their advantage. Flesh may cover a multitude of sins, but at the same time it only serves to more palpably demonstrate some of the weak places of the race. A hooded crest, a big carcase, and a back will do much to hide a light girth and weak thigh; while the action of many of these is palpably impaired by the process. The stallions were, as they always are, a very odd lot, with some clever compact powerful ones amongst them, and a number of three-legged things with big ends, and long legs and huddles, that never should be permitted to sell a country. The first prize stallion is of the kind known as the large Glasgow sort, a creature of enormous power and weight, but yet inferior in his action to the second prize, a common animal in many other respects to be preferred. The third was also a clever handsome horse; his appearance far away the pick was Nature's mare, with her foal at her side. She was really good looking, cleaner about the legs, and more bloodlike in her character than is the common one here, but not a bit the worse even for her weight on that account; while her foal was really admirable; and when you had them out, they still grew on the eye as something to wish for. The third prize mare had a certain want of spirit against her, but she was otherwise uncommonly clever, and for farm work as good as any to be. Local authority declared the young ones to be better than their sires or seniors, and some of the fillies had really no character whatever about them, and, by appearances, it would be hard to say what they can come to.

Lord Strathmore entered one or two of his recently purchased Suffolks; and Lord Mansfield sent a few of the same sort, but the judges would not look at them. "Nevertheless and notwithstanding" justice compels us to declare that their own first favourites, the Clydesdales, have by no means improved, if even they have maintained their standard of excellence, when this is demonstrated by the Perth Meeting. With the long and well merited repute of continuing to do a great many things they ought not to do, and leaving undone what should have been done, the Executive of the Highland Society still carefully abstains from inserting the homes of the various stallions in their catalogues simply we suppose, because no animal alive is so well known by his name as a stallion, or because all other societies do supply such information.

With that very good exception, the Shorthorn the Scotch agriculturist appears to be well satisfied with what he has. You never see a Devon or a Hereford at a Highland Show; and a cart-horse signifies a Clydesdale. The Cotswolds make little way, and the Duke of Richmond, with Mr. Atcheson, and Mr. Skirving, having it still nearly all to themselves with the Southdowns. Then, you never heard of a Scotchman going in against the Thunders, the Owens, or the Meades at Holme Pierrepont. They have a breed of Leicesters of their own by this over the Tweed, so entirely different, or so thoroughly beyond the character of the pure Leicester sheep, that it was gravely proposed at this meeting to make two classes of them; one of English and one of Scotch Leicesters. This was, however, ultimately got over, by agreeing to have none but Scotch judges, who of course awarded all the premiums to Scotch-bred sheep, utterly ignoring those of the Duke of Richmond and Mr. Collie, which were bred from pure-bred rams. There was a very numerous entry of the Highland Leicesters, with many large useful sheep amongst them. It was, in fact, considered a very capital show of them; but they had little type left of high-bred symmetrical English sheep, and the most refined points have clearly been sacrificed to size and hardihood. This last recommendation is one of great matter with the Scotch farmer, and never did the black-faces show better, and never were they in such favor as at Perth. The way in which they lived through the last winter will not soon be forgotten. They really seem to have improved, too, in form, and the most useful properties; while their uniform style was very noticeable, despite the length which the several sections ran. The active, handsome headed rams, with their well-twisted horns and dark muzzles, give, as we have often had occasion to say, a distinctive character to these meetings; but it is not as a "fancy" animal that they are to be appreciated; for general opinion now goes to declare there is no more paying sheep than the Blackface, which will live well where many other kinds would die.

The good-looking Cheviots, for example, are beginning to be regarded as a little "soft;" and there was not a small display of them here. Still their decline can be but temporary, and as native sheep of the country, some of the best farmers always hold to them as worthy of careful cultivation.

#### THE IMPLEMENTS.

[There was as usual a large amount of implements and machines from the principle makers in the United Kingdom, which our space will not allow of particularizing.—] Among the extra machines may be mentioned the apparatus for dipping sheep, shown by Caruthers of Dumfries, in which the tub is graduated so as to prevent mistakes in measuring the non poisonous composition of Macdougall, and the waggon which conveys the sheep from a complete drainer, saving the liquid.

On Thursday afternoon, Messrs. Howard's steam cultivator was at work at Fairton, half a mile from the show yard, and many persons inspected the trial. The field was a ley of long rough grass, on a good soil, abounding, however, with stone and boulders. The three-lined grubber worked first 8 inches deep, and then crossed the work 10 inches deep, driven by a double-cylinder 8-horse engine. This was only to show the action of the machinery, which we understand is finding customers in Scotland. Messrs. Howard have not competed for any prizes at the present show. (Abridged from the *Mark Lane Express*.)

#### Exhibition of the Royal Agricultural Society of England, at Leeds.

[Abridged principally from the *Agricultural Gazette*.]

The Agricultural Society may be congratulated on a most successful anniversary at Leeds. Never have its yards been better filled with illustrations of the live stock of the farm—rarely have they more perfectly illustrated the machines of Agriculture—and of certain classes of machines never has the trial been so careful or so clearly indicative of high merit. Steam ploughing is at length admitted by every one to be practically accomplished. The reaper and the mower by horse-power are now everywhere being introduced, and the skill and ingenuity of machinists are being everywhere doing more cheaply and more perfectly, and more rapidly, that which has been hitherto been done tediously and painfully by horse or hand. The proof of all this given at the Leeds Meeting has interested both townsmen and agriculturist, and immense crowds of spectators have been daily present, both at the trials of machines, and latterly in the yards where they are exhibited.

The has been the attendance on the four days of the week.

On Monday,	2,027	visitors	paid	£585	19
On Tuesday,	10,250	"	"	1201	5
On We'day,	18,823	"	"	2352	17
On Thur'day,	74,000	"	"	3700	0

So far, therefore, as known when we press, the Leeds Meeting compares favorably with those of Warwick and of Chester, we stand highest on the list of the Society's experience.

The show-yard of the Agricultural Society certainly an admirable ware room. It is difficult to imagine any market place to which an agricultural machinist would be better pleased to take his goods. Nowhere is there such a thorough of customers—much mixed up no doubt—mere idle sightseers and "excursionists"—amongst the multitude which slowly pass by stand are men from every English county probably every European country who need use such tools as are there exhibited. And they are all now wide awake to the necessity of economising labor, and the importance of cheapening production by the aid of machinery. They would think that the makers of such machines would gladly submit to almost any drawback to meet any difficulty rather than lose the opportunities which such a gathering affords. Yet some of our leading manufacturers declined being present. Messrs. Ransome, Ipswich, Messrs. Garrett of Saxmundham, Samuelson of Banbury, all first class manufacturers, do not exhibit their machines, notwithstanding such an opportunity of selling them.

Unquestionably the leading feature of the Leeds show has been the thorough examination given to the subject of steam ploughing by three most competent judges appointed by the Society. For a fortnight they have been examining the existing machinery to every test which merit is determined, and the details of their award will be found on another page. It has been given almost wholly in favor of Fowler's apparatus as now constructed, and we do not doubt the soundness of their decision. The advantage of steam of a cultivating power in its especial adaptation to the tillage of clay soils, and the superiority of Fowler's system was more than ever apparent in the clay trials to which it was subjected.

It is in the distinction thus given to a new implement that the responsibility of the Society's judgment chiefly lies. The award of merit in a competition of old implements, such as sowing machines for instance, which while old are common will probably not affect their sale at all. Mr. Hornsby's implements, Messrs. Garrett's implements, Mr. Smith's implements, have each their respective countries, and they do not, cannot, encroach on one another. A man has used a drilling machine for 20 or 30 years properly believes that he wants no guidance from an agricultural society in the purchase of one; and accordingly makers of sowing machines

do not attach much importance to the prizes by which the Society chooses to distinguish one or more among its rivals. It is when such distinctions affect new apparatus that they are most influential. There is an enormous hitherto un-reached field before the makers of steam plough apparatus for instance, and the persistent award of judges, after patient examination into the trial methods, in favor of Fowler's apparatus cannot but be of the utmost importance.

Recent agricultural statistics declare the wheat lands of this island to exceed 4,000,000 acres, the Barley land to approach 3,000,000 acres, the crop to exceed 2,000,000, the Potato crop to exceed 700,000 acres, the Turnip crop each year to approach 3,000,000 acres, and other crops to exceed 700,000 acres, while 900,000 acres are in bare fallow. At least two-thirds of this—nearly 15,000,000 acres, can be cheaper ploughed and worked by steam than it can by horses. Here are 10,000,000 acres to be cultivated in the year, 15,000,000 to 20,000,000 acres of ploughing to be done—2,000,000 day's work or a 12-horse power engine. But there are not more than 120 days in the year on which it is generally convenient to set the engine ploughing—and we therefore want 15,000 steam-engines to do the work. Mr. Fowler, Messrs. Howard, Clayton & Shuttleworth, and Tuxford, and all agricultural machinists of the day, may set work in concert or in rivalry as they please: there is ample room for all; and more than all can accomplish for many years to come. Of course a great proportion of the arable land of the country is mixed up with pasture land in all proportions, which must be worked by horse-power—unless by steam for hire; and these are vast tracts of plough land in the hands of those who have not capital for the operation of steam ploughing, but that a large and ultimately increasing remainder will be cultivated by the steam plough and steam cultivator we need not doubt. If three-tenths of the agricultural horse power of England may be displaced by steam (and this will leave a remainder amply sufficient for the cultivation of small farms and the work of carriage and other lighter operations on large farms), then 240,000 horses have been displaced, and their work will be easily accommodated by less than three-quarters that quantity of horse-power in steam, thus bringing the quantity of engines needed as 15,000 of horse power, at which it was estimated before. It is not, however only for this country that steam-plough makers will be at work. Every monthly mail brings our machine-makers a hundred orders from Australia—the export trade in agricultural machinery to Germany and France is a greatly increasing trade—leading manufacturers have agents in Paris, Lyons, and other leading continental cities—English proprietors losing the labor of their serfs are seeking independence of them—the great international gathering is to take place next year. It can doubt that the work of providing steam

cultivating apparatus for all who in this country and elsewhere are about to cultivate their land by steam will be almost an impossibility during the next few years?

There is no one who has had a harder or more uphill fight than Mr. Fowler for the attainment of the success which is now about to reward him. He has throughout contended for a system adapted to better than the average circumstances of English farming—to large fields, systematic agriculture, and the great scale generally; and thus he has had not only to convince the farmer of the merit of his apparatus, but of the economy and profit of a higher system of agriculture altogether than is generally prevalent. His methods are at length proved applicable also to more limited operations, and confined positions; but it is still in the open country, and on the great scale that his plans are most effective. Confident in their ultimate success, he has seized on every possible improvement of which they were capable; and at enormous cost of money, labor, resolution, patience, thought, he has at length achieved pre-eminence.

The Show-yard was an almost level field of about twenty-five acres—the implement and miscellaneous sheds extending in breadth over about three-quarters of the field, and in length over more than one-half. On the south side, running the whole length of the field, was a space for showing the machinery in motion. The other part of the field was occupied by the cattle sheds. The show of Implements was "by far the largest that has ever taken place"—the catalogue of "agricultural implements, machines, and other articles for farm purposes, manures, seeds roots, flax, wool, &c.," alone being a volume of 401 pages, embracing about 6000 articles. Of purely agricultural implements there were about 160 exhibitors, and the miscellaneous department there were some 180. There were 36 sheds devoted to implements, some of them 252 feet in length and 33 of them 120 feet wide. There were 24 sheds appropriated to stock. The timber used in the construction of the sheds is to the extent of 23,000 cubic feet of boarding and the canvass used in covering them was estimated at 15,000 square yards.

In round numbers the amount of Prizes offered may be stated in the aggregate as about \$16,180—namely, for steam cultivators, \$1,000, other implements, \$1,600, cattle, \$3,750, horses, \$3,675, sheep, \$2,900, pigs, \$9,000 cheese, wool, butter and flax, \$1,400, for agricultural servants, essays, and building designs, \$950.

As to CATTLE, there were 200 entries of Shorthorns, in seven classes. The first class, bulls not exceeding 6 years old, numbered 38—the first prize of 30*l.* was awarded to Lord Eversham; second, 15*l.*, to James Haughton Langston, M.P.; the third prize of 5*l.*, to Mr. James Dickenson. Among forty entries in the second class young bulls more than one year old, the three prizes were awarded—first, of 25*l.*, to Mr. J. Taylor; second, of 15*l.*, to Jonas Webb, Esq.;

the third, of 5*l.*; to Sir Walter Calverley Trelvyan, Bart. From class three containing thirty-seven entries of bull calves, above six and not exceeding twelve months old, two were awarded prizes. No. 1, 10*l.*, to Mr. C. Howard; No. 2, 5*l.*, to Mr. H. Ambler. Class 4 represented fifteen cows, in milk or in calf, above three years old. The first prize of 20*l.*, was awarded to Captain Gunter, for Duchess Seventy-seventh; the second of 10*l.*, to Richard Booth, Esq., for Queen of the Vale; the third prize of 5*l.*, to Lady Pigot, for Second Duchess of Gloucester. In Class 5, fourteen heifers in milk or in calf, not exceeding three years old, Captain Gunter too the first prize of 15*l.*, for Duchess Seventy-eight, a twin, the other twin being highly commended; Mr. R. Booth following second for Soldier's Bride; the third prize of 5*l.*, to Mr. J. Robinson. Class 6 represented thirty-one yearling heifers. Captain Gunter carrying off the first prize of 15*l.*, for Duchess Eighty-three; second, 10*l.*, to the Hon. George Edwin Lascelles, for Gracillis; third of 5*l.*, to Mr. J. Peel. Class 7 contained twenty-five entries of heifer calves above six and under twelve years old—the first prize of 10*l.*, to S. Majoribanks, Esq.; second prize of 5*l.* to Mr. J. Atherton.

The Show was held rather out of the range of either the *Herefords* or *Devons*, which consequently were shown in small numbers in comparison with Short-horns. Each was divided, like the Short-horns, into 7 classes; and in class 1 of the Herefords, of aged bulls, the prize-takers were Thomas Rea, first and second, and George Bray, third; class 2, yearling bulls, Messrs. R. Hill, E. Wright, and W. Perry; bull calves, Richard Hill and J. Williams; aged cows, Messrs. Naylor, P. Turner and R. Leyshon; heifers in milk or in calf, Messrs. Turner, Naylor and Leyshon; yearling heifers, Messrs. Perry, Naylor, and J. Marsh Reed; heifer calves, the executors of the late Lord Berwick and Mr. Williams. For Devons, the prizes went for aged bulls, to Messrs. J. Bodley, G. Turner and Prince Albert; yearling bulls to Messrs. W. Farthing, J. Merson and G. Turner; bull calves, Mr. Farthing and Prince Albert; aged cows, Prince Albert and Mr. Turner, no competition for third prize; heifers in milk or in calf, Mr. E. Pope, first and third, M. J. Hole second; yearling heifers, Mr. Farthing first, and Mr. J. Merson second and third; heifers and calves, Messrs. Davy and Turner.

Of the *Suffolk Breed*, for which separate prizes were also awarded, there were only two exhibitors. Of "other established breeds," neither Short-horn, Hereford, Devon or Sussex, the show was also small; Alexander Bowie, carried off 10*l.* for a polled Angus Bull; and Lord Sondes 10*l.* and 5*l.*, respectively for two Suffolk heifers.

Among the SHEEP, W. Sanday, Lieut. Col. Inge, and George Turner, were the prize-takers for *Leicesters*; W. Rigden, J. & A. Heasam, Lord Walsingham, the Duke of Richmond and

the Earl of Radnor, for the South downs. The show of sheep is spoken of as particularly good "The Leicesters and the Cotswolds are truly superb sheep, and of the two the Cotswold carry the prize, as the breed the best represented by the general superiority of the animals exhibited. Of the short woolled breeds, the Shropshire is the best represented, next to the Shropshire the South-down."

The PIGS constituted a prominent feature of the show. Yorkshire, famed for pigs, large and small breeds, contributed largely, but other counties sent for competition pigs worthy of Yorkshire.

"Above one hundred pigs gave ample scope for the connoisseurs in pig points. The blood horses and the Short-horn cattle were not so closely scanned than the pigs. The extreme weights of the larger animals were variously stated at fifty to seventy stones and upward. The fat pigs required to be assisted to rise. The middling fat were rather out of temper with constant poking they were subjected to. Altogether, the pig exhibition was a most remarkable show of what can be effected by selection."

#### TRIAL OF STEAM PLOUGHS.

The trials of steam ploughs and cultivators which so many have looked forward with interest are now going on. We must as yet satisfy ourselves with the simple facts of quantity and quality of work done without saying anything about price. Our readers can calculate themselves for the present, but as soon as a thing reliable is obtained, the final particulars shall be at once placed before them.

It must be pretty generally known, and we may as well repeat it, that the Royal Agricultural Society offer two prizes; the first one hundred pounds to be awarded in one sum the exhibitor of the best application of steam power to tillage purposes, the second of one hundred pounds, which may be awarded in sum or split up according to the suggestion of the judges.

For the purpose of testing the various systems of steam cultivation now before the public, the Society has obtained—about 8 miles from Leeds two fields, one of 32 and another of fifty acres. These fields are immediately contiguous to the right of the Leeds and Lilley road. The crop upon one has been turnips, which was off by sheep, and since then the land has been stirred, and now presents a bare surface. The next piece is a Clover lea. Both fields are situated, and admirably adapted for the trial of ploughs and cultivators. Upon both of the 6-inch furrow is said to be good 3-horse work but no dynamometrical experiments have been made to prove this much.

On Monday the 1st July, the three gentlemen appointed as judges, Mr. Sewel Read of Pateley, Mr. Owen Wallis of Overstone Park, and Mr. Owen of Rotherham, assisted by Mr. A. Sothwork, Consulting Engineer to the R.

gricultural Society, met to set out the work of those competitors who were rivals for the first prize. What we may term the Turnip field is selected for this purpose, and those who had taken up their position on Tuesday were as follows; Romaine, with his locomotive Rotary digger; Fowler, with his large 12-horse-power engine traversing the headland; Richardson and Key-cum-Beard, with a locomotive engine, a double furrow plough pulled behind it, and so a stationary engine, Beard's windlass and double furrow plough hauled by a rope, and working in ridges; Roby, & Co., with ten-horse stationary engine and windlass combined; Alison with stationary six-horse engine, the windlass being affixed beneath the boiler; and Messrs. Howard with a ten-horse-power engine. The implement employed by Fowler was the furrow plough, this being converted into a digger" and a "cultivator;" that employed by Alison (which however did no work), was Mr. Smith's No 3 "Smasher;" Roby worked with a newly patented 3-furrow plough, and the Messrs. Howard with their new patent cultivator already described in these columns.

On Tuesday at noon Messrs. Howard commenced work upon a 4-acre plot, which they finished in about five hours, taking a breadth of way of  $4\frac{1}{2}$  feet to the depth of 7 inches; as the rock lay near the surface the operation took more time than was absolutely needed it. Upon raising the bottom the necessity was shown for a second grubbing to make a better job. The grubber accordingly crossed the work on Wednesday, but though the bottom was thoroughly cut, the surface was too rough to fulfil the judge's conditions. A good seed bed as, for Barley was required, but having failed the work the surface was rougher than was after the implement's first journey, and required a roll and a harrow before it could be ready for the drill. In another part of the field,

Fowler had a plot of 4 acres assigned to him, upon which he at first commenced with his "digger," followed by a harrow, swinging from the side, and which was changed for the cultivator at a subsequent period during the same day afternoon. But neither the digger, which is formed by 4-furrow plough frames, and with Cotgreave breasts, and by which the soil is heaved up and deposited as though left by a spade, nor the "cultivator," which has been already described, made the required seed bed for the crop. The surface was rougher than Howard's. It was clear enough that the operation was too rough, and that too much of the churlish subsoil was made to replace the tilth which was cast upon the predicament. The object was to produce a more comminuted surface with no greater expenditure of power. Romaine showed them how to prepare a seed bed for Barley or anything else, in one operation. This rotary digger, now too well known to need description, performed to the satisfaction of the vast crowds of people who

flocked to witness the novelty. Never has the pet theory of circular motion, as applied to soil culture, been better exemplified than it was on Wednesday at Garforth, when Mr. Romaine's implement traversed the bounds of the 4 acres measured out to him, and worked towards the centre. The rotary cultivator has never done so much, or so much so well as it then did. The soil was most beautifully fitted when that nonferrous machine and its alarming tail had passed over it any seed the sower might desire to deposit. The depth was a uniform  $6\frac{1}{2}$  inches, and there was no doubt about every particle of the soil having been moved. The operation was fully worth twenty shillings per acre; and to accomplish it somewhere about twenty-horse power was exerted, and two men employed. The depth as we have said before, was about 6 to 7 inches, the length of the digger 7 feet, the space passed over in a minute 25 yards; so that, including stoppages, about 7 to 8 acres might be cultivated during a 10-hour day. But, excellent as the work was, no great quantity could be done. The boiler was weak, and refused to perform its duty. This hindrance, however, was simply accidental, and might have been obviated by more care. Like so many of these mechanical contrivances, no trial was given before it left the shop where its material existence commenced, and its weak points remained to be detected therefore upon the Garforth field instead of at home, to the mortification of those concerned.

The second prize of £100, which may be broken up and apportioned to various parties according to the decision of the judges, was intended to bring out sets of apparatus which could be employed with the ordinary portable farm engines of 8 or 10 horse power commonly found upon farms of a medium size, and always upon larger ones. The Judges directed those who attended to compete for the prize to set to work upon about 4 acres each of the Clover ley. This they were to cultivate with a pressure of 45 lbs. of steam. Hayes & Crowley, Fowler, Kirby & Beard, commenced upon these plots on Wednesday afternoon, the 3rd; and Howard, who did not finish crossing the Turnip field plot till late the same afternoon, on Thursday morning.

Of Kirby and Beard it is not necessary to say anything, since they were not able to conform to the conditions, and were obliged to plough the land. Hayes and Crowley were only united to show the merits of their several inventions; Hayes of his hauling windlass, Crowley of his cultivator and mode of traction. Of the latter it will be necessary only to say that it is a modification of Fowler's plough, in form, resembling the juncture of two triangular scarifiers back to back, balanced at the point of union, upon a pair of large wheels. Of the windlass which hauled it we may mention that it is remarkable principally for dispensing with the services of a man, and allowing the engine to keep running when the plough is not at work. The course of the plough in fact is under the command of the

anchor-men, who have nothing to do, when required, but to jerk a cord, which traverses the field, and by withdrawing a bolt, and disengaging a sliding bar, shifts the driving strap from either of the two pulleys in connection with the drums, to the loose one between them. There are points about this invention which are well deserving of notice. Messrs. Howard employed a 10-horse engine, and set his pretty windlass beside it. A connecting shaft fitted with vulcanised india rubber universal joint drove the latter with great ease and regularity. The implement used was the cultivator, so fitted with shares as to cut all the land. The depth of the work was 6 inches, the measure of about 6 feet, the length of the plot 304 yards, and its breadth 54 yards.

Mr. Fowler came out in quite a new, or to speak more properly a new *old* guise. He started from the stationary engine system, and has been at much pains to improve upon it, as he considers, by the introduction, 1st of engine and anchors, traversing the headlands, and then of engine and single anchor, traversing opposite headlands, the plough simply being driven up and down between them. There were many men however who entertained a great objection to a headland upon a headland, because they urged that the headlands were thereby rendered unfit for cultivation and would grow nothing. There were others who said they could not afford to buy an engine especially adapted to steam cultivation, but would be glad to adventure upon a simple apparatus to be driven by an engine suitable for other work. Mr. Fowler very wisely therefore set about doing what he was asked to do, and having simplified his tackle, introduced the clip drum, and contrived to work his plough with a taut endless rope perfectly suspended, made one other step, and produced a separate windlass or drum, capable of being driven by any 8-horse engine whatever.

Like Howard, he drives the drum with a spindle and universal joint. He works with an 8-horse single cylinder limited to 45 lbs. pressure, and carried 3 furrows 7 inches deep. On looking over the work it struck me as very good—There was a good inch difference between Howard's and Fowler's, but Howard finished in less time than Fowler, the former being 4 hours 36 minutes about his work, and the latter about 6 hours. That inch difference in depth indicates more power than is generally imagined, the ratio of power required increasing in inverse proportion to the depth. Howard's working appeared better broken, Fowler's to be in the largest clods. Howard  $3\frac{1}{2}$  acres, ploughed five to six inches deep in 4 hours 36 minutes, excluding headlands, shows the work to have been done at the rate of 8 acres in 10 hours. Fowler's  $3\frac{1}{2}$  acres, broken up in six hours, 7 inches deep, shows a rate equal to  $6\frac{1}{2}$  acres in 10 hours. But we must remember that while Fowler worked with an 8-horse single cylinder engine, with 45 lbs. of steam pressure, Howard employed one of

12-horse power, double cylinders, with from 4 to 50 lbs. of steam pressure.

It is difficult to come at results, but as near as we can estimate, the Howard did three roods per day for every horse power engaged, while Fowler did pretty much the same, only his work was deeper and his power less. The work on both sides, however, was of a very superior kind and such as gave great satisfaction. Both Messrs. Howard and Mr. Fowler secured several customers, and certainly made great way with the public.

But while Howard was doing this cultivating, Fowler had set out his big tackle to plough a 8 acre piece of the same clover ley. He commenced this on Thursday afternoon, but was obliged to give up after he had made two hours in consequence of a breakage. On Friday he continued, and finished it in 8 hours 10 minutes exclusive of the work done on the previous day. Messrs. Howard moved to an adjoining plot of like dimensions on Friday, and competed with Fowler for the production of a seed furrow. They worked for the first time during the trial their turn-over plough, which takes three furrows. The work it performed was exceedingly good, having what some people would call much better harrow-edge than Fowler's, and being more compressed. There were those of the ground who preferred Fowler's furrow, however, shattered as it was; it was certainly an inch deeper than Howard's. He employed his 12-horse engine, carrying four furrows at once 7 inches deep. Howard employed a 10-horse double cylinder engine, took three furrows 6 inches deep, and was  $14\frac{1}{2}$  hours engaged upon the piece, allowing for stoppages, with sixty lbs. pressure. Headlands are not included, but have on this showing  $4\frac{1}{2}$  acres ploughed per day of 10 hours at a cost of something like 7s. 7 per acre, while horse labour upon the same would have cost fully 10s. per acre at the same depth.

On Saturday Fowler was moved to another piece on the same clover ley. The contexture were  $6\frac{1}{2}$  acres. He took his small tackle to work with 8-horse single cylinder engine, and performed the greatest achievement yet recorded in the annals of steam culture. Carrying four furrows 7 inches deep, with 50 lbs. of steam, the whole was completed in 7 hours 38 minutes, which is equal to 4-5ths of an acre per hour, or about 4-5ths in 10 hours. The expenses calculated the usual way, amount to 4s. per acre, so that in this case there seems more disparity between two competitors than in any former instance. These figures are of course only approximations, but still we believe in the main they will be confirmed by the report to be issued by the Jury on Monday with the awards.

A great deal of conversation has occurred upon the field respecting the cause of the difference between the two systems, and there seems no other way to account for it than by supposing

ing a vast amount of power to be absorbed by the Howard slack rope, which is saved to propel the machine in Fowler's. Some experiments have in fact been instituted with a view to test this matter, and we append some notice of them which has appeared in the *Leeds Mercury*. To those who are not acquainted with the facts relating to the traction of wire rope arrived at in various collieries, will hardly be prepared to believe that 800 yards of 2½-inches steel rope, running on the ground, will take over 5-horse power to pull it at a speed of three miles an hour, and that the same rope efficiently carried on well-made porters, can be pulled by three quarters of horse power. It is not necessary, however, to refer to colliery experiments. Not later than Wednesday, Mr. Amos directed his attention and that of the judges, to the same subject, and by the aid of his dynamometer brought out the following most astonishing results. To drag 450 yards wire rope without porters, weighing 4 lbs. per fathom, it required a power which may be expressed as 527 lbs., while the same rope, supported upon porters, required a power equal only to 58 lbs.

Another experiment was made yesterday under the superintendence of Mr. Amos, jun., which led to nearly the same result, and it will be followed by several in the course of this day which will, we believe, go far to establish as an agricultural fact, what is already acknowledged to be a fact in the colliery districts, that the power required to drag a slack rope upon the ground without supports is equal to one-twentieth of its weight.

Messrs. Roby & Co. did a little work on Friday and Saturday, but nothing that requires notice. On Saturday, Hayes, with his windlass pulled Crowley's cultivator across the work which had been done on Wednesday, and Thursday by himself, Beard & Kirby, Fowler & Howard in the Clover field, but with no very good results. Subsequently Howard's steam harrow was sent across the same work, with capital results; and by a Norwegian harrow, which did little or no good. The trial field was closed early on Saturday afternoon in favor of the half-holiday movement, which came as a welcome reprieve to all concerned in these proceedings, whether judges, exhibitors, workmen or reporters. It has been trying work. Some portion of the day the weather had been cold, wet, and dusty, and at no time, except Saturday, very fine. The heavy thunder storm on Sunday made the heavy plough more easily by nearly one ton per furrow it might be conjectured. There is some truth, too, in this conjecture, because whereas Howard, engaged upon precisely the same work, worked at 60 lbs. pressure on Saturday, on Monday he required only 42 lbs. This fact shows how careful the judges should be to insure that every trial is commenced and ended on the same day, as circumstances may be changed within 12 hours as to render the judgment valueless.

The judges throughout have acted with the utmost fairness and patience, doing all that could be desired of them. Excepting in one particular, they have, we think, given unbounded satisfaction. It has been said that Fowler has been allowed to go beyond his boundaries to plow his plot and its headlands, when he should have confined to the 8 or 6 acres allotted to him, and with that space to do all that was required, just as though a stone wall had enclosed the space. It might have been well perhaps to have confined him to such a completion of his work, and probably he would not have shown off to so much advantage as he had if such had been the directions; but still as he does not pretend to do his headlands, or at least only the one upon which he runs, leaving the remainder for a horse plough, it seems scarcely necessary to take much notice of the matter. Of course the judges take cognisance of the fact, and will make deductions they think fit for it, so that if their report appears on Monday, the public will not have been much misled by the apparent gain Fowler has obtained from this cause. Altogether too much is made of this headland question, and some people propose to cut it very short by laying down permanent engine ways throughout their farms, where the hedges and hedgerows and ditches now cumber the land, and beautify the landscape.

On Monday the judges having some idea that a three cornered bit would prove a very difficult morsel to Fowler, directed him to set down to one of the character, which he did. He did this a little less nimbly than Howard would have done, and was stopped by some derangement in the contrivance for gathering slack rope on the plough; but he performed the work and then steamed down to take up his position upon the ridge and furrow of the heavy land in Mr. Furness's occupation, whither Howard followed him. Mr. Fowler's 12-horse self-propelling engine set down to a six-acre plot in half an hour, and worked a three-furrow plough. One end of the field was a fearfully stiff clay, which almost overtaxed the strength of the apparatus, while the remainder of the greater length of the furrow was land in which four or five furrows might have been driven with ease. The 12-horse engine kept on with great difficulty, and finished the piece in about nine hours and ten minutes, cutting a furrow in some places 7, and in others 9 and 15 inches deep.

Mr. Howard after bravely grappling with the difficulties of the position, abandoned the plough for the cultivator, and with better success. The plough having only been recently invented and not much tried, requires strengthening in certain parts before it is ready to cope with such tremendous clay as it was expected to pierce and lay in furrows on Tuesday. With the cultivator Howard was only 15 minutes in time after Fowler, working with a 10 horse engine. A second plot was then measured to each, on which Fowler with the small tackle and 8 horse engine and 50 lbs. pressure, carried two furrows 7 inches deep; and Howard, with 10-horse engine and 40 lbs. pressure, going a little wide



and not quite so deep, started next to him. They were both in work when we left, and more land is apart for them, so that it will be quite Saturday before they finish.

It will seem at once that the trial since the second day has laid between Howard and Fowler. There are those who know how the award will be made. We will however venture upon no surmises, and will only record our great satisfaction with the trials as a whole. They have been conducted in a most business like and impartial manner, and all must wish, if ever they compete again that they meet with the urbanity and consideration displayed by Messrs. Read, Wallis, and Owen. To Messrs. Howard, Fowler, and all concerned, the thanks of the public are due in an especial manner for coming to contest for the prize, and for the exhibition of so much perseverance and temper under circumstances calculated to impair both.

### Cattle Feeding in the West.

The *Rural New Yorker* gives the following description of the mode of feeding cattle by an extensive grazier and dealer in the west, who occupies some twenty-five thousand acres of land:

Mr. Funk usually winters over from 700 to 1,000 head of cattle, and stall-feeds for early spring market from 300 to 500 head. He markets his stall-fed cattle about the first of April. He buys cattle all the time, whenever he can do so profitably. Those he sells in the summer and fall are generally three years old. The class he stall-feeds are generally four years old. The Eastern reader will think it a queer kind of stall feeding, when he is assured that not one of these animals goes inside a stall or is tied up during the winter. A little further on we will give Isaac Funk's definition of stall feeding. He prefers to buy cattle (steers) the spring they are two years old. They usually cost then, if good ones, from \$18 to \$25 per head. These are kept one summer, one winter, and the half the next summer, when they are in condition to market, and will average from \$45 to \$52 per head. He winters his cattle on shocked corn. The steers that are to be wintered through and marketed in mid-summer are "strong-fed." Those that are to go to market the last of March or first of April, are stall-fed." The difference in the two modes of feeding is that the bullock that is being stall-fed gets all he can eat and a good deal more, while the one that is strong-fed, gets enough to keep him thriving finely all winter—gaining in flesh and growing too. The corn is drawn from the field on wagons, to the pasture or lot where the cattle are herded. One man feeds from 75 to 100 head. And this care occupies him from early morning till late at night. He rises and eats breakfast by candle light, and draws corn with from two to four

yoke of oxen—the amount of team depending upon the condition of the soil—all day, and returns and eats his supper by candle light again. Mr. Funk says the true way to feed is to provide two fields for each company of cattle. Feed the cattle in one field to-day, and in the second to-morrow; to-morrow turn one hog for every strong-fed, or two hogs for each stall-fed animal into the field in which the cattle were fed to-day; changing each day, the hogs following the cattle. He says one acre of good corn will winter one bullock if strong-fed; if stall-fed it will require one acre and a half per bullock. The cattle have no other feed, and no protection, except timber, if they happen to be feeding near it. Salts his stock with this feed about every third day, and provides them plenty of water. Beef fit to go to the New York market, sells here at \$3 to \$4 per cwt., gross; packing cattle at \$2 to \$2 50 per cwt., gross. He has not marketed cattle in Chicago for four years. It used to be his market. When he ships East it is via Jolie cut-off, through Michigan and via the Suspension Bridge to Albany and New York.

### Sale of the Babraham Southdown Flock.

On July 10th this world-renowned flock of Mr. Jonas Webb, was sold by Auction, and dispersed among all countries, where agriculture is a leading object of pursuit. Among the 3000 spectators on the ground were the owners and representatives of every Southdown flock of any distinction in the United Kingdom, with a large number from foreign countries. We are happy to observe that Canada was represented at Babraham, Mr. Stone's brother in England purchased for him two splendid Shearling Rams, which have safely reached Guelph, in excellent condition. This importation of England's best blood will be of the greatest benefit to Mr. Stone's already excellent Down flock and ultimately to the breeders generally of the valuable variety throughout the Province. Some of the sheep fetched enormous prices. The highest sum was obtained for a two-year-old Ram, sold to Mr. J. C. Taylor, of the United States, for 260 guineas!—

In all 968 sheep were sold; 99 two-year-old and aged rams fetched £3062 7s., 106 shearling rams realised £2710 1s., 199 shearling ewes made £2203 19s., 105 two-year-old ewes were sold for £813 15s., and 455 older ewes realised £2142. The whole of the Babraham flock above the age of lambs was thus disposed of for a sum of £10,922, averaging £11 5s. 7d. apiece. The lambs of the year remain on hand, to be disposed of next year, when Mr. Jonas Webb will finally give up the connexion with South-

born breeding which has made his name so highly and so honourably known.

In further illustration of the success which Mr. Webb has uniformly gained, a brief account of the prices which his sheep have realized since their celebrity first became an established fact, may not be altogether uninteresting. It seems that the conviction first began to dawn on the agricultural mind that there was nothing in Mr. Webb's breed of sheep, for symmetry, wool, and mutton, about 1835, in which year 40 sheep were let at Babraham, at an average price of 15 guineas, and the highest priced tup realised 51 guineas. From that time success has been continuous. In 1839, a tup of Mr. Webb's let for 74 guineas; in 1841, 100 guineas as the highest price, and the prices ranged from that sum downwards in the ten succeeding years, the average of the whole letting being generally about £22. The following have been the results of the lettings during the last eight years:—

Year.	No. Let.	Average Price.			Highest Priced Tup.	Guineas.
		£	s.	d.		
33.....	71.....	22	6	3	.....	130
34.....	75.....	25	4	3	.....	102
35.....	77.....	25	15	2	.....	170
36.....	77.....	33	1	4½	.....	150
37.....	65.....	27	17	7½	.....	197
38.....	61.....	21	0	0	.....	75
39.....	54.....	25	9	3	.....	70
40.....	60.....	23	1	0	.....	129

Thus the sheep have maintained their reputation, and Mr. Webb has clearly experienced no diminution in his profits.

In reference to this event, which contributes to an epoch in grazing, the *Cambridge Chronicle* observes:—

For upwards of thirty years, we and our predecessors have had the gratifying task of recording Mr. Jonas Webb's annual sheep-lettings; and it is not without some regret that we perform that duty for the last time. The name of Mr. Webb has long resounded throughout the agricultural world in connection with the celebrated Babraham flock; no man has gained and retained so high a reputation as a breeder; he now retires from the duties he has so long performed with credit and honour to himself and to the good wishes of all agriculturalists, and with grief on all hands at the loss of his services in the special field in which he has laboured. For who can contemplate without sorrow the absence of those cheerful annual shearings which made such an agreeable July holiday day in the farmer's life, where the general and general hospitality of the host and his family spread comfort and happiness to all around; where so many valuable opinions were exchanged; where new views were gleaned from the treasury of science and agricultural fame in all parts of the civilized world; and where the wit and vivacity of him who usually officiated as chairman were the source of hilarity and enjoyment to all?

But Mr. Webb retires, and leaves to younger, though not abler men the duty of maintaining and perpetuating that breed of useful sheep which, through him, has gained such a world-wide celebrity. Mr. Webb, perhaps, feels that he has realized sufficient by his enterprise, and cares not for the continuance of the anxiety and labour which such an occupation requires.—Hale and hearty though he be, and God grant that he may long remain so, he feels that declining years will make the task more irksome. As it is, he retires in the full zenith of his fame, and on other shoulders devolves the duty of continuing the great work which he has so successfully carried on; it may be that others will not possess the same elements of success; or it may be that other districts will not prove so favourable to the rearing of this famous animal; but the Babraham breed will ever maintain its popularity, and will be sought after and preserved when Jonas Webb shall be no more.

### Durham Agricultural Society.

With reference to the recent Exhibition of this Society at Darlington, the *Mark Lane Express* observes:—

That at Darlington—situated in the very heart of the richest pastures of Durham, where the elder Collings originated, and the young, Collings still, with a strong tenacity, cling to and breed, and feed, and rear the noble breed of Short-horns—there should be a collection of cattle brought together, which was not only excellent, but represented the animal in its truest and most genuine state, without any of the many appliances having been brought to bear of nursing and overfeeding, was not to be wondered at.

Here were animals with the pure Tees-water running in their veins, pastured on the rich loams that adjoin the banks of that classical stream; not nursed and pampered in a rigidly-ventilated byre, but made to breathe the purer air of the open country. For besides Captain Gunter, with his Duchesses; Lady Pigot, with her not less exalted, but more varied strains; Mr. Booth, with his Soldier's Bride, Queen of the Vale, &c.; and Mr. Ambler, with his Great Eastern, Gamester, Wood, Rose, &c., there were Messrs. Browell of Apperly, Lambert of Haydon Bridge, Dent of Neasham Neasham of Houghton, Wiley of Brandsby, Atkinson of Sedgefield, Lawson of Stapleton, Hawison of Newbiggen, Robin Thornton of Stapleton, Atkinson of Peepy, Best of Brafferton, Raine of Snow Hall, Jolly of Warlaby, Emmerson of Eryholme, Bulmer, of Aislaby, Greenwell of Archdeacon-Newton, and others—names as well known in the district for their choice cattle and clean farmsteads, as the former for taking the lead in stock-breeding, and whose specimens were the progeny of a by-no-means-despicable ancestry, amongst them being *Cœur de Lions*,

Butterflies, Lord Bellevilles, Earl Stanhopes, Dukes, and Duchesses. Although in most instances the residents were beaten by the interlopers, with their matchless animals, still, as just remarked, their stock was a pretty fair type of the real breed of Shorthorn, and furnished perhaps better evidence of its feeding-to-profit qualifications.

### Sale of Shorthorns at Lancaster, England.

Messrs. Peel and Hopper united such portions of their herds as they wished to dispense of, and offered them by auction at Beaumont Grange, near Lancaster, the end of July.

Mr. Peel's catalogue comprised 29 cows and heifers and 5 bulls, which brought the total sum of £1,922 11s., being an average of £56 10s 10d. Lalage, a cow, was bought by Captain Oliver for 235 guineas, and Grateful went off for 105 guineas. Some of the animals obtained lower prices than their quality and breeding would justify. Mr. Hopper's animals consisted of 5 bulls, and 20 cows and heifers, which realized £784 7s.; being an average of £32 13s. 8d. The weather was unpropitious on the day of sale, or a larger sum would probably have been obtained.

### County and Township Shows this Autumn.

West Durham Agricultural Society at Newcastle, Oct 4.

South Ontario Ag. Society at Whitby, Sept. 18 and 19.

Kingston Elec. Div. Society, Kingston, Sept. 13.

Fullarton, Logan and Hilbert Society, at Mitchell, Oct. 2.

Russell Co. Society, at Smith's Hotel, Os-  
goode, Sept. 27.

Hay Township Society, at Rodgerville, Oct. 9.

South Wellington and Guelph Townships, at  
Guelph, October 10.

In the Counties of Lanark and Renfrew, at  
Perth, first Tuesday in October.

Lanark, second Tuesday in October.

Smith's Falls, first Friday in October.

Ferguson's Falls, third Tuesday in October.

Carlton Place, first Tuesday in November.

Clayton, second Wednesday in November.

Packenhams, second Thursday in October.

Franktown, second Tuesday in October.

Almonte, last Thursday in October.

Sand Point, first Tuesday in October.

Renfrew, second Tuesday in October.

Ross, fourth Tuesday in October.

Pembroke, third Wednesday in October.

Roseville, second Thursday in September.

Arnprior, first Thursday in October.

North Simcoe Society, at Barrie, Sept. 19.

Blenheim Township, Drumbo, Oct. 4.

Norwich Township, Norwichville, Thursday,  
Oct. 10.

North and South Wentworth and City of  
Hamilton, United Show at Hamilton, October  
9 and 10.

West York and York Township, at Yorkville  
October 22 and 23.

East York and Markham Township, at Union  
ville, Markham, Oct. 9.

Ancaster Township, at Ancaster, Oct. 3.

Peel County, at Brampton, 17 and 18 Sept.

City of Toronto Elec. Div. Society, and To-  
ronto Mechanics' Institute, Union Exhibition,  
commencing Oct. 7, and to continue for two  
weeks.

North Oxford and Ingersoll, at Ingersoll, Oc-  
tober 9.

Eramosa Township, at Jones' Inn, Eramosa  
October 8.

[Secretaries of Agricultural Societies will  
oblige us by informing us of the days on which  
their shows are to take place.—Ebs.]

### Baron Liebig on the Action of Peruvian Guano.

MUNICH, June 14, 1861.

There is a very prevalent opinion among agriculturists that guano produces a greater effect than an artificial mixture containing the same quantity of bone phosphate (3 Ca O, PO<sub>3</sub>) and of nitrogen in the form of salts of ammonia. I have myself observed in experimenting on a piece of meadow lands that those portions on which guano was sowed became very conspicuous by darker green grass, whilst an artificial mixture, as above stated, appeared to exert scarcely any action.

This hitherto unexplained rapidity of action is due to the presence of oxalic acid in Peruvian guano.

When guano is extracted with water, a solution is obtained which contains about 2 per cent. of phosphoric acid, and 6 to 8 per cent. of oxalate of ammonia. If, however, guano be mixed with water, and the moistened mass be left standing for some days (just the state in which it would be in the soil), it is found on extraction with water from time to time a portion of the moistened mass that the amount of phosphoric acid has increased, and that of oxalic acid diminished. This reaction continues many days the quantity of soluble phosphoric acid still increasing in proportion to the diminution of oxalic acid, until at last the oxalic acid almost entirely disappears from the solution, and in its place is now found a corresponding amount of phosphoric acid. The idea immediately occurs that from the long contact with water the phosphate of lime and oxalate of lime and phosphoric acid of ammonia.

But in a neutral solution of oxalate of ammonia, phosphate of lime is not decomposed, at least only very slowly. There must, therefore, be in guano some other substance which is the means of causing in the moist manure, the decomposition of the earthy phosphate. This substance is sulphate of ammonia, which is always present in Peruvian guano. In fact,

adding a little sulphate of ammonia to a mixture in water of oxalate of ammonia and of freshly precipitated phosphate of lime, mutual decomposition of the last two salts took place in a few hours. The sulphate of ammonia renders the phosphate of lime somewhat soluble, and thus promotes its decomposition by the oxalate of ammonia.

The action of guano is therefore two-fold; depending, in the first place, on its soluble nitrogen compounds; and in the second, on its soluble phosphates. In this last respect its effect is similar to that of a superphosphate.

The foregoing decomposition in guano depends evidently to a greater or less extent on the weather. Continued moderate moist weather. Continued moderate moist weather promotes the conversion of the insoluble phosphoric acid into a soluble form, whilst heavy falls of rain retard it, by washing out the oxalate of ammonia. Hence, from this dependance on time and moisture, we are not always certain of this nature in the soil.

I have discovered a very simple method of rendering the action of guano constant in connection with the conversion of the phosphoric acid into a soluble form. It consists in moistening it a day or two before its application with little water, to which a small quantity of oil of turpentine has been added, so as to render it distinctly acid. Under these circumstances decomposition takes place rapidly, and is completed in a few hours. The whole of the phosphoric acid, corresponding to the quantity of oxalic acid present, is separated from the lime, and rendered soluble by union with ammonia; and the oxalic acid disappears entirely as an insoluble oxalate of lime.

I am very anxious that agriculturists may be induced to make comparative experiments with guano alone, and after being moistened with sulphuric acid.

I am, my dear Blyth,  
Yours very truly,  
JUSTUS VON LIEBIG.

Dr. Blyth, Queen's College, Cork.

## Horticultural.

**THE EGG PLANT.**—(*Solanum Esculentum*.) This vegetable has not yet attained the popularity it deserves. It is quite extensively grown by market gardeners, near cities, but we have seldom seen it on the farmer's table. Some have not yet learned to like it, more's the pity, for one accustomed to the taste, finds it, if well cooked, almost equivalent to both meat and vegetables. The plant is of African origin, and of too late breed to be grown in open ground from the seed at the far North; but by starting the hot-bed, or in pots in the house, six or

eight weeks before corn-planting time, it can be transplanted in June, and brought to maturity.

In that latitude there is a chance that plants may be grown to bear from seed, sown even as late as June 1st. We have generally found it most convenient to obtain a dozen or two plants from those who grow them for sale.

The Egg Plant needs a very rich soil, with warm exposure. Fork into the ground devoted to it, a liberal supply of horse manure, and set the young plants, three feet by two apart. Hoe frequently throughout the season, and hill up frequently till the blossoms appear.

Under good treatment the fruit will grow to the size of a large muskmelon. When it has attained the size of a goose egg, it is ready for cooking, and continues good until its deep purple color changes, and the seed turns brown.—They are cooked in various ways. Usually, slices one-fourth to one-half an inch thick are fried in butter or lard.—*American Agriculturist*.

## The Dairy.

**THE DEPTH FOR SETTING MILK.**—A correspondent of the Homestead relates the following experiment:—"On the 5th of April we set two pans of milk, weighing forty-seven pounds two ounces, in two tin pails ten inches deep. The next day we set the same quantity of milk from the same cows two inches deep in pans. These were placed on the same shelf with the first, and of course in the same temperature, which was near 50 degrees. In four days the first milk was sour and skimmed, yielding three pounds two ounces of cream, which, being allowed to stand one day, made one pound eight ounces of butter. The other milk, standing the same length of time, yielded four pounds eight ounces of cream, making two pounds one ounce of butter—a difference of nine ounces in favor of setting the milk shallow. This is a gain of 37½ per cent. over the depth of ten inches."

From the Boston Cultivator.

## Washington Butter.

Messrs. Editors:—In the Cultivator of May 11th, I noticed an article on washing butter. It is true that water is injurious to butter that is to be kept any length of time; and I here briefly state my mode of preparing butter for winter. I wash it in sweet skim milk, then salt it and let it stand until sufficiently cool to work into lumps, then pack it. This has been my invariable rule, for more than thirty years, and I have never been troubled with rancid butter in the spring. S. W.

**TO KEEP BUTTER SWEET.**—E. E. Smith contributes to the *American Agriculturist* the following directions for preserving butter in

good condition for any length of time:—"In May or June when butter is plenty, work it thoroughly two or three times, and add at the last working nearly one grain of saltpeter and a table-spoonful of pulverized loaf sugar to each pound of butter. Pack it tightly in stone jars to within two inches of the top, and fill the remaining space with strong brine. Cover the jars tightly, and bury them in the cellar bottom, where the butter will keep unhurt for a long time.

### The Duke of Athol's Dairy Farm.

When lately making an excursion to the north, I found myself at Dunkeld. I was surprised and astonished, at falling in with the finest herd of Ayrshire cows I have ever seen. They are the first-prize cattle of every distinguished ring. I recognized former winners at the Glasgow shows at the Ayr shows, at the East Kilbride shows, at the Highland Society shows. It was a pretty sight; twenty-eight such cows, in a row, assorted in size and color. I looked on at the milking, which was done by three dairy-maids from Ayrshire; but, before a pail was pressed, the girls washed and dried their hands, there being a basin of water and towel for each, and a like ablution was performed between the milkings of cow after cow. The milking went on, and, as pail after pail was filled, it was emptied into a large tin can, which was then hung to a suspended little weighing machine; and according as the contents proved more or less than 30 lbs. (the weight of three gallons,) milk was taken out or added, and each weight of 30 lbs. was marked by the milkmaid on a slate hanging beside the weighing-machiner. As soon as two cans were ready, a man carried them off to the milk-house, which was presided over by a Renfrewshire woman, and he returned with them empty; and so kept going and coming till the milking was over. I should mention that each dairymaid has a weighing-machine and slate, along with the basin of water and towel, placed against the wall, behind the middle of the set of cows assigned to her, and that morning and evening, for the week through, the number of marks on each slate, with the number of pounds less than 30 lbs. stated in figures, show the weight of milk drawn by the dairywomen.

THE BYRE is not a modern show thing—a would-be palace for animals. It is characterised by airiness, proper temperature, and cleanliness. Five of McKinnel's ventilators pour in the pure air and suck away the foul. The walls are pannelled all around, some four feet from the bottom. Each stall holds two cows, and the stalls are divided by low wooden partitions, like small stable trevices, so that the cows do not grind and injure their horns as where stone is used.—There is a strap of wood, half way between the panning in face of the cows and the ceiling, and on this strap is fixed the name, well printed, of each cow above where she stands, so that a

person unaccustomed to cows might think that they went correctly to their places from seeing their names. Each cow has a fixed square feeding trough formed of slates, and between the two feeding troughs is a similar drinking trough for both cows. The floor is of Arbroath pavement, which is covered with soft matting on two-thirds forward of the space where the cow stand or lie. The grips, in their whole length are of perforated iron, so that all liquid drains off at once to the tank. At each end of the byre is a water tank near the ceiling, to supply water for the drinking troughs by a direct communication with each, and also to enable the floor to be flushed, and made thoroughly clean and sweet. Connected with the byre are places for holding, hay, straw, roots, meals, and cakes, and also the apparatus for crunching, steaming, and otherwise preparing the food, through which and the byre, from end to end, is a continuous railway for conveying the cattle food. All the wood-work is painted with a mixture of asphalt and linseed oil, giving it a fine glossy look, and showing distinctly the natural markings of the wood. The dairymaids wear shoes and stockings, in deference, as I heard, to the sneers of the Northerners who are altogether unlearned in the mysteries of dairymaid costume—and the "when the kye comes home" a portion of the beanmeal is put into every feeding trough, so that each cow when being milked, may enjoy the luxury of receiving while she is so bountifully giving.

THE MILK HORSE.—Everything the neatest the cleanest, and the most convenient. When butter is made is from cream, none from the whole milk, and cheese is made from some of the skim milk. Accurate weighing again—their gallons and three quarts produce a quart of cream, which yield one pound of butter. But does not follow that it takes so much milk when churned whole, to give a pound.

It is one of the duties of the dairymaid: chief, she of the milk-house, to fill up a printed weekly schedule of milk received and how disposed of, for there is not a drop of milk or ounce of butter, or pound of cheese, whether used by the family or sold, which is not accounted for; and from these schedules, which are themselves preserved, entries are then made in a book which are themselves preserved, entries are made in a book which has its place in the library, and can be referred to at any time as the Dairy Book of the year. I was told by one of the citizens of Dunkeld, that the comfort of the inhabitants is greatly promoted by the Duke's dairy. Formerly milk was so scarce that it had to be taken with porridge. But now, thanks to the Duke of Athole, there is abundance of sweet milk, skim milk, and butter at unvaried prices throughout the year, viz.: 8d per gallon for sweet milk, 2d for skim, and 14d per lb. of butter, and any traveller to or from the North can satisfy himself of the excellent quality of the butter by tasting it at the railway station Perth.—*Glasgow Morning Journal.*

## The Apiary.

**THE APIARY.**—The American *Bee Journal* states that the nectar of flowers, as gathered by bees, is a watery solution of cane sugar. In the process of this transformation, the cane sugar is decomposed into three different kinds, which constitute honey. The heat which the bees maintain in the hive causes this change; weak acids, as well as heat and moisture, can effect a similar conversion of cane sugar.

**FERTILITY OF THE QUEEN BEE.**—The American *Bee Journal*, in an article on the Queen Bee, thus treats of the fertility of this insect:—

It is an interesting question, how many eggs a queen may lay in a given time, under favorable circumstances. Dzierzon estimates the number of eggs laid by a vigorous queen, during the warm season, at three thousand per day, if the colony be populous enough to cover the combs properly. This is certainly not incredible, as queens have been known to lay from 200 to 300 in an hour. Kirsten limits the number at two hundred per day, at the most favorable season. But, as eggs are hatched and the brood fully matured in twenty one days, if this were correct, there could never be more than 4200 cells occupied by the eggs and brood. These could be amply accommodated in a single comb, six inches square; whereas we not unfrequently find a dozen such combs in a hive filled with brood at one and the same time. On the whole we may confidently assume that a vigorous queen annually lay from 250,000 to 300,000 eggs, or at least 1,000,000 in the four years which constitutes the average duration of a queen's life. Many of these eggs, indeed, may not be hatched or become fully developed, as the workers are apt to destroy brood, especially when pasturage fails, or the weather proves unfavorable.

## Domestic.

**CURRANT WINE.**—The *Germantown Telegraph* gives the following directions in regard to making currant wine:—

The currants should be fully ripe when picked; put them into a large tub, in which they may remain a day or two; then crush them with the hands, unless you have a small patent cider-press, in which they should not be pressed too much, or the stems will be bruised and impart a disagreeable taste to the juice. If the hands are used, put the crushed fruit, after the juice has been poured off, in a cloth or sack and press out the remaining juice. Put the juice back in the tub after cleansing it, where it should remain a few days, until the first stages of fermentation are over, and removing once or twice a day the foam copiously arising to the top. Then put the juice into a vessel—a demijohn, keg or bar-

rel—of a size to suit the quantity to be made, and to each quart of juice, add three pounds of the best refined sugar, and water sufficient to make a gallon.

Thus, ten quarts of juice and thirty pounds of sugar, will give you ten gallons of wine, and so on in that proportion. Those who do not like it very sweet can reduce the quantity of sugar to 2½ or 2 lbs. per gallon.

The cask must be full, and the bung or stopper left off until fermentation ceases, which will be in twelve or fifteen days. Meantime the cask must be filled up daily with water, as fermentation throws out the impure matter. When fermentation ceases, rack the wine off carefully, either from the spigot or by a syphon, and keep it running all the time. Cleanse the cask thoroughly with boiling water, then return the wine, bung up tightly, and let stand for four or five months, when it will be fit to drink, and can be bottled if desired.

## The Poultry Yard.

### To Keep Fowls Free from Vermin.

The *London Field* has an article on this subject from the pen of John Douglas, professional breeder, from which we make the following brief extract.

“There are several kinds that infest the hen. By attending to the following remedy, they will be entirely kept clear. First of all, if in confinement in the dust corner of a poultry house, mix about half a pound of black sulphur among the sand and lime that they dust in. This will both keep them free from parasites, and give the feathers a glossy appearance. If infested with the insects, damp the skin under the feathers with a little water, then sprinkle a little black sulphur on the skin. Let a bird be covered with the insects, and they will disappear in the course of twelve hours. Also, previous to setting a hen, if the nest be slightly sprinkled with the sulphur, there is no fear of the hen being annoyed during incubation, neither will the chickens be annoyed by them. Many a fine hatched brood pines away and dies through nothing else, and no one knows the cause. Having had an ostrich under my care that was pining, I looked into his feathers and observed thousands of the parasites. I employed tobacco-water, also lime-water, under my then master's orders, to no effect. In his absence, I well damped him, and sprinkled him under the feathers with black sulphur, when next day they were examined with a microscope, and every one was dead. Having had some macaws, also parrots that were addicted to biting off their feathers, I employed the black sulphur by well syringing them with water, then sprinkling the sulphur over their skins. If tame, sponge the skins, then rub gently with the points of the fingers, with the sulphur, every

other day, for about a fortnight, when the parrot or macaw will cease to destroy his plumage. It is not a remedy which has not been proved, for I have used it these two years with success."

### Productiveness of Fowls.

Experiments to ascertain the comparative productiveness of the different breeds of poultry, have been made this spring in the Zoological Gardens of the Bois de Boulogne. The number of eggs laid by the fowls in that establishment has been immense. It appears that the Asiatic breeds of Nankin and Brahmapoetra are the best layers; the French *Crevecers* come next; the Houdans third; the La Fleche fourth; and after them the Dorkings and a Dutch breed.—The Nankins and Brahmapoetras are also remarkable for precocious; and according to some breeders they begin laying in February, and keep on almost to the end of the year.

### Hen Wisdom.

It is a pleasant recreation to tend and feed a bevy of laying hens. They may be trained to follow the children—and will lay in a box. Egg shells contain lime, and in the winter when the earth is bound with frosts or covered with snow, if lime is not provided they will not lay—or if they do lay the eggs will, of necessity, be without shells. Old rubbish lime from chimnies and buildings is proper, and only needs to be broken for them. They will often attempt to swallow peices as large as a walnut. I have often heard it said buckwheat is the best food for hens; but I doubt it. They will sing over Indian corn with more animation than any other grain. The singing hen will certainly lay eggs, if she finds all things agreeable to her; but the hen is such a prude, as watchful as a weasel, and as fastidious as a hypocrite—she must, she will have secrecy and mystery about her nest—all eyes but her own must be averted—follow her, or watch her, and she will forsake her nest and stop laying. She is best pleased with a box, covered at the top, with a backside aperture for light, and a side door by which she can escape unseen.—A farmer may keep one hundred hens in his barn, and allow them free liberty to trample over his hay mow, and set where they please, and lay if they please—and get fewer eggs than one who has a department especially for his fowls, and keeps but half as many, and furnishes them with corn, lime, water, and gravel; and who takes care that his hens are not disturbed about their nests. Three chalk eggs in a nest are better than a single egg. Large eggs please them. Pullets will commence laying earlier in life when nests and eggs are plenty, and other hens are cackling around them.

A dozen fowls shut up, away from the means of obtaining other food, will require something more than a quart of Indian corn a day. I think

fifteen bushels a year a fair provision for them—but more or less, let them always have enough by them—and after they have become habituated to finding enough at all times, they take but a few kernels at a time, except just before retiring to roost, when they will fill their crops. Be just so sure as their provision comes to them scantily, so surely will they raven and gorge themselves to the last extremity, and will stop laying. One dozen fowls, properly tended, will furnish a family with more than 2,000 eggs per year, and 100 full grown chickens. The expense of feeding the dozen fowls will not amount to eighteen bushels of Indian corn. They may be kept as well in cities as in the country, and will do as well shut up the year round as to run at large—and a grated roost well lighted, ten by five feet, or larger if you can afford the space, partitioned off from the stable or other outhouse, may be used as a hen house. In the spring, (the proper season) five or six hens will hatch at the same time, and the fifty or sixty chickens given to one hen. Two hens will take good care of one hundred chickens until they are able to climb their little stie roots. They should then be separated from the hens entirely. They will wander less, and do better, away from the parent fowls. Chickens put in the garden will eat up the May bugs and other destructive insects; but for my own part I much prefer four or five good size toads; for they are not particular about the food, but will snap up ants, and bugs of all kind, and will not, if a good chance offers, refuse the honey bees, but will down them in a hurry. In case of confining fowls in summer, it should be remembered that a ground floor is high necessary, where they can wallow in the dirt, for they like it as well as the hog likes muck.—*Col. N. H. Journal of Agriculture.*

## Transactions.

### Report on the County of Bruce.

(Continued from page 509.)

The next article purchased on credit was the fanning mill, one of which every man that had a bushel of wheat sown considered himself in the greatest need. Now although the fanning mill is very handy and useful, where you have plenty for it to do, to get one before you have 20 bushels of wheat or a barn put either the wheat or the mill in, is an unprofitable speculation.

I have seen an article called a "hand-fan," made in a semi-circular shape. A hoop, like the rim of a large sieve, cut in two halves, and a light solid bottom nailed into it with small tough nails, a handle on the end of it

hoop at each side, and the machine is finished. An active man can clean a hundred bushels a day with it, and clean it better than with many mills.

This article is of French origin. The French make as good settlers as any we have in this county. They are contented with little and keep out of debt. It is true their notions of agriculture are rather primitive; manuring they never think of; but then, no wonder—they don't read, nor do they see any manuring done around them; they clean their land off well, make large clearances; what they can make themselves they will not buy, and what they buy they pay for. If the majority of their British neighbours would do the same there would be less complaint of hard times, bad crops, and bad government.

Fruit trees are the next in the list of evils that this country was cursed with. They were pressed upon the people with every promise of indulgence; but the moment the nursery-men got the notes they were transferred to another, clapped into the Division Court the instant they were due, and some of them before it, entered in the procedure book before half the people knew where to go to look for them. But even this was not the worst. Another gentleman, in shape of an agent came from a certain part of Canada, with the astounding information that all the other fellows' trees, being from the States, would do no good in these "hyperborean" regions, but he could furnish them some genuine natives that would do them some good. Accordingly he got orders for two or three thousand dollars' worth, and went to whence he came from. The trees were sent part of the way in the fall, or very early in the spring, I don't know which, tied up in a manner that showed the artist cared very little what became of them. About a month after the time appointed for their delivery they arrived, and in a far drier state than any brush the purchasers had in their fallows. The major part of them took the trees, just to try if they would grow, which they did not, nor did the parties ever expect they would have to pay for them; but, alas for all human calculations, the summonses were received in due time, and that to a foreign court. "This was the unkindest cut of all," it would not do to go 100 miles to defend a suit of from four to ten dollars, as the contract was made in the County of Bruce, and the notes being drawn there they thought they would have been sued there, but it was

fated otherwise. At length one of the victims offered to go if the others would pay his expenses, which they agreed to do. But when the fatal day came for the trial, the respectable gentleman that acted as agent for the nursery, turned about and swore he was agent for the people, and had bought the trees from the nursery for the Bruce people, instead of selling them to them. Every cent of the money was collected, and some people lost their last cow. This transaction cost the County of Bruce not less than four thousand dollars. Although the first lot of trees were good, seven eighths of the parties had no place properly fenced, nor the ground prepared for them; the consequence was that they were either eaten off by the cattle, or dried out from want of moisture.

The next item, furniture, is the most excusable of all, yet if the purchasers had waited until they could have paid the cash, they would have got it much cheaper.

Now that I have explained in the best manner I am able the cause of the distress in the County of Bruce, viz: the credit system, allow me to explain the agent in connection with it, viz: the Division Courts. There are four in the County, held three times a year, and I am sure I am below the mark when I say that the number of cases average 500, each court since the year 1850.

A certain politician said there never was an act of Parliament, but that he could drive a coach and six horses through it; but were he alive and in the county of Bruce now, he might drive a troop of elephants through the Division Court act, for it is quite certain that if the land did not belong to the government one half of it would soon be in the hands of creditors, speculators, Division Court clerks and lawyers. As it is it can never be paid for under present circumstances. A suit of \$40 takes all a man has; say a ycke of oxen and two cows. Crops, such as hay or grain, never bring anything, on account of the impossibility of removal, for want of good roads; and in a suit of the above amount the costs soon rise to \$10 or \$12—the cattle will not pay more than the debt, the balance hangs over the debtor, accumulating costs and interest, which he never can pay until he sells the land and goes to the States, and Britain loses another subject. The Division Court act at the present time is the most abused law on the Canadian statute book; it is the sheet anchor of all tinkers, pedlars, pettifog-



gers, and speculators of all descriptions; it is entirely on one side, and gives no chance at all for the poor wretches entangled in its meshes. I shall relate two instances that came under my own observation before I point out the clauses in the act that are so open to abuse.

The first is a young man who had settled in one of our new townships. Being early in, he had his choice of the land in quantity and quality; he took up two hundred acres, according to custom, in a certain township. He sold his right of one and got some money down, with a promise of the rest in yearly payments. This induced him to go in debt for certain articles he wanted; but it turned out that the purchaser was not able to fulfill his agreement, and as he had possession of the land, the seller was obliged to borrow what he had paid him, on it, and give it to him and resume possession of his land again. The Indian peninsula coming into the market at this time, together with low prices, and light crops, there was no demand for lands in the County of Bruce. Perhaps the exceedingly high prices holders had been asking previously had something to do with it as well as the opening up of new settlements in other parts. However, he was sued, and in the spring of 1858, after putting in some little crop, he left home to look for work, in order to earn something to pay off these debts; he travelled for three weeks, until he had spent the few dollars he took with him for his expenses, and then had to return and beg his way home. In due time the execution came, and as I happened to be in the house or shanty at the time the bailiff came, I shall never forget the scene the longest day of my life.

The defendant in the case (as the legal document said), was a strong powerful man, about 25 years of age. I never beheld a man in such agony, in trying to suppress his emotion, although the tears fell like rain. Creeping about the floor was a stout child about 3 years old, another about 18 months was lying in a little cradle, a death-like paleness overspread its face, its lips were shrunk and parched-looking, and its eyes deeply sunk in their sockets; the wife was in the bed in one corner of the room, after being confined the night before; what her feelings were on hearing the dreadful news God only knows, for me; I thought it would have been the cause of her death. And what, will you say, is the

cause of this emotion? One little cow, their only hope for existence, was seized under this execution, and was to be sold on this day. What made their grief more poignant, if possible, was that the wife had earned the cow before she was married. This cow, or properly speaking, the milk of her was all that these five individuals had to subsist on, together with about half as much bran and shorts, and a little flour, as would last from May until the new food came in. This man had between 30 and 40 acres cleared, and could have paid his debt with ease in two years, had it not been for the cruel machinery of the law. The cow was taken and sold for \$5, and this did not pay the bailiff's fees; she was worth \$20 at a fair valuation.

This case is sufficient to illustrate the working of the system of itself, but I shall give another.

A respectable tradesman, with about \$800 in money, thought he would try his luck in Canada. Having heard of one of those "splendid investments" that were everywhere to be seen on paper about four or five years ago, he made his way to this county, and then to this flourishing village, which bore the name of the one he left. He was very soon offered a splendid chance for his spare cash, which he unfortunately embraced, for before the end of two years the partners in the concern were no where to be found, and he was left to manage the whole concern, which consisted in paying what debts were contracted. The first, however, that he was pressed for was one of his own for a stove. When he was sued he started off to try to earn the money at his trade. He had paid one half, and was working away for the other, when the bailiff came and seized the stove, the only article he thought worth removing in the house. The poor woman, who happened to be one of that proud nation whose boast it is that every man's house is his castle, and not thinking that such an advantage would be taken of her in her husband's absence, was nearly paralyzed. She begged time until she could write to her husband, but the bailiff could grant her no more time than the execution allowed. The stove was duly advertised to be sold on a certain Monday in January, which turned out to be the coldest day in that cold winter, either before or after. The dreadful day arrived, so did the detested official, but neither letter nor money from her husband. The rest is soon told, but tell it not in the South-

em States, publish it not in Delhi, that the bread was taken out of the oven, and the fire thrown out of doors, the stove taken and sold for \$14, that cost \$40, with \$25 paid on it, which was the full value of the article, leaving a delicate woman with two helpless children, in a cold house, on the bleak and stormy shores of Lake Huron, on one of the most indelible days of mid-winter. For a short time she kept herself from freezing by burning a few chips in an old pot, and then her husband arrived, and procured the loan of a stove, as there would be no use in his buying one, for it would not be well set when it would be repaired by the same process. If these two cases are not a sufficient answer to those parties who are surprised at the emigration going westward, I am afraid they will be a long time in ignorance of the cause. Many have left already, and many more are waiting for the means to take them away.

I have no doubt many will say, "Can such things be in such a country as Canada, and in such a government as she possesses?"

Verily such is the case, and from the very reason that that same government knows nothing about the working of the Act. They take as much out of the fee fund as pays the judge's salary, and from that they think the country is no loser by the institution. The plaintiff's are the only parties that can throw any light on the subject, but they are too much interested; and although they do not like the working of it, they dare not complain, for if there is any change at all made for the benefit of the miserable debtor, they think it is so much to their injury.

But the poor hungry, naked, careworn, illiterate debtor can do nothing. The first thing would be to employ a lawyer, and that is entirely out of his power. A lawyer's fee could provide him with luxuries that his family has not enjoyed for many a day. And if he could get legal advice all the satisfaction he could have would be that it was law, and that he should submit.

Now and then an editor will come out with a complaint about it, when the shoe pinches himself, but after the pain ceases he troubles himself no further. Other leading papers seem to be rather jealous of the princely fortunes of clerks and bailiffs are making, but never make the slightest allusion to the poor wretches whose sweat and tears rot and rust the bills and coin that they are gloating over or

wasting in luxurious indolence that would shame the highest in the land to indulge in.

There is another class and it is well for the county that there is, who keep clear of both debt and credit, and of course they do not interfere; they neither fear the one nor feel for the other. But as the individual who has moral courage enough to commit his thoughts to paper without fear of receiving any punishment more than contempt, I shall here expose the different clauses in the Division Court Act that are most abused.

The County of Bruce was for many years with only one Division Court, when some parties were brought 60 miles to it, and I have known one bailiff make a return of 50 miles when the defendant did not live more than 20 from the office. It is true that had the complaint been made to the Judge he would not have allowed it, but it would have cost the person more than the difference to get redress, and this is the way thousands of dollars are taken from poor people by these officers.

By the Act 13 and 14 Victoria Cap. 53, Section 14th, "The fees upon every proceeding shall be paid in the first instance by the Plaintiff or Defendant, on or before such proceedings, and the Bailiff's fees upon Executions shall be paid to the Clerk of the Court at the time of the issue of the Execution, and not before."

If this rule were adhered to, it would save at least one half of the suing. Many sue for 50 cents when they can get it done without paying costs down; no one will pay \$4 or \$5 on a suit of such an amount, and be sure they would have to lie out of their money for three months at the least.

One case of this kind came under my notice. A poor man who had very little knowledge of the English language, and did not enjoy very good health, was sued by a blacksmith for 50 cents. There being many of the same name in the locality it happened to be served on the wrong person by the deputy bailiff. He swore he had served it on the right man and got judgment. By the time the execution was out he found out what he had been at, so he took the execution to the real debtor, and seized a heifer, put her up at a tavern, ran expenses to \$8 and sold her for it. Had this plaintiff been made to comply with the law that poor man would have been saved all the trouble and expense. So much for the small sums. Now for the large ones. A stove peddler sells about 200 in one divis-

ion, if one does not two or three peddlers will, and it is all the same in the end; the price is on an average \$40 each, with two years credit. He has over the half of these to sue for, which is one hundred suits of \$20 each. The costs upon each of these would be about \$3,50, which would be about \$350, which the peddler would be very slow to pay himself, when he would consider that there was a great number of the creditors not worth anything. But then these costs only get judgments; there is another \$3,50 wanting for executions. Now I want to know would any man of business pay seven hundred dollars out of his pocket when his chances of getting one dollar more back in six months was of the slenderest kind. But he need not put himself to any uneasiness about it, the clerk knows him, he is a good customer, and he takes them in with a mere trifle, there are no formalities wanted, all straightforward work, judgment in thirty days, &c, the whole bunch of executions made out at once and thrown to the bailiff. Now here is the most horrible part of the whole concern. A bailiff cannot make more than 15 sales in a month and do his utmost, and in a division where there are three townships a clerk could give a bailiff five executions that he could not satisfy in a month, if he seized property under them all. If he stop to take bonds it is tedious, if he drives away the stock it is expensive, and if it is hay or grain he cannot sell it unless some person buys it in for a mere trifle, and then it will be seized again by some other bailiff, and this leads to further litigation in the shape of interpleaders, which will raise the costs still higher, on the plaintiff first, and on the poor defendant at last. The executions must be renewed every month, which brings more grist to the clerk's mill. At the rate of fifteen a month it will take the bailiff seven months to get through a hundred, and by this time he will be considerably in debt, for executions do not pay at the best of times in this back country, where roads are not first rate. During his absence the clerk has it in his power to give the service of the summons to every understrapper he thinks proper, and the consequence is that the bailiff is ruined in one year, or two at the furthest.

In the meantime the peddler comes along expecting to get \$1000, but if he gets \$200 he may consider himself well off; this he is told is not all owing to him, but the clerk lets him have it to oblige him. Mr. Peddler is very

angry, certainly, but what can he do? He has broken the law, that is, the clerk has done so to oblige him, and now he is not satisfied. He has given the clerk orders to push every thing on as fast as he could, and the clerk has done so, but then he had no idea that it was going to cost so much, nor did he care, if the clerk would only wait and get it out of the defendants. But the latter takes all the fees out of the first money that comes in. If the plaintiff threatens to make a complaint the clerk asks him quietly what fees he paid before hand, and on what suits? This settles the matter, and the work of spoliation goes on until the court becomes as bad as any inquisition that ever was in existence.

Then there are a hundred other ways that the clerk can adopt to make money, by purchasing notes at half their value, and suing them in the maker's name, &c. They can buy judgments, and on all these multiply expense to a horrible degree, forcing them on the Bailiff faster than he can attend to them. There is no clause limiting the number of executions a Bailiff is obliged to satisfy in a given time, and yet it could be easily done if the Plaintiff's were compelled to have their suits in court one month before the last day of service, and no personal service required. Then a Bailiff could work his executions in with the services, or where the court is held every two months one month should be devoted to services and the other to executions; but heaven forbid that there should be any necessity for either, for it is the most cruel farce, and greatest mockery of justice that ever cursed a magnificent country with civilized inhabitants. \* \* \* \*

Every man that lands in Canada and intends to become a British subject should be allowed at least five acres of land, one cow, necessary clothing and furniture, and a year's provisions, which should be free from all debts, dues and demands. The idea of ruining a man first, and then expecting him to pay his debts afterwards is preposterous. A very little shift in the machinery of the law makes an honest man a rogue, but all the law that ever was enacted would not make a rogue honest. The demoralizing effects of making over property to children, and then the purjury that ensues in order to preserve the means of supporting life, is enough to condemn the system although there was no other cause.

Finally, all that I have to say is, that a

imagination picture, the miseries that the arising of the Division Court system has engendered on the unfortunate settlers in the County of Bruce.

In enumerating the tradesmen that are subjected to the annoyances of the Division Court, I forgot to mention some of the professional gentlemen, that don't get quite clear of it either, and these are the doctors. Now when one or two of these gentry happens come into these rising villages, which, thank providence, are not in much need of doctors, but for fashion sake. Broken limbs now and then, and ladies under certain circumstances which lead to the increase of the population, are the principal occasions for which their assistance is required. Gentlemen of this description when first setting out in life are not overburdened with cash, and if they have any they are very bad economists. Let their practice be what it will the pay is very uncertain, for where people in their health and strength are hard set enough to live, how can they do with those that have it not.

But these persons will get credit, not on their own responsibility, but because their patients are rich men, and won't see them go bankrupt, or their things sold, but sometimes all this is disappointed. I have seen every thing the doctor possessed exposed, even his wearing apparel, his anatomical maps or plates, and instruments of the most particular nature. A surgeon's instruments ought to be exempt from seizure, when there is only one in the profession in the county.

#### THE SCHOOL SYSTEM.

There is one thing lacking in the school system and how it could escape the notice of all authorities, from the framers of the Bill down to the humblest teacher, I don't know, that is proper accommodation for the teacher. To every school site there should be a house for the teacher, with at least a acre of ground, which should be furnished with plain necessary furniture, such as beds, chairs, tables, and cupboards. The ground should be cultivated after the most appropriate manner. After it was put in working it would be the most beautiful relaxation to the monotonous drudgery of teaching to be weeded and attend to it that a person enjoys. The produce of the ground would support the teacher and his family in the first year and in the next he could, would, and should teach the principles of agriculture.

Every teacher should be as well posted in agriculture, grain growing, green crops, as arithmetic, grammar, and geography. Every boy of fifteen years of age (and I am not certain if the same knowledge would injure the girl) should be able to describe every kind of grain in the country, every kind of manure requisite for the soil, every kind of grain, root and vegetable that is required for the use of mankind. The teacher could on his own grounds give practical demonstrations to the pupils, and they should be encouraged to produce these things in their gardens, and be allowed to exhibit them yearly at the school and receive small prizes. The expenses would be but little, and the benefit would be beyond all calculation.

The present system is little better than none at all. The teachers are young men that take to it in preference to agriculture, the rate-payers through motives of economy get third class male-teachers or females that are but ill qualified either to restrain or instruct the wild young boys that attend. A teacher boarding in a farmer's house can have no comfort in comparison to what he would have in his own, marry he dare not, for if he has a school this year he may not have one next. The whim or spleen of any vulgar churl that may be appointed trustee, on account of his opposition to high salaries, may work so much to his disadvantage that he will be obliged to leave, no matter how well qualified he is. Changing teachers so often is the most injurious practice in the institution. By providing a home of this kind for the teacher they could obtain a first class one for \$200 a year, of which he would not need more than would provide him clothing and a little flour. If a teacher is worthy of the office the longer he is in one place the better, not less than three years at any rate. But one thing is certain, if agriculture is not taught in our schools we shall never have it in general perfection on our farms.

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#### Miscellaneous.

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FORESTRY—INFLUENCE ON CLIMATE.—That a tree should ever need an advocate, is strange enough. It can assert priority of claim,—'the right of possession,'—it was here before the white man,—before the Indian even! It is about as handsome as any man, full as honest, and sometimes a good deal more useful. It is the most perfect specimen of architecture that human eyes ever looked upon. If a tree must be felled,

—if what no man could create, must yield its beautiful form, and its valued life to man's necessities, let the sacrifice be made with sorrow and regret,—let the woodman spare the tree if he can. I adduce valuable testimony to the importance of forests, as follows:

*Extract from the Report of the Secretary of the Bombay Geographical Society for 1850.*

It was early remarked by HUMBOLDT, that men in every climate, by felling the trees that cover the tops and sides of mountains, prepare at once two calamities for future generations—the want of fuel and a scarcity of water. Trees, by the nature of their perspiration, and the radiation from their leaves in a sky without clouds, surround themselves with an atmosphere constantly cold and misty. They affect the copiousness of springs, not, as was long believed, by a peculiar attraction for the vapors diffused through the air, but because, by sheltering the soil from the direct action of the sun, they diminish the evaporation of the water produced by rain.

When forests are destroyed with an imprudent precipitation, as they are everywhere in America, the springs entirely dry up or become less abundant. The beds of the rivers, remaining dry during a part of the year, are converted into torrents whenever great rains fall on the heights. The sward and the moss disappearing with the brushwood from the sides of the mountains, the waters falling in rain are no longer impeded in their course; and, instead of slowly augmenting the bed of the rivers by progressive filtration, they furrow, during heavy showers, the sides of the hills, bear down the loosened soil, and form those sudden inundations that devastate the country. Hence it results that the destruction of forests, the want of permanent springs, and the existence of torrents, are three phenomena closely connected together.

In India their effects are very appreciable. At Dapoolie the climate is much more hot and dry than formerly; streams now dry up in December which used to flow until April or May. This is attributed to the destruction of forests which formerly covered the neighboring hills, now barren and desolate. In southern Coucan, within the space of fifteen years, the climate has been greatly deteriorated by the diminution of vegetation, and consequently of rain. The people of Pinang have memorialized government against the destruction of their forests, feeling sure that the result, by its continuance, will be the ruin of their climate. The dreadful drouths which now so frequently visit the Cape de Verd Islands are avowedly due to the removal of their forests; and in the high lands of Greece, where trees have been cut down, springs have disappeared. In India, a few years since, a proprietor, in laying down some grounds, well watered by an excellent spring, for a coffee garden, at Genmore, despite the advice of the natives, cleared the adjacent ground, when the supply of water vanished. Cases are also cited,

where the clearing of jungles was followed in every case by an almost immediate diminution of water; when the jungle was allowed to grow again, the water returned; the springs were opened, and flowed as formerly. The St. Helena Almanac for 1848, gives particulars of the increase of the fall of rain for the last few years attributable to the increase of wood; within the present century the fall has nearly doubled. The plantations seem to have performed another service to the island. Formerly, heavy floods, caused by sudden torrents of rain, were almost periodic and frequently very destructive; for the last six years they have been unknown.

JOCHIM FREDERIC SCHOUW, Professor of Botany at Copenhagen, speaks as follows of the influence of forests upon atmosphere:—"We find the most evident signs of it in the torrid zone. The forests increase the rain and moisture, and produce springs and running streams. Tracts destitute of woods become very strongly heated, the air above then ascends perpendicularly, and thus prevents the clouds from sinking, and the constant winds (trade winds or monsoons) which can blow uninterruptedly over large surfaces, not allow the transition of vapors into the form of drops. In the forests, on the contrary, the clothed soil does not become so heated, and, besides, the evaporation from the trees favors cooling; therefore when the currents of air laden with vapor reach the forests, they meet with that which condenses them and changes them into rain. Since, moreover, the evaporation of earth goes on more slowly beneath the trees, since these also evaporate very copiously in a climate, the atmosphere in these forests is a high degree of humidity, this great humidity, the same time producing many springs and streams."

Testimony of this kind could be accumulated and I hope that the reading public will give matter serious thought.—H. T. B.—*Rural Yorker*.

GREAT DESTRUCTION OF SHEEP BY A BEAR  
The Ottawa Citizen is responsible for the following:—

For a few years back a bear has infested farms in the 5th Concession South March, City of Carleton, and has destroyed much stock, calves, sheep and pigs. This spring he has been very destructive, killing and injuring on farms convenient to each other, 35 sheep, a large hog. On the night of the 2nd of May visited the farm of Mr. Wm. McLaughlan tore open a strong stable door where Mr. McLaughlan had his sheep and a span of horses enclosed for safety; he injured five of the sheep badly and carried off one. The next day Mr. McLaughlan was in the bush where the bear had left the sheep he had carried off. In a few days afterwards a report of a gun was heard, and

men started off in pursuit of bruin with axes. They soon come in view of his bearship, who showed not the least sign of fear, and proved to be an enormous large male, weighing nearly 400 lbs. After a little time the bear started off at a brisk pace, and an animated chase ensued, which lasted an hour and a half, when suddenly in a very quick part of the bush, he stood at bay, with every demonstration of anger. The men now closed upon him, when one of them very skillfully gave him a heavy blow of an axe on the head, which so stunned him that he was easily despatched. The inhabitants are quite rejoiced at his being killed. Great credit is due to Mr. McLaughlin for his bold and well directed efforts to destroy such wild and crafty marauders, which are at once the shame and terror of the settler, and year after year impoverishes him.

**SAFETY CLOTHING.**—Personal safety from burning is a question of serious import at all times, but more so at this particular season of the year. During the cold weather, when grates and other heating apparatuses are used in almost every house, and when artificial light is more extensively required for illumination, a greater number of accidents occur from clothes taking fire than in any other equal period of the year. As we may always expect, because the dangers are more numerous; but to the common causes of deaths from burnings, the sad list of victims has been greatly extended by the fashions in vogue which have become prevalent among women. Ladies' dresses are now so extended in their proportions, and being oftentimes of the most inflammable materials, it is no wonder we frequently read of families being thrown to the deepest grief by some of their most valuable members having perished from their dresses becoming their funeral pyres. Such casualties shock the feelings more than any others, because we all know that the pains arising from burning are of the most excruciating character. How frequent have such accidents become during the past two years, that some of the highest efforts of science have been brought into requisition for their prevention. The moral argument against the causes of exposure by unsuitable dresses has been ineffectual; fashion hold its sway in spite of all remonstrances and so many valuable lessons, and all that science can do in this case is to guide it to the most humane and successful results. This has been achieved by chemistry in the preparation of chemicals to be combined with the combustible fabrics of which dresses are made, whereby they are rendered non-inflammable. In Great Britain, these chemicals are now used in several large bleach-works, where they are combined with the pieces of goods in the finishing operations. They are employed very extensively in large laundries and households, and they commend themselves to public attention everywhere. The best substance recommended for common use in render-

ing textile fabrics non-inflammable, are tungstate of soda and the sulphate of ammonia, which are now manufactured on a large scale for such purposes by a company in London, which has obtained two patents for the processes. In a late number of the *Chemical News*, Messrs. Briggs & Co. describe the mode of using these salts to the best advantage. Articles requiring to be ironed, after being washed, starched and allowed to dry in the open air, are soaked in a solution of the tungstate, then rolled in a sheet of dry linen, and ironed after in the ordinary way. The tungstate may be mixed with the starch, but this is not such a good method as the other. Articles which do not require to be ironed are treated with a solution of the sulphate of ammonia in the same manner as the tungstate of soda. Muslin so prepared does not present any peculiar appearance, and when exposed to fire it does not suddenly burst into flames; it merely singes away till it crumbles into ashes. Woolen and silk fabrics are not sufficiently inflammable to be dangerous, but all linen and cotton clothing, curtains for windows, sheets and various other articles, would be rendered more safe by such treatment, without injury to their texture or color. The treatment of children's clothes by these substances is especially solicited, because so many accidents from burning take place to the "little ones at home."

We should not wish to be understood as asserting that the two substances described are the only ones for rendering such fabrics non-inflammable, as there are several other articles which possess this property; but according to F. Versmann and A. Oppenheim, London Chemists, who have made a host of experiments with various chemicals, the tungstate of soda and the sulphate of ammonia give the best results.—The stannate of soda appears to be equally as good a non-inflammable agent, but it is liable to impart a yellow tinge to white muslins; still, for children's cotton dresses, we can recommend its very general use. About one part of these salts dissolved in ten parts of water is about the proper strength to employ, and one gallon of this is sufficient for impregnating seven or eight ladies muslin dresses. Being very easy of application, all families should avail themselves of these substances for rendering life more safe from the dangers of fire.

We use, in our nursery, a brass wire grating, somewhat in the form of a blower, to hang in front of the grate. This is compact, convenient, and effectual; it not only protects the dresses of the children and nurse from contact with the fire, but it is quite a safeguard to the carpet from coals rolling out of the grate.—*Scientific American*.

**DURABILITY OF CHESNUT SHINGLES.**—In June 1834, I assisted the owner in shingling the east roof of a barn, 50 feet long and about 40 feet wide, with sawed chesnut shingles, and that roof

is still good, and with a little patching will last several years longer. The roof of a woodhouse, which I helped to shingle with split and shaved chestnut shingles in 1830, bide fair, the last time I saw it, to last till 1875. The roof is very steep, and the shingles on an average were quite narrow. They were well laid, four and a half inches to the weather and two nails in a shingle. Some object to this, and say, but one nail should be driven into chestnut shingles, owing to their shrinking and expanding so much under the influence of the sun and rain.—*Boston Cultivator*.

**LOVE OF THE BEAUTIFUL.**—There are many persons in this world who would scout the idea that there is any necessity or any use for people who are not rich, to make any provision for their ideal life,—for their taste for the beautiful. We can picture to ourselves utilitarian old hunks, sharp-nosed, shrivelled-faced, with contracted brow, narrow intellect, and no feeling or taste at all, who would be ready (so far as he was able) to ridicule our assertion, that it is desirable and possible to provide something to gratify taste and to elevate and refine feeling, in the aspect and arrangement of even the humblest human dwellings.—*Fraser's Magazine*.

**THE PREDOMINANCE OF WATER IN THE COMPOSITION OF VEGETABLES AND ANIMALS.**—Potatoes contain 75 per cent. of water (by weight,) and turnips no less than 90 per cent. which explains, by the way, the small inclination of turnip-fed cattle and sheep for drink. A beef steak, strongly pressed between blotting-paper, yields nearly four-fifths of its weight of water. Of the human frame (bones included) only about one-fourth is solid matter (chiefly carbon and nitrogen), the rest is water. If a man weighing ten stone were squeezed flat under a hydraulic press, seven and a half stone would run out, and only two and a half stone of dry residua would remain. A man is therefore, chemically speaking, forty-five pounds of carbon and nitrogen diffused through five and a half paillfuls of water. Berzelius, indeed, in recording the fact, justly remarks, that "the living organism is to be regarded as a mass diffused in water," and Dalton, by a series of experiments tried on his own person, found that of food with which we daily repair this water-built fabric, five-sixths are also water. Thus amply does science confirm the popular saying, that water is the "first necessary of life."—*Quarterly Review*.

**THE PLACE FOR SUMMER ENJOYMENT.**—It is pleasanter to spend the summer days in an inland country place, than by the seaside. The sea is too glaring in sunshiny weather; the prospects are too extensive. It wearies eyes worn by much writing and reading to look at distant hills across the water. The true locality in which to enjoy the summer time is a richly wooded-country, where you have hedges and hedge-rows, and clumps of trees everywhere: where objects for the

most part are near you; and, above all, are green. It is pleasant to live in a district where the roads are not great broad high-ways, in whose centre you feel as if you were condemned to traverse a strip of arid desert stretching through the landscape, and where any carriage short of a four-in-hand looks so insignificantly small. Give me country lanes: so narrow that their glare does not pain the eye upon even the sunniest day; so narrow that the without an effort takes in the green hedges and fields on either side as you drive or walk along.—*Fraser's Magazine*.

**THE CURATIVE EFFECTS OF GRAPES.**—Dr. Herpin, of Metz, has published a very interesting account of the curative effects of grapes, in various disorders of the body. They act, firstly, by introducing large quantities of fluids into the system, which, passing through the blood, carry off by perspiration and other excretions, the effluvia and injurious materials of the body; secondly, as a vegetable nutritive agent. Employed rationally and methodically, aided by suitable diet and regimen, the grape produces most important changes in the system, in favoring organic transmutations, in contributing healthy materials to the repair and re-construction of the various tissues and in determining the removal of vitiated matters which have become useless and injurious to the system. Directed by a skillful physician this valuable curative agent can be made to produce the most varied effects on the constitution. It also possesses the advantage of being acceptable to most invalids. The treatment lasts for three to six weeks. The quantity of grapes that may be consumed varies from one to four pounds a day, commencing with small quantities, which are gradually increased. The skins and seeds must not be swallowed. In the absence of grapes, the most beneficial effects may be obtained from dried raisins, provided a quantity of water, sufficient to satisfy the thirst they excite, be taken the same time; or they may be stewed in the same manner as prunes.

**THE CHAMELEON.**—An officer in Africa writes of the habits of this animal:—"As soon as the habits of the chameleon may not be generally known, I will mention a few which came under my observation. One morning, I saw close to tent, a very large chameleon, hanging on a bush. I immediately secured him, and provided a cage for him. In the course of a few days he became quite familiar, and having seen them before, I knew how to gain his affections, which, in first place, was done by feeding him well, and the next place by scratching his back with my finger. I used to put him on my table at breakfast, and in the course of a very few minutes have seen him devour at least fifty flies, caterpillars, and beetles in the most dexterous manner, with his slimy tongue; nor does he ever move from his position, but so sure as an unfortunate fly comes in reach, so sure he is caught, and with the facility of thought. In the forenoon I always

in a large slice of bread, which he devoured. He generally supped on as many flies as he could manage to entrap, setting at defiance the able Hamlet's theory of the chameleon's death. Promises would not have suited him at all, being the end of each day considerably more like a named capon than an air-fed chameleon. It is not true that this animal will change color according to what he is put on; but he will change shade according as he is pleased or displeased. His general hue is a bright green, with all gold snots over his body; he remains at this shade when he is highly pleased, by being in season, or being fed, or scratched, which he detests in. When angry—and he is easily made—his hue changes to a dusky green, almost black, and the gold spots are not to be seen; but never could perceive any other color on his body but green in a variety of shades. The spots change very much when he is in good humor—such, indeed, as to give a yellow tinge to the front part of the animal, but in general they remain little yellow spots here and there, on the sides.

THE WORLD'S INHABITANTS. — M. Dietrich, Director of the Office of Statistics at Berlin, has published in the annals of the Academy of that the results of his researches relative to the population of the globe. In addition to the calculation of the total number of inhabitants, he puts down at upwards of 1,288,000,000, Dietrich estimates the number of the different races as follows:—The Caucasian, 369,000,000; the Mongel 552,000,000; Ethiopian (negro), 196,000,000; the American (Indians), 1,000,000; the Malays, 200,000,000. The leading religions he divides as follows:—Christianity 2,335,000,000 adherents; Judaism, 5,000,000; the Asiatic religions, 600,000,000; Mahomedanism, 160,000,000; and Polytheism, 200,000,000. Of the Christian populations, 170,000,000 go to the Roman Catholic Church; 80,000,000 to Protestantism; and 76,000,000 to the Church.

BEST AS A FIXER OF AMMONIA.—Sawdust of the very best absorbants for liquid matter. Mixed with dilute sulphuric acid, it is the best material for fixing the ammonia given off in stables. The following experiments have been put on record: A shallow tub in which sawdust moistened with dilute sulphuric acid was spread, was hung up in a stable, and in the course of three weeks all the ammonia in the air of the stable, and a considerable quantity of sulphate of ammonia was fixed in this manner. For this reason, sawdust mixed with sulphuric acid is recommended as a means of keeping stables sweet and wholesome. The acid should be diluted with forty parts of its bulk of water, before it is applied to the sawdust. Just enough should be applied to the sawdust feel damp. On account of

its porosity, sawdust retains the acid very perfectly, and presents a large surface for the absorption of the ammonia.

IS CONSUMPTION CONTAGIOUS?—It is most probable that consumption is not of itself communicable, that it cannot beget consumption in one who has vigorous health and is perfectly free from all taint of the disease. But if any person who has not a vigorous constitution, whether inclined to consumption or not, lives eats and sleeps with a consumptive, as man and wife do, as a sister is apt to do with a consumptive sister, or a mother with consumptive children, such a person will very generally die of consumption themselves, not from its communicability *per se*, but from the foulness of the atmosphere about a consumptive, from warm rooms, decaying lungs, large excretions, sickening night sweats, and bodily emanations; but the same amount of exposure to air made foul in other ways, would light up the fires of consumption in one of feeble vitality or broken constitution.

It is necessary, therefore, that the nurse of the consumptive should possess the most vigorous health, and to make assurance from infection doubly sure, the most scrupulous cleanliness possible should be observed and carried out in every conceivable direction, extended to every minutia, maintained with the most inveterate constancy through every hour of the twenty-four, not allowing any excretion, even a single expectoration, to remain about the person, bed or room, for one instant. An incessant ventilation should be going on in the chamber, the best method for which under most circumstances, is simply to keep a fire on the hearth and an inner door open; even in mid-summer, this is better for the patient as well as for the nurse, than a room kept closed all the time from an almost insane dread of taking cold.

ORIGIN OF THE POST OFFICE.—The original establishment of the Post-office in England is buried in obscurity. It is certain that a species of post—though of what nature cannot be ascertained—was in existence as early as the reign of Edward III. The earliest mention of a chief postmaster for England is in Camden's *Annals*, under the date of 1581; but what his office was, or how it was managed, does not appear clearly; and probably, from the limited state of the correspondence of the country, it was of trifling consequence. James I. erected the first post-office for the conveyance of letters to and from foreign parts, which he placed under the control of Mathew de Quester or de L'Equester. This office was afterwards claimed by Lord Stanhope, but in 1632 was confirmed and continued to William Frizel and Thomas Witherings by King Charles I. It would appear that, previous to this time, private persons were accustomed to convey letters to and from foreign parts, but all such interference with the postmaster's office was expressly prohibited, and in 1635 all private inland spots were forbidden.—*City Press*.



## AYRSHIRE BULL FOR SALE.

**M**R. Denison, of Dover Court, offers for Sale a thorough bred Ayrshire Bull, bred by the celebrated Ayrshire breeder, John Dodd, Esq., of Montreal. The bull is 3 years old, and can be delivered at or after the Show at London, in September.

Toronto, Aug., 1861.

## FOR SALE.

**A** LOT of thorough bred improved Berkshire Pigs of various ages.

R. L. DENISON,  
Dover Court.

Toronto, Aug, 1861.

## TO LANDED PROPRIETORS

**A**N experienced English Agriculturist, for several years practically acquainted with the Canadian Farming, wishes to undertake the management of a Farm, either on shares, or as Bailiff to the owner.

Satisfactory references and testimonials given by addressing AGRICULTURIST, Post Office Paris, C. W.

Paris, C. W. June, 1861 3t.

## BOARD OF AGRICULTURE.

**T**HE Office of the Board of Agriculture is at the corner of Simcoe and King streets, Toronto, adjoining the Government House. Agriculturists and any others who may be so disposed are invited to call and examine the Library, &c., when convenient.

HUGH C. THOMSON,  
Toronto, 1861. Secretary.

## FOR SALE.

**A** PURE bred young short horn Bull; Sire and Dam imported in 1857, and both took First Prizes at the Provincial Show in Brantford the same year.

Address, R. R. Bown, Brantford.

N. B. Full blooded cow stock taken in exchange, if desired.

Brantford, April 8th, 1861. 4-t

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